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LIST OF ILLUSTRATIONS TO VOLUME CIX

	PAGE.		PAGE.
Ambulance, flying. Three Illustrations....	244-245	Jacobi, Abraham, M. D. Portrait.....	73
Apparatus for inhalation. One illustration..	769	Joint hypotonia. Seven Illustrations.....	638
Atlantic City, photographs of, taken from an aeroplane. Three Illustrations..	1038, 1092, 1104	Knee joint, gunshot wounds of. Thirteen Illustrations	64-67
Bacillus of Spanish Influenza. Three Illus- trations	712-713	Labor, two commonest sequelæ of and the two most frequent diseases of women. Twenty-seven Illustrations	705-708
Beach, William M., M. D. Portrait.....	1053	Lambert, Alexander, M. D. Portrait.....	1039
Bevan, Arthur Dean, M. D. Portrait.....	1040	Laryngeal stenosis. Seven Illustrations...	142-149
Biering, Walter L., M. D. Portrait.....	1051	Letterman General Hospital. Five Illus- trations	242-244
Black, Arthur D., M. D. Portrait.....	1095	McLester, J. S., M. D. Portrait.....	1051
Bone surgery equipment. Six Illustrations.	370-372	Medical, surgical, and sanitary aspects of Newport News, Va., Port of Embarka- tion. Eight Illustrations.....	813-816
Bone transplantation for saddle back nose. Four Illustrations	899-901	Military surgery at Belgian front. Six Illus- trations	639-642
Borderline gastric disease. Five charts....	103-107	Misleading certificates for clinical thermom- eters. Four Illustrations	860-861
Bottomley, John T., M. D. Portrait.....	1041	Moore, Josiah J., M. D. Portrait.....	1047
Braasch, W. F., M. D. Portrait.....	1044	Parasites, protozoon, pathogenicity of. Nine Illustrations	235-239
Braisted, William C., M. D. Portrait.....	1040	Perodactylism, syndactylism, and cleft ex- tremities. Three Illustrations.....	154-155
Cavell, Edith. Portrait.....	906	Physiotherapy in treatment of osteomata. Three Illustrations	709-710
Chamberlin, William B., M. D. Portrait....	1097	Pictures, moving, in the teaching of surgery. Three Illustrations	229-230
Church, Archibald, M. D. Portrait.....	1048	Pneumonia in influenza. Six Illustrations..	406-409
Cranio cerebral röntgenogram meter. Two Il- lustrations	677	Pneumothorax in pulmonary tuberculosis. Eighteen Illustrations	535-715
Dean, Lee Wallace, M. D. Portrait.....	1097	Poole, Eugene H., M. D. Portrait.....	1041
Dermatoses, linear. Ten Illustrations....	367-370	Posture, good. Six Illustrations.....	9-12
Drake, C. St. Clair, M. D. Portrait.....	1045	Renal infections associated with pregnancy. Six Illustrations	1080-1083
Eggleston, Cary, M. D. Portrait.....	1045	Sarcoma in an infant. One Illustration....	584
Empyema, abscess, and gangrene of lung fol- lowing influenza. Eight Illustrations..	150-152	Smith, E. O., M. D. Portrait.....	1044
Epidemic central or basilar encephalitis. Two Illustrations	895-896	Soper, Horace W., M. D. Portrait.....	1053
Feet, flat and weak. One Illustration.....	140	Sutures, secondary, in wounds. Seven Illus- trations	142-145
Foot, normal and pathological. Two Illus- trations	227	Syphilis of the stomach. Three Illustrations.	807-808
Foerster, Otto H., M. D. Portrait.....	1043	Talbot, E. S., M. D. Portrait.....	1095
Foreign delegates to Atlantic City Conven- tion. One Illustration.....	1054	Thomas, Henry B., M. D. Portrait.....	1101
Fracture and dislocation of dorsal spine. Five Illustrations	1029-1031	Tonsillectomy versus helioelectric methods. Three Illustrations	13-16
Geier, Otto P., M. D. Portrait.....	1043	Tuberculous soldiers, discharged. Ten Illus- trations	444-448
Geist, Emil S., M. D. Portrait.....	1100	Urethra, direct visual method in treatment of filiform strictures of. Six Illustrations.	798-800
Gengenbach, Frank P., M. D. Portrait.....	1049	Watkins, Thomas J., M. D. Portrait.....	1093
Gonorrhea, chronic. Thirteen Illustrations.	617-622	Wood, Francis Carter, M. D. Portrait.....	1047
Gorgas, Major General William C., made a member of the Legion of Honor. One Il- lustration	379	X ray diagnosis of cholecystitis. Four Il- lustrations	241-242
Harvey, Thomas, M. D. Portrait.....	1103	X ray photograph of foreign body in bron- chus. One Illustration	373
Hay fever: its cause, prevention and treat- ment. Eight Illustrations.....	794-797	X ray study of influenza pneumonia. Nine Illustrations	584-588
Hernia, strangulated inguinal, in infants. Five Illustrations	233-234		
Hospital trains, army. Five Illustrations..	595-597		
Hypodermic syringe. Two Illustrations....	991		
Imbecility with absence of sella turcica. Two Illustrations	156-157		
Influenza epidemic at U. S. Army Hospital No. 17. Four charts.....	135-137		
Intestinal ptosis. Ten Illustrations.....	1-8		

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14
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Original Communications

THE SURGICAL TREATMENT OF INTESTINAL PTOSIS.*

BY J. RIDDLE GOFFE, M. D., F. A. C. S.,
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It has been pertinently said that in the evolution of man from a quadruped to a biped Nature has not always accomplished all we require in assuming the upright posture. This applies particularly to the supports of the organs in the abdominal and pelvic cavities—especially the large intestines, the kidney, and the pelvic organs in woman. In quadrupeds the large intestines hang by long mesenteric attachments and swing freely in the abdominal cavity maintaining their relative positions through the horizontal posture of the animal's body. What the condition is in the transition stage as represented by the anthropoid ape I have been unable to learn. In the human, however, we find the ligaments insufficient to maintain the organs securely in their prescribed positions in a large proportion of cases, and the individual suffers from inefficiency in the proper performance of their normal functions. In a certain proportion of these the support is insufficient *ab initio*—the congenital class. In others, the ligaments, while possibly sufficient for support in early life are not able to withstand the excessive strain put upon them by the wear and tear of life which diminishes intraabdominal pressure through relaxation of the abdominal walls, the absorption of fat, and the loss of perineal support due to laceration—the acquired class. Undoubtedly the latter are the more amenable to treatment, especially surgical treatment, for originally the supports were efficient and afforded a foundation upon which to build. In the congenital class the particular condition of ptosis is associated, as a rule, with such general structural malformations that, while the organs immediately under consideration may be permanently restored to normal position and function and the patient thereby benefited, general health is not necessarily secured. But in cases of multiple congenital defects even in all degrees of severity, the relief of ptosis and its attendant toxemia frequently is sufficient to start the patient in a new career of physical wellbeing.

The baneful effects of stasis and its attendant toxemia seem to be unlimited. Careful observers

are daily discovering now in this organ or function, now in that, that the bacilli and toxins occasioned by intestinal stasis are the primal cause of trouble. The orthopedists of our country have investigated this subject thoroughly and are pretty well agreed that arthritis deformans is the result of infection through the intestinal tract, and orthopedists are doing ileocolostomy and colectomy with marked effect in many cases of general arthritis deformans. Dr. D. Silver (1), of Pittsburgh, says: "It seems to have been demonstrated that the active agent in arthritis deformans may enter through the intestinal tract. This active agent is undoubtedly bacterial and the intestinal mucosa is thus to be regarded as one of a number of mucous surfaces through which infection may enter the system. Through the production of stasis and probably through its influence on glandular secretion visceroptosis acts to cause increased intestinal infection and so favors systemic invasion; thus in an individual with lessened joint resistance it may be the deciding factor in the development of arthritis." Mutch announces: "The most clearly proved instance of such a secondary infection spreading from the ileum to the nerves and distant tissues is the chronic multiple arthritis known as Still's disease." And Adami, under the title of Subinfection, describes a process in which the invading bacteria from the intestines may exhaust the resistance of the tissues, whereupon chronic or acute infection may supervene. Goldthwait in the Shattuck Lecture, 1915, states, that the position of the spleen may induce the profound anemias, a kink in the bowel may cause an eye infection, or a glycosuria by mechanical pressure upon the pancreas; epilepsy may be the result of enteroptosis. Sir Berkeley Moynihan says: (2) "I have cured a few cases of rheumatoid arthritis by draining the gallbladder. Of the occurrence of a few equal improvements after colectomy I am fully cognizant—but many have shown little or no permanent improvement." Dr. Charles A. L. Reed, of Cincinnati, seems to be conclusively demonstrating by the cures he is achieving through his operations for the relief of stasis, due to enteroptosis, that epilepsy is caused by the absorption of toxins from the intestinal tract. Reed adapts the operation to the apparent demands of the case in hand. In some, a simple fixation of the intestines seems indicated; in others, an ileosigmoidostomy, and in extreme cases the

*Read before the Medical Society of the County of New York, October 28, 1918.

radical removal of the entire colon. In cases where a simple operation has failed to give results, the extreme procedure has proved successful in establishing a cure.

Dr. H. A. Cotton, medical director, New Jersey State Hospital for the Insane, Trenton, says that he

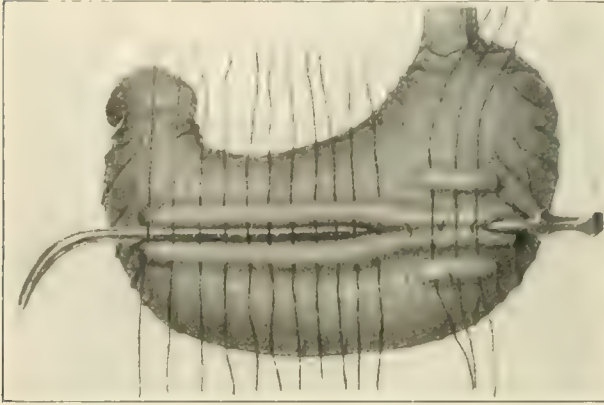


FIG. 1.—Plication of stomach: stomach wall depressed by sound, first line of sutures in place, three tied; three of second line in place.

is ready after eleven years of experimentation to declare that infected teeth, diseased tonsils, and infections of the gastrointestinal tract are some of the causes of acute psychosis and even chronic insanity.

Not all the patients who present themselves for treatment are afflicted with the definite diseases mentioned above. But a frank confession by a general practitioner or internist, I am convinced, would reveal the fact that the majority of his patients are suffering from some form of infection due to constipation or intestinal stasis. His prime business is to keep the alvine current moving, and to destroy the toxic forming bacilli of the intestinal canal.

The tonsils have long been recognized as foci of infection, expressing itself in manifold symptoms resisting all efforts at relief till the foci have been removed. The pus pockets at the roots of decayed teeth are now being looked upon with suspicion as the underlying cause of deafness, headaches, rheumatism and the manifold ills of life. Is it any wonder then that the intestinal tract, with its swarming species of flora and fauna, is found so frequently to be the *fons et origo* of the patient's ills? An extreme enteroptosis when it has reached the stage of redundancy, persistent dilatation, angulations, kinks and adhesions, by the stasis thus produced, affords the most perfect culture tube for the multiplication of bacilli and the manufacture of toxins. These are the cases that require surgical interference to effect a cure—either by stitching up the intestines, by an ileosigmoidostomy, or by complete colectomy. Not only must the intestines be secured in position, but the normal intraabdominal pressure reestablished by diminishing, if necessary, the capacity of the abdomen when injured, or relaxed, and restoring perineal supports. The kidney, too, when displaced must be reimplanted to avoid drag upon the flexures of the colon.

The cardinal principle of surgery in the treat-

ment of any infected tissue or organ is drainage, drainage to the limit; the more thorough and complete the more prompt and complete the recovery. As a corollary to this I have always added in my teaching: Restore the normal blood supply as fully as possible and make that blood as rich and nutritious as conditions of digestion and other circumstances will permit. The most frequent application of this principle, in my practice, has been in the treatment of infected, subinvolved, retroverted uteri, by that common, but much abused, procedure known as dilatation and curettage. First, forcible dilatation of the sphincter muscles of the cervix to the degree of temporary paralysis so that the os, both external and internal, may remain patulous for weeks, then without curettage except for retained placenta or diagnostic purposes the cavity of the uterus is lightly packed with moist gauze, leaving the end protruding well into the vagina. To keep the gauze moist and facilitate drainage, daily vaginal douches are given. To restore and improve its circulation and direct the intraabdominal pressure the uterus is then lifted into normal position and maintained there by the shortening of its ligaments. Its drainage is also thereby facilitated. The nutritive quality of the blood likewise receives due attention. The ptosed, congested, obstructed, kinked and infected colon demands the same principles of treatment, viz.: drainage, restoration of normal circulation, improved nutritive quality of the blood and restoration of intraabdominal pressure. This can be promptly, efficiently, and perma-

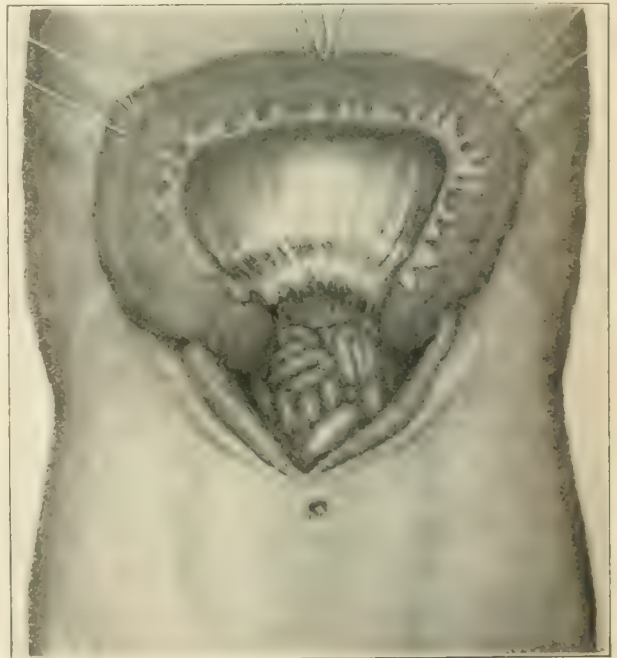


FIG. 2. The sutures passed through the band of the colon.

nently accomplished by surgery and, in extreme cases, by no other means. This inference is justified in the results shown in the histories of my cases. Most of the patients had been treated by general practitioners and internists for years without relief: at least without sufficient relief to enable

them to continue their normal activities of life with any degree of efficiency or comfort.

The tests to apply to any operation are: 1, Does the operation meet the indications, relieve the condition, and cure the patient? 2, Is it safe? i. e., does it involve risks out of proportion to the ex-



FIG. 3.—The colon has been returned to the abdominal cavity; The Peaslee needle threaded with one end of first suture ready for passage through the abdominal wall.

pected or actual benefits? The results, as exemplified in the reports of my cases, if examined with an open mind and discrimination, I believe, will not only justify but commend the operation.

In the cases presented here in detail, in the majority of instances there was prompt recovery from constipation and improved nutrition, and restoration of the patients to their respective occupations and accustomed duties.

My first experience was gained in 1889 in the case of a young woman, twenty-five years of age, an expert stenographer and typewriter, a nervous dyspeptic and a neurasthenic wreck. She had a ptosed and dilated stomach. After treating her medicinally and washing out her stomach, morning after morning before breakfast, for weeks and months without improvement, she announced to me one day that she was tired of treatment and ready for the operation I had discussed with her some weeks previously. Accordingly, she entered the Polyclinic Hospital and was made ready for the operation. Through a free incision above the umbilicus I plicated the anterior wall of the stomach with a row of sutures, parallel to the long axis. Just above this line two sutures were passed perpendicularly to it through the peritoneal and muscular wall of the stomach. Both ends of each suture were then carried up through the peritoneum and fascia of the abdominal wall, not through the skin, and made to appear each on its own side in the upper angle of the abdominal wound. After the closure of the peritoneum the two ends were tied, cut short and

buried in the closure of the abdominal incision. On putting her to bed the foot of the bed was elevated by putting a chair under it, thus securing what is now familiarly known as the Trendelenburg posture. This was maintained for two weeks, when the bed was gradually lowered to normal at the end of three weeks, the patient leaving the hospital at the end of the fourth week. Perfect success attended the procedure. The patient gained flesh and nerve power, returned to her work in three months and continued it while under my occasional observation for several years.

From this experience I gradually evolved the method I now employ, as follows:¹

A longitudinal or transverse section is made below the umbilicus. Through this adhesions are severed, the organs set free, the appendix removed, the caput, if overdistended, plicated; the uterus, which is frequently found displaced, restored to normal position and supported there, and if necessary, the appendages dealt with as indicated. The incision is closed, with lapping of fascia to diminish the capacity of the abdomen when necessary. A longitudinal incision is then made above the umbilicus through which the upper abdominal cavity is thoroughly explored, with the hand noting the condition of the liver, its ligaments, the gallbladder and ducts especially. All pathological conditions discovered are dealt with according to indications, new incisions being made or the original one enlarged if necessary.

The stomach is then delivered through the wound,

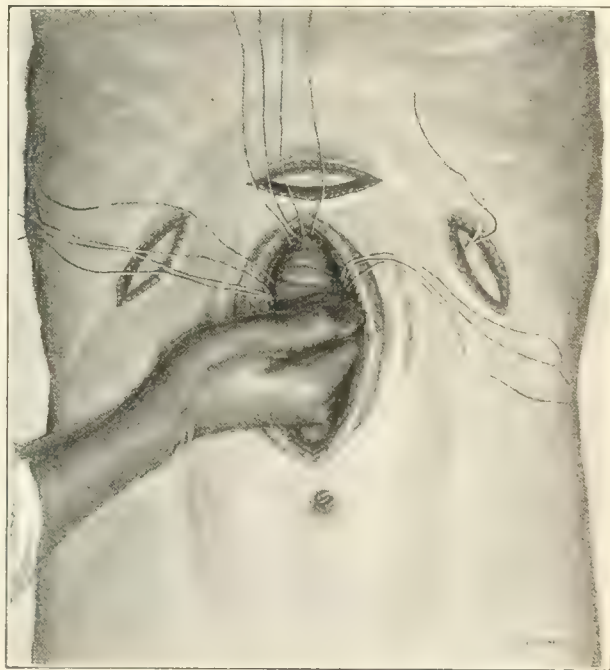


FIG. 4.—Point of needle appearing with first suture in abdominal wound at site of splenic flexure. It is unthreaded, needle withdrawn, and same process repeated with remaining sutures in their respective sites.

inspected and palpated for ulcers and pyloric irregularities. If dilated the anterior wall is depressed with a sound along the middle line, and over this the stomach wall is plicated in a double row of

¹This description embraces the complete operation, in which both stomach and colon are involved in extreme ptosis with adhesions.

linen sutures. In a line just above or below this and midway between the extremities of the stomach two, three, or more linen sutures are threaded along in the stomach wall, including the peritoneal and muscular coats, each one being buried for one half or three fourths of an inch, the two ends left long



FIG. 5. Case XVII. Ptosis of hepatic flexure, ascending and transverse colon with obstruction angulation.

and protruding from the wound, they are wrapped in sterile gauze. The transverse colon is now delivered through the wound; the omentum is ligated along the border of the gut and cut away. The hepatic flexure is picked up and two sustaining linen thread sutures are threaded along in its walls similar to those in the stomach, left long and protruding through the wound and protected by sterile gauze. Next the splenic flexure is exposed and treated similarly, and finally the transverse colon at its middle section. These sutures are all passed either just below the attachment of the mesocolon or in the broad band of the colon. The latter is firm and holds well, and is to be preferred when the colon wall is distended and thin. Three incisions, two and one half inches long, are made through the skin down to the deep fascia, one parallel to the border of the ribs over the seat of the splenic flexure, another corresponding to this over the hepatic flexure at a slightly lower level, and a third, a transverse incision at the midline over the stomach. The long sutures are threaded singly into a Peasley needle, passed successively through the abdominal wound and brought out in the bottom of the skin incision previously described. First, the stomach sutures are passed, emerging in the midline incision, the stomach restored to normal position, the sutures drawn taut, tied, and cut short. The three pairs of sutures in the colon are successively passed in the

same way, each pair in the three designated loci of the colon being directed to the incision in corresponding locations. All the sutures are drawn taut to straighten out the intestine and make intimate connection between the intestines and the parietal peritoneum and then tied externally to the fascia in the bottom of the incision and cut short. The three incisions are then closed with a subcuticular catgut suture and sealed with sterile collodion.

It will be observed that the fixation sutures of the stomach and transverse colon are brought out through the same incision. When both organs are to be attached the fascia in the bottom of the wound is laid bare for one half an inch above and below the middle of the wound and the respective sutures passed at the extreme limits of the denuded space, the stomach sutures above and the colon sutures below. The two composing the various pairs are threaded along in the same line and about one quarter of an inch apart. I have thought it advisable, in some cases, to link these sutures together, thus converting them into a figure-of-eight suture. This distributes and equalizes the tension over a broader area and diminishes the tendency to cut. The abdominal wound is closed in the usual three layer method. Adhesive plaster and bandages are applied moderately tight and the foot of the bed kept

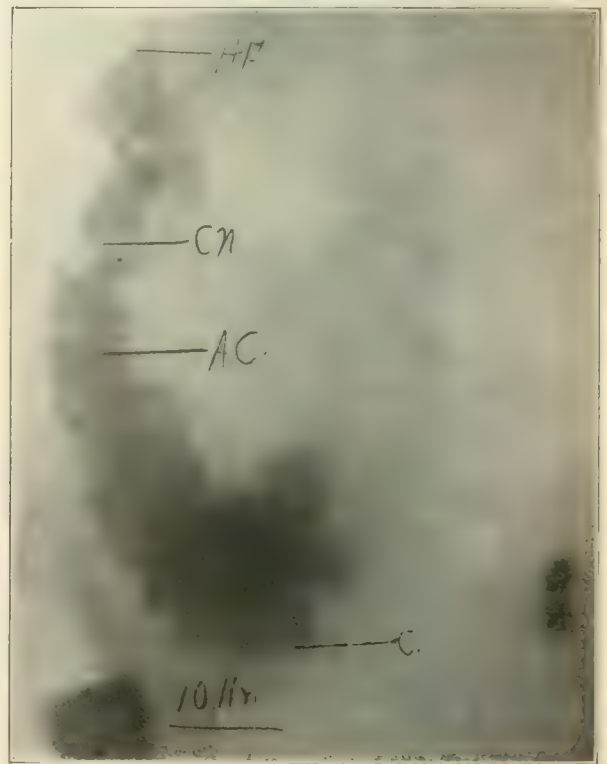


FIG. 6. Case XVII. Forty hours later, showing transposition and kinking of sigmoid.

elevated, from six to eighteen inches, according to the tolerance of the patient.

REPORT OF CASES.

Including the first case already reported I have subjected, in all, seventeen women to this operation in one or more of its phases, and attended various complications, with fifteen satisfactory recoveries--

some of them quite phenomenal—one unsatisfactory, and one death as a direct result of a complication, modification, or supplemental procedure. All of them had suffered for years with obstinate constipation, loss of flesh and strength, some of them breakdown neurasthenics; two had ptosed

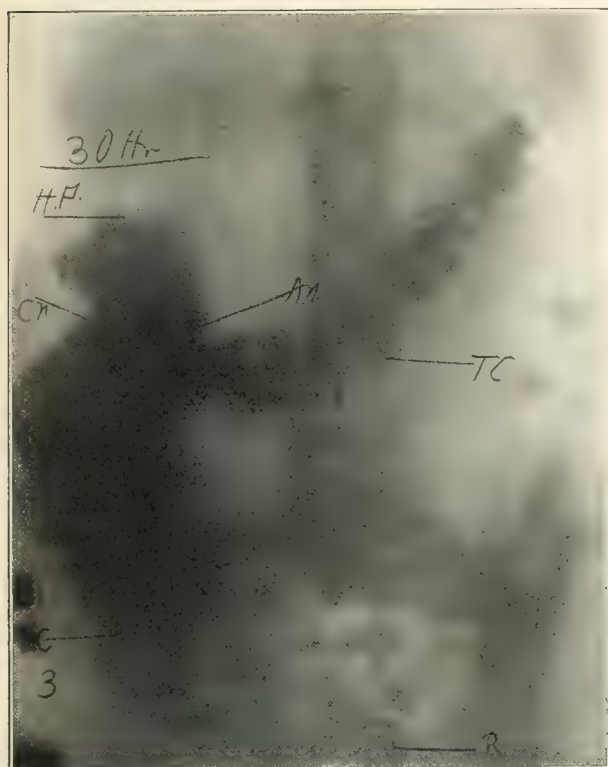


FIG. 7.—Case XVII. Six hours after taking the bismuth.

kidneys (one tuberculous, one a ptosed liver, others displaced uteri and diseased appendages. Diagnosis made from history and symptoms, palpation and percussion, confirmed in some instances by the x ray. In one or two instances the conditions were discovered upon opening the abdominal cavity for diseased uterine appendages and displaced uteri. Ages: four between the ages of twenty and thirty; nine between thirty and forty; three between forty and fifty; one fifty-nine. Occupations: housewife, nine; stenographer, two; servants two; no occupation except social duties, three (two of them were doctors' daughters). Twelve were married, ten had borne children. Suppuration of sustaining sutures occurred in two cases. One of these patients was a little, thin, poorly nourished, nervous woman, with household cares, embracing two little boys and a husband. The walls of the stomach and intestines were stretched out and thin. The sutures doubtless pierced the lumen of the gut or stomach, and infection arose from their contents. I removed about one half of them, one after another, at my office during the three months following the operation. Attachment and support were not impaired. Four years later all organs were found in place and the patient had gained fifteen pounds; she pronounced herself perfectly well and equal to all her duties.

CASE I.—Mrs. G. B. This case proved unsuccessful. April 6, 1910. Married three times. Now living with third husband for nineteen years. Had one miscarriage thirty years ago, with first husband. Menopause four years ago and eleven years ago she was told she had fibroids of the uterus; has always suffered from indigestion, gas in the bowels, excessive nervousness, irritability; a constant torment to husband, who was a good natured little man, unable to sleep, and losing flesh. Diagnosis—three irregular fibroids of the uterus; extreme ptosis of the stomach and transverse colon. Operation January 19, 1913. Supravaginal hysterectomy, gastrocolonopexy and stitching up of sigmoid to infundibulopelvic ligament. Discharged in three weeks much improved mentally and physically. Small sinus in abdominal wall at site of stitch leading to hepatic flexure. The weight seemed to be causing the suture to cut the abdominal wall, leaving tract behind, slight infection. Patient's nervous symptoms not relieved, although appetite, digestion, and bowels were better. Husband brought her back, saying she was much better, but that he wanted her cured so that he could get some sleep; she wanted another operation. July 8, 1913. Laparotomy was performed; incision above the umbilicus to search for and remove offending stitch; this was done; examination revealed

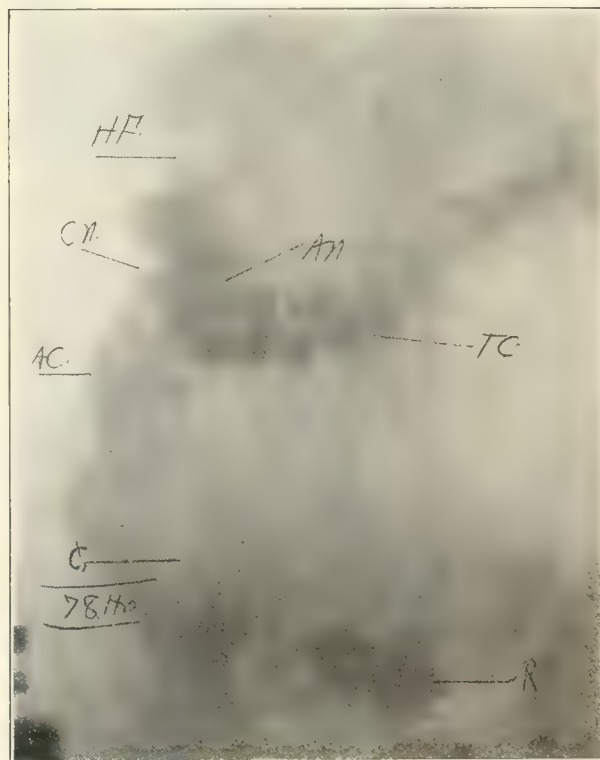


FIG. 8.—Case XVII. Cecum and colon ten hours after taking the bismuth.

stomach and colon firmly attached to abdominal wall, all other sutures buried in adhesions and not visible. Patient improved for six months after operation, but mental and nervous symptoms returned and steadily grew worse. Patient complained day and night; constant pains all over, especially in the abdomen. She returned to me. I shortcircuited

the bowel, anastomosed the ileum with the sigmoid. Patient gradually grew worse and died several weeks after leaving the hospital. This woman was a hopeless mental and physical wreck and in the light of subsequent experiences should not have been operated upon, but her husband, her family

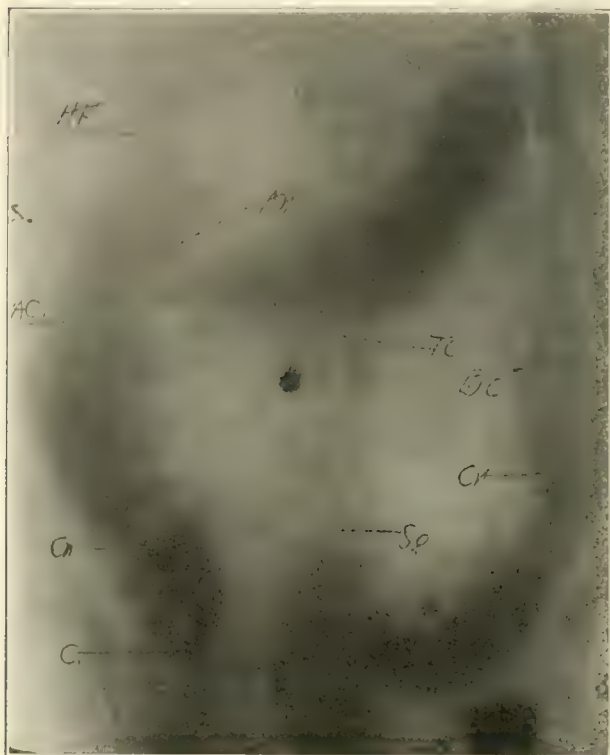


FIG. 9.—Case XVII. Forty-eight hours after taking the bismuth.

physician, and herself, insisted upon it as her only hope.

CASE II.—December 14, 1913. Katie R., servant, aged thirty years, single. Appendectomy seven years ago. Complains of painful and frequent urination, indigestion, constipation. Diagnosis—multiple fibroids of the uterus complicated by salpingitis, with adhesions and a large mass in the cul de sac; on December 19th, cystoscopy and ureteral catheterization, bladder irritable, left ureter in good condition and urine normal; right ureter orifices inflamed; clouds of turbid or bloody urine escaped at intermittent periods; diagnosis: tuberculous right kidney. Under open bowel treatment, rest in bed, with milk diet and urotropin, patient improved and urine cleared up. Operation December 27th, laparotomy, transverse incision, myomectomy, salpingectomy, shortening of round ligaments, Baldy-Webster operation. Stomach found prolapsed below umbilicus and stitched to abdominal wall by my method. Incision healed quickly and patient recovered from operation, but slight daily rise of temperature continued and general condition unsatisfactory. January 16, 1914, right ureter obstructed; catheter will not pass; pus exuding. Referred to Dr. J. Bissell for removal of kidney. Operation February 10th. Nephrectomy and part of ureter removed. Daily temperature continued. June 17th, stump of ureter removed

down to bladder. Complete restoration to health.

CASE III.—December 28, 1912. Mrs. W. K., aged thirty-six years. Referred by her father, a physician, Flushing, L. I. Married thirteen years, three children, two of them twins; one miscarriage before last child: appendectomy one year ago by Dr. Joseph Blake, who also took reef in cecum. Now constipation and menorrhagia; fissure in ano; hemorrhoids; insomnia; loss of flesh; incapacitated for work or pleasure; neurasthenic. Diagnosis as above, plus fibroids of uterus, prolapse of transverse colon; Röntgen rays show stomach and transverse colon ptosed to extreme degree. Operation January 2, 1910. Supravaginal hysterectomy (my operation for fixation of colon); no vomiting; convalescence smooth and satisfactory. At office April 16, 1914, in fine health and spirits; bowels move naturally; no distress in stomach or abdomen. Gained in flesh and strength; is doing the one step. March 16, 1916, weighed ten pounds more than ever before in her life. At office April 2, 1918, general health fine; considered herself perfectly well; never hesitates to do whatever she wishes without thought, but every three or four months has an attack of constipation that requires drastic attention and uses her up for two or three days. Röntgen rays show ptosis of hepatic flexure, but life is so different from what it was before the operation that she is ready to have the operation repeated whenever I advise it.

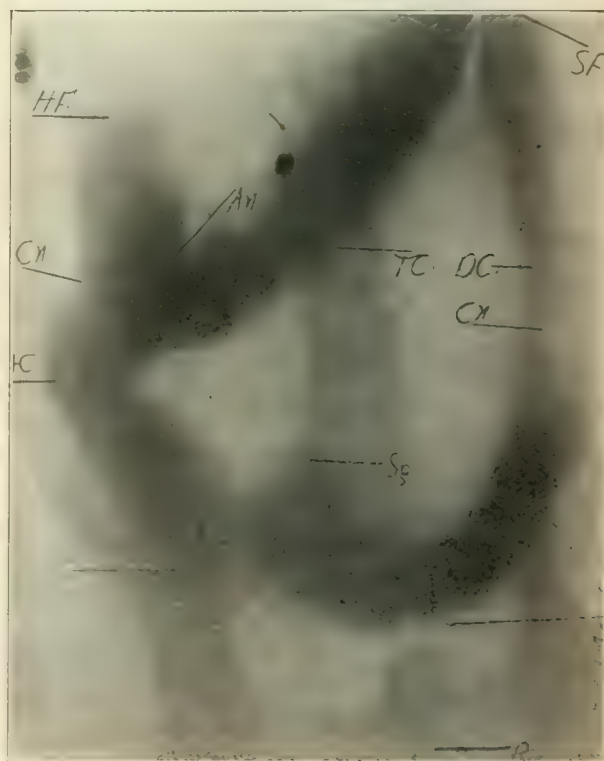


FIG. 10.—Case XVII. Seventy-eight hours after taking the bismuth.

CASE IV.—Referred by Doctor Goodwin. Mrs. H. M., aged twenty-eight years; married four years; two children; complains of constipation, indigestion, abdominal pains, headache; unable to do her housework or care for her children; says she

is cross and out of temper most of the time; has lost flesh; is discouraged and unhappy. Diagnosis—ptosis of stomach and colon. Both restored to normal position by my method. Convalescence uneventful; at office in May, 1916. Says she regained her health promptly after operation, also ten pounds in flesh; does all her housework, including washing for family of four. Appetite the very best and constipation entirely relieved. She is a cheerful, happy woman.

CASE V.—March 12, 1913. Mrs. B. W., aged forty-nine years, married twenty-eight years; widow eight years; seven children; menopause fifteen months ago; has stomach trouble (everything she eats seems to trouble her); for ten years indigestion and constipation. Diagnosis—extreme ptosis and dilation of colon. Operation December 1, 1913. Immense accumulation of fat in the omentum, dragging the colon down; caput coli greatly dilated. Omentum removed; ileum cut six inches from caput; both ends turned in and proximal end anastomosed laterally with the sigmoid. Convalescence rather stormy; gas in the stomach, with noisy eructations, also in large intestines; diarrhea at times involuntary; no abnormal temperature or increase of pulse; two large tumors removed from the scalp twenty days after operation. Discharged in excellent condition; not seen since.

CASE VI.—April 25, 1913. Miss L. P., aged thirty-six years, daughter of a physician; usual diseases of childhood, but in good health until four years ago, when walking in the country with a dog by leash, she tripped and fell backward; was a cripple for some months after, with great pain in the back; gynecologically diagnosed by Doctor Janvrin as prolapsed left ovary; improved for a time by treatment. She then consulted another physician, who removed left ovary and appendix and fastened up the uterus. She now suffers from indigestion, constipation, and general malaise. Diagnosis—fractured coccyx; ptosis of colon. Operation, May 10, 1913. Colon stitched to abdominal wall by my method (patient refused to have coccyx removed); electric cautery applied over both sacroiliac joints. At the office March 1, 1918, nearly five years after the operation. Colon in perfect position. Miss P. says she was a wretched invalid until I operated; began to improve immediately thereafter and now weighs one hundred thirty-five pounds; has splendid appetite and digestion; restrains appetite lest she get too fat; considers herself in perfect health; never stops to think about being careful in any particular; goes to dances; before operation considered herself a hopeless, chronic invalid.

CASE VII.—December 9, 1913. Mrs. F. J. H., aged thirty-one years; two children; two miscarriages; last, six years ago. Has been losing weight and strength for the past five or six years. Feels wretched and unable to control herself, her children, or her household. Suffers from constipation, indigestion, pains through her abdomen, insomnia, and general breakdown. Diagnosis—chronic appendicitis, ptosis of stomach and colon, ptomaine poisoning, neurasthenia. She was really a pitiable case. No regulation of physical mechanism seemed to do her

any good and on December 17, 1917, after one year of treatment, she submitted to operation: appendectomy, gastric plication and gastrocolonopexy by my method. Stomach was very irritable for ten days; had to resort exclusively to rectal feeding. In two weeks the stomach reacted; appetite and digestion returned. Discharged January 4, 1915. Several stitches suppurated and had to be removed. November 17, 1917, at my office. Had gained and held ten pounds in weight; looked and felt fine; considers herself in perfect health and stops at nothing she desires to do. Stomach and colon in normal position.

CASE VIII.—December 29, 1913. Miss L. A., aged twenty-seven years; bookkeeper and private secretary. Had been and is a great sufferer; appendectomy four years ago; dysmenorrhea four years ago and three years ago vaginal section was made for restoration of the position of the uterus; not improved. Diagnosis—ptosis of stomach and colon. Operation January 27, 1914. Stomach seemed to be carried up into good position by restoring the colon and holding it there with the hands. Nothing was done with the stomach, but the colon was stitched up at the hepatic and splenic flexures and across the entire length of the transverse colon by the usual method. Convalescence good. At my office November 5, 1914. Has returned to her work and gained five pounds in weight; looking and feeling much better. April 13, 1915, at my office; has gained another five pounds. At my office May 1, 1918. Is continuing her work; is on duty 9:30 a. m. to 7:30 p. m., also is qualifying to become an expert accountant. I advised less work and less ambition. Stomach and colon in normal position.

CASE IX.—February 2, 1914. Mrs. C. E. B., sister of a doctor. Aged thirty-eight years, married sixteen years, one child, aged ten years; miscarriages none. Indigestion, constipation; lost ten pounds in weight in the last six months; affection seems to have reached a climax. Diagnosis—adherent retroflexion of the uterus, ptosis of the stomach and colon. Operation February 7, 1914; shortening of round ligaments, with gastrocolonopexy; recovery satisfactory; two stomach sutures suppurated and had to be removed. At my office January 10, 1915. Looks and feels greatly improved; has gained ten pounds. November 17, 1917, at my office. In better health than for many years; another eight pounds; no indigestion nor constipation. Considers herself in perfect health. Stomach and colon in normal position.

CASE X.—March 7, 1915. Mrs. S., aged thirty-nine years. Married many years; two children, last two years ago. Appendectomy for suppurative appendicitis one year ago. Last May fell from house veranda, striking on right side. Taken to hospital; appendectomy wound opened and cavity drained by tubes for one week; was told she had peritonitis. Since then has suffered from abdominal pains, severe constipation and loss of weight and strength. Diagnosis—ventral hernia; ptosis of transverse colon. Operation March 12, 1915. Stomach found in normal position. Excision of right tube for hydrosalpinx and cystic ovary; ascending and trans-

verse colon found in the pelvis; hepatic flexure and transverse colon stitched to the abdominal wall. Hernia cured by lapping fascia with mattress sutures. Uninterrupted recovery. Discharged in fine condition on thirty-fourth day.

CASE XI.—April 5, 1915. Mrs. F. B. S., aged forty-three; widow; no children; panhysterectomy fourteen years ago for fibroid tumors of the uterus; premature menopause stormy. For past four years has been at the head of a department store in a town in Tennessee. During several years has had symptoms of chronic appendicitis, indigestion, constipation and increasing nervousness. Now unable to continue her work. Operation April 14, 1914. Appendectomy, gastrocolonopexy. After the hepatic and splenic flexures had been drawn up into place by the sutures the transverse colon was so elongated that it looped down below the umbilicus and was so redundant when drawn into place that it kinked badly and gave promise of future trouble. I therefore resected six inches of the middle portion and made an end to end anastomosis. Unfortunately, the stitches did not hold; leakage occurred and patient died of sepsis.

CASE XII.—T. S., aged twenty-seven years; two children, aged two and six years. Pain in right side for four months prohibited work; pain jumping and throbbing in character, persistent backaches in sacral region; nausea and vomiting; diarrhea at times. Diagnosis—chronic appendicitis and ptosis of cecum. Operation October 8, 1915. Appendectomy, suspending of cecum. Appendix and cecum found down in the pelvis. Incision through the right rectus. Appendix, seven inches long, was removed and caput fastened to the abdominal wall by two sutures through the broad band of the colon. Symptoms removed; uninterrupted recovery. Has at times slight gas pains at site of cecum. Discharged on the twenty-eighth day after the operation.

CASE XIII.—Mrs. G., Russian, aged thirty-four. This case is remarkable for the amount of work done at one sitting and the excellent results achieved. Admitted to hospital January 10, 1913. Pain in right side of lower abdomen for past three years; feels like a boil in her side; constant headaches; sleep disturbed; much gas in stomach and distress after meals; no nausea or vomiting; bowels constipated; bleeding hemorrhoids; painful and frequent urination; loss of weight and strength; general visceroptosis; kidney, liver, stomach, colon. Wide diastasis of recti muscles. January 14, 1915, Röntgen rays disclosed slight ptosis of the stomach; motility good; prompt passage of bismuth into duodenum. Right nephropexy by Dr. Dougal Bissell by the Bissell method. Patient then turned on back and my operation was done as follows: a longitudinal incision was made in the medium line below the umbilicus and the position of the abdominal organs demonstrated. In order to secure sufficiently high points of attachment and facilitate operating, a second incision was made from near the ensiform cartilage to the umbilicus. The round ligament of the liver, which was stretched out, came prominently into view, was plicated with linen thread and fastened to the abdominal wall above the upper angle

of the incision, the sutures passing through the entire abdominal wall except the skin. This restored the liver to the normal position. The stomach was then stitched to the abdominal wall by six linen thread sutures at the distal ends and at the mid-point of the anterior wall. The transverse colon was then stitched to the abdominal wall below the stomach with six sutures. They were passed into the longitudinal band of the colon; abdominal incision closed; also the one below the umbilicus, fascia of the recti being lapped and mattress sutures applied. The uterus was then curetted, the cervix amputated and four hemorrhoids removed with the cautery. February 28, 1915, stomach in good condition, motility good; bismuth passed as before. Röntgen rays March 6, 1916; slight looping of transverse colon and hepatic flexures. Temperature never above 101°. March 17, 1916, patient discharged in good condition. Digestion improved; no gas; bowels regular. Stomach, liver, and kidneys in good position; unable to outline the colon sixty days after the operation. November 18, 1918, nurses called to learn ultimate results but could not find patient. Learned through friends that she was working and feeling well.

CASE XIV.—April 16, 1916. Miss L. B., aged twenty-three years; stenographer and typist; menstruated every three months; last two years has been regular every five weeks; pain in abdomen four days; four years ago had fermentation of intestines and diarrhea; watery discharge with pain which lasted five months. Medication and diet. This winter had dry catarrh of the ear. This pain began in the pit of the stomach. Doctor Bash has taken Röntgen rays and finds adhesions between the gallbladder and the stomach. Patient weighed 120 pounds; now 110 pounds. Diagnosis—ptosis of the stomach and the colon. Operation at the Woman's Hospital, April 20, 1916. Longitudinal section made through the muscle a little to the right of the median line. Gallbladder and appendix in good condition. Stomach hanging low and greatly congested at both ends and lesser curvatures; dilated. Stomach plicated along the median line of the anterior wall. Gastrocolonopexy. Pus appeared at the lower angle of the wound, but this stopped under treatment and the wound closed tightly. Patient left the hospital complaining of pain in the pit of the stomach. December 17, 1916, at my office the picture of health. Good flesh and good digestion; nutrition excellent; bowels regular. Returned to office work June 27, 1917. Had gained ten pounds; picture of health and well in every way. Good appetite and digestion. At work in April, 1918. Reports by letter that she has never been so well in her life.

CASE XV.—Mrs. J. B., aged thirty-eight years. Married sixteen years, three children; last one seven years ago; no miscarriages. April, 1916, colonopexy, shortening of the round ligaments, trachelorrhaphy and perineorrhaphy. At the outdistrict clinic September, 1918, fainted after treatment and was in bed for a week. At my office April, 1918; had good appetite and digestion and felt unusually well. Two months ago began to lose flesh, 112 to 100 pounds. Feels rather tired. Abdominal palpa-

tion and percussion show the hepatic flexure and splenic flexure of the colon in good position; there may be some sagging of the colon at the middle point, am not certain.

CASE XVI.—May 12, 1913, Mrs. H. G. C., aged thirty-eight years; married thirteen years, one child; no miscarriages. Has been troubled with gastric and abdominal pains so long as she can remember, also constipation. Dr. C. sent her to Dr. N. of New York, who said she had prolapsed left ovary, but thought it would be relieved by pregnancy. Pregnancy followed shortly after, but was attended with constant persistent pain throughout. Had attack later, with eruptions on face, neck, and body, temperature 102. Entered hospital in Brooklyn for observation, was attended by three doctors, Dr. S., Dr. P. and Dr. L. All agreed that the left ovary should be removed. Not accepted by the patient. Referred at this time to me by her original family physician, Dr. C. Diagnosis—an obscure mass in the pelvis. X ray revealed the condition shown in radiograms. Laparotomy May 17, 1913. Uterus, ovaries, and tubes found normal. A greatly reduplicated sigmoid and descending colon; thick, heavy omentum; ptosis of the left kidney and transverse colon; omentum removed, the transverse colon restored to normal position as described and sigmoid straightened and supported by shortening its mesentery and stitching itself to the infundibulo pelvic ligament. January 19, 1914, at my office. Distress greatly relieved; nutrition improved; some exophthalmos and restless nervousness. November 23, 1914, at my office; digestion perfect; bowels regular; has been walking six miles a day in the Catskills without fatigue. At my office, April, 1918, colon in normal position; is strong and well; digestion and bowels satisfactory.

CASE XVII.—Described in the text but not numbered.

REFERENCES.

1. DAVID SILVER: *American Journal of Orthopedic Surgery*. Volume xiv, 1916. 2. SIR BERKELEY MOYNIHAN: *Surgery, Gynecology, and Obstetrics*, 1915, p. 154.

Ununited Fractures of the Mandible.—Percival P. Cole, writing in the *Proceedings of the Royal Society of Medicine*, April, 1918, says that cure of this condition can be obtained only by direct surgical intervention. Palliation belongs exclusively to the dental surgeon, but cure lies in a realm shared equally by dentist and doctor. The author's estimate of nonunion is based on experiences that in 1,000 unselected cases of fracture treated on ideal lines, nonunion will occur in 100. In ten of these, operation to determine union will be impracticable. The essence of his method is the control of the edentulous posterior fragment by a padded extension piece which enables him to think of the mandible as if the fragments were once more in continuity, and the use, then, of an anatomical articulator makes the question of correct occlusion no longer guess work. The operation of bone grafting for ununited fractures of the jaw has passed beyond the experimental stage into the region of assured success.

GOOD POSTURE.

BY JAMES FREDERICK ROGERS, M. D.

New Haven, Conn.

"Those tender and valetudinary People, whose Studies or Profession oblige them to read or write much, ought, as far as they possibly can, to stand in an erect Posture, bending their Head and Breast as little as may be, leaning only on a sloping Desk, and continuing their Exercises in that Posture, 'till they grow weary; then rest, and be at it again. Custom and Practice, obstinately persisted in, will at length render the Posture easy to them. And 'tis inconceivable, how many and great Advantages it will bring to the Constitution."

So wrote the great and good physician, George Cheyne, a century and a half ago, and with much



FIG. 1.—Instrument for making tracings of anteroposterior curves of the spine. It is simple, inexpensive, portable, and can be used for any posture—standing, sitting, or lying. It consists of two boards, hinged at their ends. In the broader one are placed as many pairs of screw eyes as desired, with a sliding rod through each pair. Cheap lead pencils with erasers were found especially suitable for the rods. After the pencils are in place they are kept from sliding by the narrower board, held against them by elastic bands at the ends of the boards. A piece of felt on the narrower board helps to hold the pencils from sliding. To get a tracing the pressure on the pencils is partly released and the pencils pushed against the back. A record can then be made by a special inking device for the erasers, or by placing the machine upon the recording paper and making pencil marks opposite the ends of the pencils.

wisdom. For most modern writers on the subject of posture there appears only one side to the subject, namely, that bad posture is the chief cause of bad posture. It is to be noted, however, that Doctor Cheyne speaks here only of the "tender and valetudinary People," and that is most significant, for it is especially such who, whether or not they read or write, tend to droop, no matter in what position they do their work. In other words, bad posture is chiefly a matter of fatigue, with the relaxation of the muscles which normally hold one in the posture one should assume, according to his makeup.

Cheyne evidently referred to adults. Possibly children were not so much given to bad posture as in our time; if they were, long hours at school were not the cause. This may have been bad for their minds, but not so bad for their bodies. But the term "tender," if not "valetudinary," is most fitting for the natural child, though many persons engaged in the business of education have come to consider him as tough as leather and capable of more prolonged muscular strain than the adult, who slumps with an hour's sitting, becomes restless with two, and finds three unbearable. And he is tough, or at least the tougher child seems to be, and appears to stand the strain though he does so by wiggling and twisting, much to the teacher's annoyance, by keeping now one set of muscles at work, now another. The child who has the fidgets has them with a purpose and comes out of the mill with less learning perhaps, but with a straight back and some other valuable things that go with it. About twenty per cent. of city school children assume a notice-

ably bad posture. On the other hand, many children who have spent more than the usual time in study and who, in their work, have invariably assumed what would be called a bad attitude, have reached maturity with a perfect posture.

What is good posture? No one knows. We all recognize a certain set-up-ness that calls our attention to itself, which we at once call a fine posture. Madame Recamier assumed such a pose that even the street gamins noticed her approach. Then there is a posture which does not call attention to itself, which, being in no way disagreeable to the eye, we call good. Where the border line between this and bad posture is to be drawn, however, depends on the decision of the observer, which may vary considerably. When we speak of bad posture we usually mean that the person has round shoulders or stoops, and in either case he is in these respects on the homelier side of the average. Back bones, however, and their hinging to the pelvis are by inheritance, or otherwise, very differently arranged among average people, and even average shoulders are not hung alike. Though we all had the same experiences in childhood and followed the same occupations as adults, we would still stand and sit differently. Good posture can perhaps be defined as such a relation of bodily parts as appeals to us as not displeasing, and bad posture is, well, something different. It is significant here that stoop and round shoulders are never associated by us with robustness—that, therefore, bad posture carries with it the idea of weakness. Historically, as shown by a comparison with Greek statues, human posture has changed little, if any, in two thousand years, for the vigorous American youth stands as well as any of the statues representing Greek athletes or something supposedly more ideal.

As for the effects of bad posture, much has been said, but not always with the best ground. So far as round shoulders are concerned there are probably no ill effects, save as the forward pull of the arms in this position tends to induce stoop. Even a stoop seems often to interfere not at all with the general wellbeing of the stooper. Lincoln stooped considerably, but he was as strong as Washington, and far freer from infectious disease than the latter, who, until sixty-five, was "as straight as an arrow."

It is maintained that less room is allowed for the lungs, and there is poorer lung expansion, but for the sedentary there is always plenty of each. Few of us use more than one tenth of our breathing capacity. It is said that the heart, being hung from the fascia of the neck, droops from its usual position, is crowded, and works at a disadvantage; but some years ago certain investigators in England held that the lifting of the chest, after the fashion in vogue in the drill of the British soldiers, seriously handicapped the heart in its beating. The abdominal organs are certainly affected somewhat as to their position, but whether their circulation or muscular working is disturbed has not been proven. At least one result is assured, and that is, the appearance of the person, but this is a reflection of bodily weakness—that is the usual cause of stoop—and we do not like weakness, nor do we like to see the evidence of it, whether past or present.

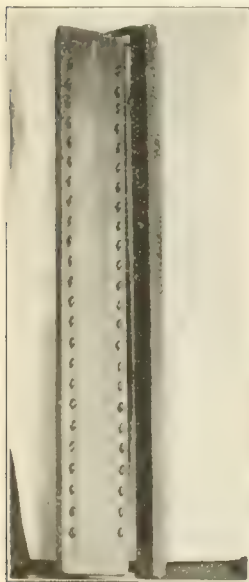


FIG. 2.

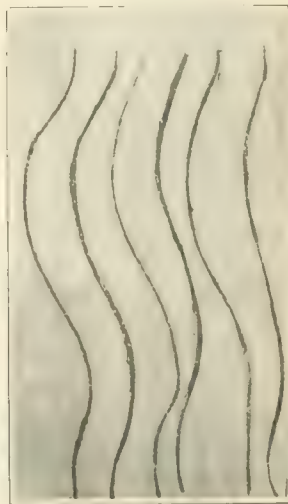


FIG. 3.

FIG. 2.—Instrument with boards thrown apart and pencils removed.

FIG. 3.—Tracings from spines of adults. 1. Usual standing position. The posture is not good but not markedly bad when subject is clothed. 2. From same subject, with neck drawn back in endeavor to straighten spine. 3. Same subject doing the "Swedish" exercise of trying to bend backward in the thoracic region, the arms being stretched above the head. Note the lordosis which invariably accompanies this exercise. 4. Same subject lying prone and lifting head and thorax from the table. 5. Another adult (woman of thirty), tall, and not noticeably stooped; has never been strong. 6. Woman of forty with good posture; comparatively robust. This subject invariably assumed a most faulty posture in her studies at school and at home.

Some bad postures are due to congenital deformities; some are attributed to failure of complete development, and suggest a simian trait; some perhaps are hereditary, or depend on some hereditary anatomical peculiarity, such as a mesentery of the four footed animal type; some seem to be due, in

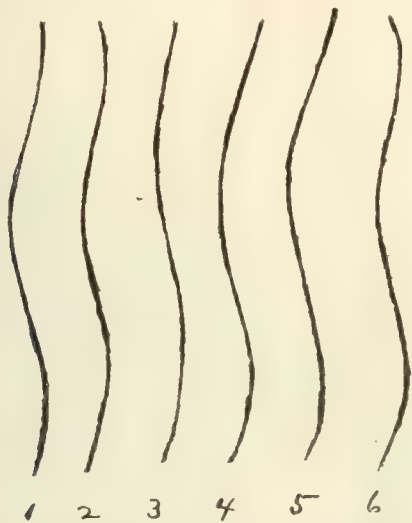


FIG. 4.—Tracings from spines of six athletic young men from seventeen to twenty-four years of age. Average postures. All have had special gymnastic training.

part, at least, to imitation of a parent or of some other influential person. A not uncommon cause of stoop and one too much overlooked is constipation, there being a decided improvement in posture when the accumulated bowel contents are removed. Apparently, the mere extra weight dragging the intestines downward is the important factor, and the longer the constipation continues the greater the tendency toward sagging of the organs and the greater the effect on posture. Here again, however, the primary cause—the cause of the constipation—may be a lax mesentery which allows the colon to sag and prevents proper functioning. Nevertheless, the cleaning out of the colon contents and the artificial support of the lower abdomen greatly improve the posture.

Aside from congenital causes or from actual disease, bad posture must be laid chiefly at the door of neuromuscular weakness which means, of course, a lack of energy. It is most significant that the estimate of the amount of bad posture in school children made by the medical inspector of schools of one city should correspond almost to a figure with the percentage of the sufferers from malnutrition found in the study of that item in a neighboring city. In addition to this bodily unpreparedness or below-par-ness, there is the influence of prolonged sitting and the ill fitness of the chairs in which the child sits, though, after all, as we have already pointed out, these may have little or no effect on the more sturdy child. Imperfect vision, especially near vision, also doubtless has its effect, but more through wear and tear on the body as a whole than otherwise, for many comparatively straight adults are very nearsighted. Prolonged occupational posture, the holding of such a posture until fatigue

comes on, and the shortening of much used anterior muscles, is, in those who do the heavy laboring work of the world, a cause of bending the spine from its normal lines.

Much has been said about the effects of misfit school seats and desks, and still not enough, for even where there are seats to fit, they are not always fitted. But they fit better than do the chairs at home where it is safe to say that not one child in a thousand finds a suitable seat. It is seldom that a chair fits an adult, and the child, almost never; in fact he usually uses a chair built for his elders. Moreover, in reading, or studying, or playing the piano, more time is often spent in a decidedly bad posture than in school. The misplacing of artificial lights often adds to the difficulty of assuming a good posture when one is working. Nevertheless, children who, at school, sat on backless benches, and at home in illfitting Chippendales, read by tallow dips, came through it all with good postures and without the use of correctives of any kind.

It is most unfortunate that the chief underlying cause of bad posture, fatigue, has been not only overlooked, but actually scouted, and that doubly unfortunately, by those who have had much influence in preaching the gospel of erectness. It is not ten years since we heard a company of city school teachers harangued by one of these apostles of good posture by assuming good posture, who assured them with a voice and manner which often goes a long way to hide error of thought, that, when they, as teachers, felt fatigued with the day's work, it was not because they were really fatigued, but because they had begun to stoop, and that if they would only pull themselves erect all feeling of fatigue would disappear and be replaced by morning freshness. Here was a corollary to the Lange-James theory with a vengeance. This speaker on posture, of whom we write, died before he had

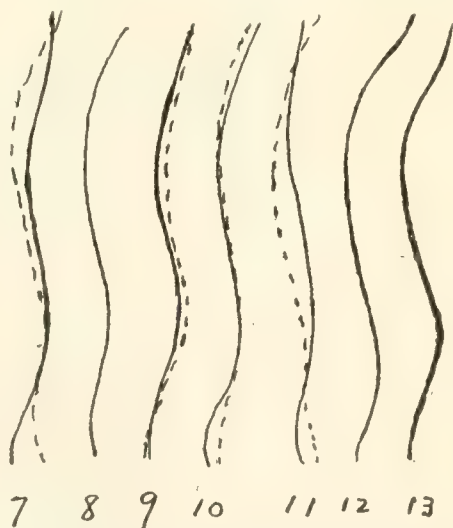


FIG. 5.—7, Tracing from athletic youth (continuous line) compared with one from the celebrated "Diadumenos" statue (dotted line). 8, From statue, "Apollino" (fourth century B. C.), of Praxiteles. 9, Same youth as in 7 (continuous), statue of "Eros" (dotted). 10, Tracing from another youth of twenty (continuous), with Greek statue of a boxer of about the same height (dotted line). 11, Tracing from young woman with especially good posture (continuous), Venus de Medici (dotted). The statue is made in a stooping attitude, which prevents comparison. 12 and 13, Tracings from Greek statues of men in erect posture.

reached fifty-five, and we wonder how much the overcoming of fatigue by assuming a better posture had to do with his early end. In this connection that influential educator, Professor James, preached the doctrine that there were levels of fatigue, and that all that was needed, to accomplish more work,

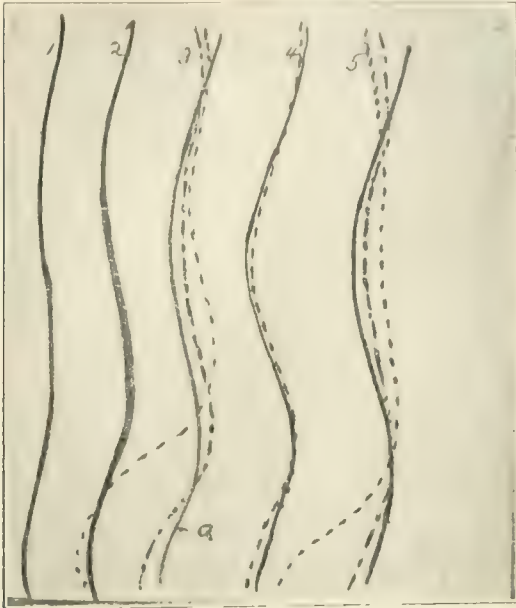


FIG. 6.—1, Tracing from young woman, 1,640 mm. tall, selected in two normal schools of gymnastics for especially good posture. 2, Young woman, 1,586 mm. tall, with good but not unusual posture. For purposes of health this back may be as good as that of No. 1. 3, Youth of medium height, robust, with good posture (continuous line). Same, lying prone and lifting head and thorax from table (broken line). Same doing Swedish "tense" or "span" bending (dotted line). Note marked lordosis in last exercise. 4, Youth of twenty, above medium height, not considered as having a bad posture. Note exaggerated curves. Has orthotastic albuminuria. The dotted line shows same subject endeavoring to straighten his spine by drawing himself to his full height. The effect is slight even after months of the practice of such exercises. 5, Youth of twenty, above medium height, with good posture (continuous line). Same drawing neck back and pulling himself to his full height (broken line). Same doing "tense bending" (dotted line).

was to overcome our instincts and step from one level of fatigue to another. James, also, died before his time. One can forget fatigue, but it does not forget us.

In trying to improve posture it is most essential to prevent bad posture, where it is preventable, for it is difficult enough to cure. A splendid example in the person of the teacher would be an excellent beginning in schools. A close observation must be kept of the slightest onset of droop, and relief to the causal fatigue applied at once. The general health must be kept at its maximum, and feeding, sleep, and pure outdoor air are essential medication. The chair at home and at school should be so constructed that a good posture is assumed with little effort, but the sitting should not be too prolonged. The posture assumed in bed may also matter.

For the cure of bad posture—where it is curable—the least helpful is to scold the stooped one and tell him to "sit up straight." The longer the bad posture is persisted in, the more natural it feels and the more fixed it becomes. Many a child would willingly cooperate in a cure, did he not feel that he was already straight. A photograph taken from the side, the use of multiple mirrors or tracings

made by the simple instrument devised by the writer, and compared with pictures or tracings of what is considered a good back, will help more than libraries of books or lectures on the subject and more than scoldings. Shoulder braces will help get the shoulders back and remind one that he is in bad posture. Gymnastics, as ordinarily practised in the school room, have little or no effect in correcting round shoulders. Why should a dozen flinging of the arms or stretchings of the neck overcome the results of hours of muscular fatigue? Frequent exercises of the kind and frequent changes of school work would produce better results. We are always forgetting that the child is a "tender" thing and that many school children are more or less "valetudinarian." The clothing, especially of the boy who has become stooped or round shouldered, is likely to be a hindrance to assuming good posture if it is made to fit, for he finds himself held by the clothing in his new shape. The parent must look out for this when the child is taken to the tailor.

To sum up, the means preventive of stooping posture are: the improvement of the general health, the removal as far as possible of prolonged muscular strain, and the fitting of seats to the sitters.

To effect a cure of the bad posture, the stooped must be made to see his condition and to feel the relation of his bodily parts when he is erect. He may then be reminded when he falls from grace, and besides pulling himself into good posture, he can help to get himself into finer shape at appointed times, by flinging the arms sideward and backward and by pulling his chin and neck backward as far as he is able. Parents might join with their children in such exercises. Shoulder braces can be used if found needful. The man who invents a harness which will also hold the neck back will deserve a fortune. Granted that the occupation is not too much for the general strength, and the use of the muscles of the front of the body is not too severe, the bad posture can be much improved if not cured, provided, of course, there is no insuperable anatomical or pathological cause of the condition.

Tremors.—George Pernet (*Medical Press and Circular*, March 27, 1918) devotes his article to uncommon cases of tremor which occur in the course of other diseases, not as symptoms, but as epiphenomenal manifestations. He reports ten cases of primary acute lupus erythematosus where generalized tremor of the whole body existed, sometimes a rigor, but the characteristic feature being continuity. Boeck, of Christiania, has alluded to tremors of the tongue in cases of acute skin disease, and Short, of Birmingham, has noticed twitchings and convulsions which became frequent and of almost daily occurrence. According to Herxheimer, tremors of the muscle, even in repose, are to be seen in acute cases of pemphigus vegetans. Fournier, long ago, called attention to muscular tremors in the course of secondary syphilis, which he had noted in over one hundred cases. The objection was raised that they were of mercurial origin, but they had occurred in subjects who had not taken mercury.

TONSILLECTOMY VERSUS HELIOELECTRIC METHODS.

BY THOMAS M. STEWART, M. D., F. A. C. S.,
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The main interest in this paper naturally centres in the results of fulguration and ultraviolet raying as an adequate method by which to reduce enlarged tonsils, and diathermy as an effective measure in causing a resolution in the tonsil from an unhealthy state to a healthy condition.

Our attention, late in 1916, was directed to securing positive results in reducing enlarged and curing diseased tonsils in cases where operation was refused, or where operation was dreaded because of the following conditions:

1. Heart disturbance of a character to increase the dangers of a general anesthetic.
2. Known bleeders and subjects having a prolonged coagulation time.
3. Patients showing remnants of tonsil tissue after the modern operation of tonsillectomy and tonsil stumps as left by the older operation of tonsilotomy.
4. Singers who dread to take the risk of losing vocal tone.
5. Children in whom the thymus gland is still large.
6. The fact that complete removal of the tonsil in its capsule (tonsillectomy) is considered hazardous to the voice by such men as French, Kenyon, and the late Makuen.
7. Elderly patients.
8. So called regrowth of tonsil tissue after tonsillectomy.

At about this time we read an article (1) giving a brief account of a new method of tonsil eradication, by Dr. Arthur Morgan MacWhinnie, of Seattle, and immediately sought for corroboration of his remarkable statements as to the value of fulguration, or more graphically, as his article states, a bloodless and painless method of reducing or even eradicating tonsils. Dr. T. Howard Plank, of Chicago, and Dr. Donald McCaskey, of New York, at about this same time gave me valuable information regarding the use of the ultraviolet ray in diseased and in enlarged tonsils, details that will be again referred to in the course of this article. The equipment for such work is expensive, even at antewar prices, and one should be certain that the apparatus will do the work and stand the wear and tear of daily use, apart from statements salesmen may make. Salesmen know their line and are trained in the electrical knowledge necessary to hastily explain and install their apparatus, but their therapeutic electrical

knowledge is in most instances very limited, and some instrument makers lose all interest in their own apparatus as soon as a sale is made. Some concerted action on the part of those qualified is necessary to standardize both equipment and technic, in order that uniformly good results may invariably be secured by all who attempt this work along these new lines.

The technic is not complicated, but the tact necessary to gain the confidence of children is the greatest handicap. For one who really loves children, and thus understands them, more or less, the

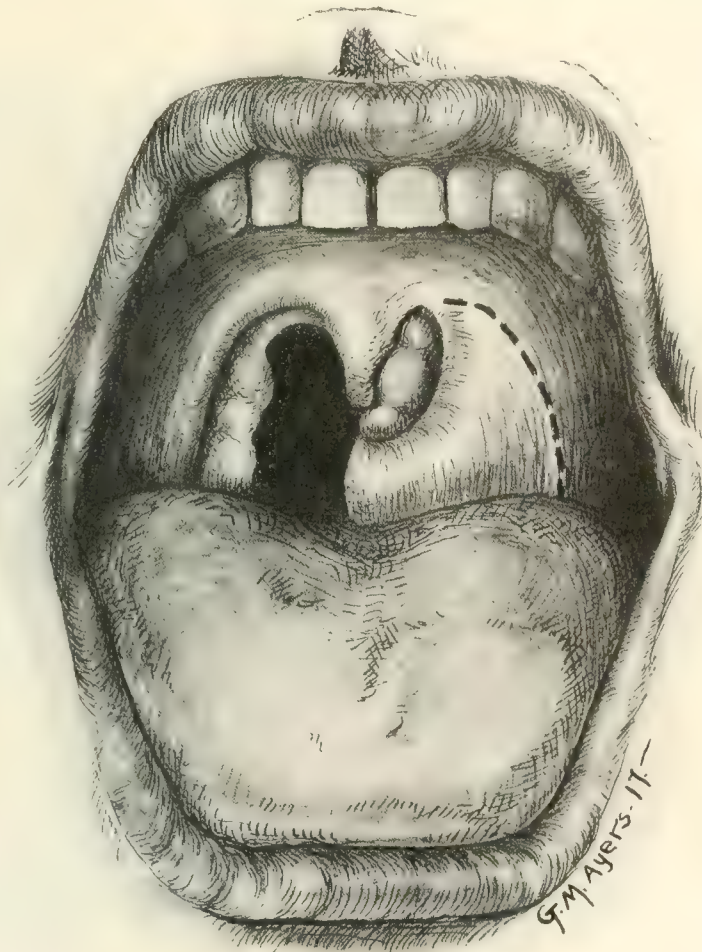


FIG. 1. —Showing a case of enlarged diseased tonsils so adherent to the anterior pillar as to drag the latter across the pharynx to the median line.

gaining of their confidence is relatively simple. The next difficulty is to keep that confidence; and the only formula for this is to tell them the truth, as you know it, and never depart a hair line from that standard.

Inflamed and discharging tonsils should receive some preliminary treatment by the diathermic method. For this purpose the autocondensation chair is placed in circuit, and the small metal electrode, i. e., a flat metal disc one inch in diameter, is connected to the hot wire milliamperemeter, and the disc snugly applied externally to the tonsil region beneath the angle of the jaw. The spark

gap is opened one or two spaces, and the rheostat advanced from time to time so as to secure 900 to 1,000 m. a. As soon as the heat is uncomfortable to the patient, cut out the current. Repeat this several times, shifting the metal disc electrode, cut in the current without disturbing the spark gap or rheostat and thoroughly dilate the capillaries in the region treated. Treat each side alternately, and from time to time advance rheostat controller to get more heat up to 1,000 m. a. The germicidal effects of the high frequency current thus applied will quickly prove its value in congested and infected conditions.

Autocondensation and general radiation of the entire body by the Alpine sun lamp (ultraviolet ray) to increase general oxidation are valuable adjuncts to this treatment, together with eliminative methods by means of variety in diet. Six glasses of water should be taken daily, some of it alkaline or even distilled water to increase the outgo of urea, chlorides, and phosphates. No sprays or other local applications need be made to the throat after this treatment because an abundant secretion will come away and it is better not to interfere with the physiological drainage thus established. A well balanced diet, plenty of water between meals, and daily bowel movements are necessary in pursuing this treatment. When the inflammatory or other conditions have assumed a better state, and fulguration is the method chosen to complete the cure, then:

FULGURATION TECHNIC.

The first step is the application of the local anesthetic to the tonsil along the borders of the pillars and on the upper pole; in other words along the entire margin of the tonsil nearest the pharyngeal wall.

For this purpose, and heretofore in the absence of novocaine, we use a one per cent. solution of cocaine, three parts, in one part of the following compound:

Digitalin,	}	.....ãã grain ¼;
Nitroglycerin,		
Strychnine sulph.,		.....grain ½;
Simple elixir,		.....q. s. ounces 4.

This is painted on with cotton swabs. Adhesions must be resected and tonsillar crypts flushed.

Then make application of the high frequency fulguration spark of one eighth to one fourth inch length; and the former is usually sufficient and is practically painless. Apply the platinum point to the spot selected for the application and press the circuit making lever; at the same time draw the platinum point away from the tissue, and almost at

once a small white spot is noticeable. Then break the current by removing pressure from the circuit making lever. Treat several other places at that same sitting. In time the patient will permit of a more thorough treatment. Fulgurate along the line, point by point, to which the anesthetic has been applied, that is, on tonsil tissue near the margins of the palatoglossus and the palatopharyngeus muscles, and to the upper pole, and as the tonsil shrinks apply to the lower pole, always fulgurating near the pharyngeal wall and always fulgurating tonsil tissue only.

Another method is to put the autocondensation

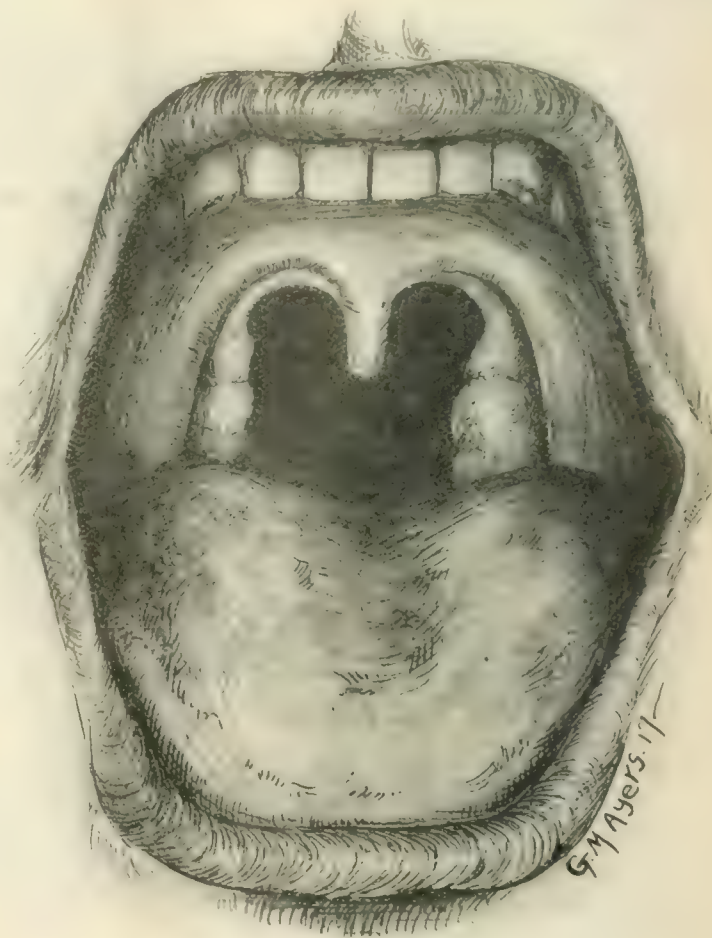


FIG. 2. Showing the same case, as in Fig. 1, after fulguration, fourteen treatments. Later the patient went to Hog Island and went through the severe winter of 1917 with out a sore throat. He said, "I am a freak, in that I was almost the only one in the whole bunch that went through the winter with no throat trouble." Later he joined the colors, and is somewhere doing his duty as a soldier.

chair in circuit, and connect the fulgurating electrode to the Oudin terminal; the current then passes through the body and out at the point of contact of the platinum fulgurating electrode. This is a painless procedure even with less anesthesia than when the unipolar current is used.

No aftertreatment is necessary, though soothing sprays are not contraindicated. Weaver recommends milk of magnesia as a local application and for flushing the crypts. The uvula often, and in a most annoying way, clings or approaches close to whichever tonsil is under treatment, and the high frequency spark sometimes jumps to the uvula,

causing some little sudden and unexpected pain to the patient. To obviate this annoyance we have had made glass or nonconducting tongue depressors with a guard so placed as to permit of keeping the uvula out of the way. These are made in pairs, one for the right and one for the left tonsil. See Fig. 3, B and C.

To reach adenoid tissue, we have had made a glass speculum like Yankauer's metal one. The anesthetic can be applied through this glass speculum, and fulguration of adenoid tissue can be successfully done. See Fig. 3, A.

The technic for tonsil treatment by means of the Kromayer lamp, giving the ultraviolet ray, as communicated to me by Dr. T. Howard Plank, of Chicago, is as follows:

During the past year Doctor Plank has been using the Kromayer lamp which gives the actinic ray, using a special applicator which bears his name, and which is made by the Hanovia Company. The cases he treats by this method are the simple hypertrophic form which are not badly enough diseased to require removal, as he does not think it necessary to remove every enlarged tonsil even if it does have some crypts which contain caseous masses. These he cleans out and then proceeds with the actinic treatment, which he gives as follows: Using a direct current for the Kromayer lamp, place the rheostat on the fourth button, allowing it to burn for three or four minutes before starting the treatment. After instructing the patient to take slow, full breaths, place a wooden tongue depressor upon the tongue, laying the Plank tonsil applicator across this, pushing the anterior pillar to one side, until the applicator comes in contact with the tonsil itself, where it is held for from two to four minutes; repeat this treatment on the opposite tonsil, both of which are treated every four to seven days. A distinct shrinking of the tonsil will occur in from twenty-four to forty-eight hours. After the second day the surface of the tonsil will appear slightly yellow, showing the destruction of the superficial bloodvessels, which accounts for the decrease in the size of the tonsil.

Most of cases take from six to ten treatments, covering a period of from one to two months. There is no discomfort following the treatment, no local application used. Doctor Plank considers this a splendid method for properly selected cases, but notwithstanding this he still thinks badly diseased tonsils should be removed by tonsillectomy, with which opinion the author of this paper agrees.

ULTRAVIOLET RAYING.

I am indebted to Dr. Donald McCaskey, of New York, for the following ultraviolet ray data in answer to the tonsil questionnaire sent especially to those using the newer methods:

Q. 1. After reducing an enlarged tonsil by ultraviolet raying, have you noted later a return of tonsil trouble in any cases you have treated?

Ans. Yes, unless the patient's nitrogen metabolism has been placed upon a proper equilibrium. In other words, my experience has shown me that during a tonsillar or pharyngeal infection, if the patient has been eating food containing twenty-five

to thirty grams of nitrogen, and has only been eliminating ten to fifteen grams, the nitrogen retention will be sufficient to throw the patient's metabolism out of balance, and any mere local treatment with the Kromayer light, to an infected throat condition, will not permanently effect a cure and the patient will come back with future outbreaks of throat infection, until his or her nitrogen equilibrium has been established.

Q. 2. If so, could you state in what proportion of cases?

Ans. About seventy per cent. to eighty per cent. of the cases, has been the proportion of recurrences that I have observed where the condition of metabolism equilibrium has been neglected and not kept in balance after treatment.

Q. 3. Is ultraviolet raying of an acute tonsillar inflammation of value or is it contraindicated? In either case, could you take time to state why?

Ans. In acute tonsillar inflammation the Kromayer ultraviolet light treatment is certainly indicated, but in a very mild dose, merely to act superficially on the mucous membranes and the bacterial colonies. It has been my experience where I have applied the compression ultraviolet treatment, in tonsillar or other pharyngeal infections, that a compression lasting as short a space of time as five minutes disturbs the patient's condition markedly. Whereas, in merely superficial treatment or non-compression of the ultraviolet light a tonic effect is produced, which reacts beneficially to the patient's comfort. After the acute symptoms of the affection subside, the compression treatment is then strongly indicated, but not before.

Q. 4. Is diabetes a contraindication for the ultraviolet ray in tonsillitis?

Ans. Yes, diabetes is a contraindication. I have treated about seven cases of diabetes with the quartz ultraviolet light and in every instance the katabolic change in the tissue metabolism has produced byproducts, resulting in toxic symptoms. In five of the seven cases herpes zoster has developed. Only two of the diabetic cases, however, were throat cases, but in every one of the seven cases the patients bore the ultraviolet light very poorly.

Q. 5. Is ultraviolet raying of the tonsil of any value or any harm in the deforming type of arthritis?

Ans. I have had no experience.

Q. 6. Is anything to be gained from tonsil ultraviolet raying during the acute stage of chorea, acute rheumatic fever, or endocarditis? Could you take time to state why?

Ans. This question has been virtually answered in my reply to question 3. I have never had any experience, as yet, with the quartz ultraviolet light in acute endocarditis or acute rheumatic fever. The acute state of chorea that I have treated was systematically treated by uviotherapy and the throat condition was handled as per my reply to question 3. My one chorea case has thrived markedly and the condition is fast clearing up.

Q. 7. Does tonsil fulguration prevent further heart infection by its effect in stopping later attacks of acute tonsillitis?

Ans. I have not had sufficient experience in the

relationship of heart affections with tonsil fulguration.

To summarize Doctor McCaskey's conclusions in the treatment of throat conditions by the quartz violet light, the basic step that he takes in every individual is first of all to place their nitrogen metabolism into normal balance, so that the intake equals the outgo. After about two years' close study in the use of ultraviolet therapeutics, he concludes the relationship of metabolism balance to ultraviolet light corresponds to sixty per cent. dietary regulations and forty per cent. actinotherapy. The treatment is given in doses varying with the general vitality of the patient, using from three minutes exposure of the Kromayer light thrown far back into the pharynx and gently ironing the pharynx by means of the quartz applicator, to fifteen minutes' application of the light thrown far back through each nostril of the nose. This technic must be delicately but courageously employed in the beginning, and the patient should be warned that he will have a sunburned sore throat which will begin, usually, about thirty-six hours afterwards. In addition to the local throat treatment with the Kromayer, raise the vitality index of the patient's general system by

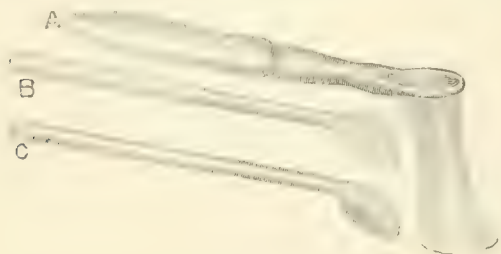


FIG. 3.—Tongue depressors.¹

means of ultraviolet raying to the spine and the other skin surfaces of the body, but especially the spine. This latter produces a very powerful reflex stimulus upon the cervical dorsal sympathetic nerve centres which influence the glandular internal secretions to some extent, and gradually this raises the patient's vitality index.

Begin with a dose of the heráus quartz ultraviolet light (Alpine sun lamp) at a distance of eighteen inches for four minutes. The reaction called sunburn is then studied within the next twenty-four hours, and no further light is administered until peeling has been completed; this usually requires about one week. The next dose over the sunburned area is applied for seven minutes at eighteen inches, and future doses are then administered with increasing intensity just as rapidly as the patient's condition will warrant, increasing the dose without necessary discomfort. Gradually this technic is supplemented by a dietary regulation in which the patient's nitrogen has been placed into equilibrium. This has given very prompt and most gratifying cures of a permanent nature. There is no quick way, however, to achieve these results. Where a patient's internal chemistry is badly out of equilibrium, where the assimilation is poor, and the elimination is poorer, where the subjective mental con-

dition is abnormally sensitive, it frequently requires four to six months' treatment; but just as we cannot make a soldier, a navigator or an aeroplane pilot in a week or month, just so we must be patient in our expectations when we undertake to build in a reconstructive way a patient's vitality, so that his specific cellular resistance will be strong enough to ward off the invading bacteria.

THE JOHNS HOPKINS REPORT.

The great majority of throat specialists advocate the removal of the entire tonsil by clean cut knife dissection of the gland followed by its complete removal with the snare. Bad actors under the anesthetic and friable tonsil tissue alone prevent accurate and complete dissection.

Failures after the use of the ring instrument or other modifications of the old style tonsillotome are due to: 1. Complete enclosure of the upper pole of the tonsil. 2. Well developed tonsils behind the plica triangularis. 3. The formation of a so called secondary tonsil. 4. Lymphoid masses in the lower part of the sinus tonsillar, fusing with the tonsil proper. 5. Thin or flat tonsils.

At the Johns Hopkins Hospital both tonsil and adenoids are considered as physiologically important structures which, besides other unknown purposes, protect the lungs from dust and diseased germs. "If there are no mouth breathing, no damage to ears, no chronic enlargement of the glands of the neck, no cystic condition of the adenoids (Thornwald's disease), and no reflex neuroses, the removal of the adenoids regardless of their size is not recommended" (2).

Of late, owing to school inspections and to the growing interest in focal infections, there is a crusade against tonsils and adenoids, due to a widespread idea that the germs of tonsillitis may cause disease far removed from its local seat in the tonsil.

Tonsillar and nasopharyngeal diseases have caused infections and rheumatoid arthritis, lumbago, acute rheumatic fever, enlargement of cervical glands, and kidney inflammation. The course of infection from the tonsils to other parts of the body is thus established beyond question, and the indications for the treatment of tonsils and adenoids is clear and rational, but tonsillectomy is not the only method of treatment. It is therefore of great importance to study the report of the 1,000 operations of tonsillar and nasopharyngeal infections as a cause of systemic disease, as reported by the Johns Hopkins Hospital. These cases were seen, and carefully studied during the last five years. There was no haphazard and hurried examination, the operations were performed under the strict rules of modern surgery, skilled anesthetists and trained assistants were a part of the rigorous operative routine, and the cases were followed up to secure the facts with respect to the diseases supposed to be due to the tonsillar and adenoid infection.

The result of the experience gained in the foregoing character of study given to these 1,000 cases of tonsillar and adenoid infections may be summed up as follows:

1. Tonsils and adenoids should not be operated upon during the acute stage of a tonsillar inflammation, as a brain abscess may result.

¹These tongue depressors were designed by Dr. J. M. McCaskey, and are now being made by the St. Louis, Mo. Surgical Instrument Co.

2. Diabetes is just as much a contraindication for tonsillectomy and adenectomy as it may be for any operation under general anesthesia.

3. Tonsillectomy is rarely of benefit and may do harm in the deforming type of arthritis.

4. Nothing is to be gained from a tonsillectomy during the acute stage of chorea, acute rheumatic fever, or endocarditis.

5. The Johns Hopkins surgeons state that, in their experience, the very diseases for which tonsil and adenoid operations are performed may and do recur after the nose and throat have been put into a normal condition.

6. In any event the tonsils are not the only gateway for disease germs to gain entrance into the system.

7. Tonsil operations are justified only as a means of possibly preventing further heart infections as a result of later attacks of acute tonsillitis.

8. The frequency of heart and joint affections in chorea may justify the preventive measure obtained by tonsil treatment.

9. Tonsil treatment is indicated in the infections, joint affections, and in muscular pains of myalgia.

10. In the early stages of kidney inflammation, tonsil treatment is indicated.

11. The tonsils are the main cause of enlarged lymphatic glands near the angle of the jaw, as these large glands in the neck rarely subside after treatment of diseased teeth.

12. Tonsil treatment alone will not cure tuberculous glands, rheumatic joint disease, nor kidney inflammation.

AFTER RESULTS OF TONSIL OPERATIONS OTHER THAN HELIOELECTRIC.

Bossim, in France, in 1913, reported nineteen cases of bronchopulmonary complications following tonsillectomies, two of which were lung abscesses. The Massachusetts General Hospital (Scudder) reports during eight years "several cases of lung complications following tonsillectomies." Yankauer reports four cases. The Mount Sinai Hospital, in New York, reports nine cases in a period of six months, and the x ray department of this hospital reports that twenty per cent. of all lung abscesses examined by them follow the tonsil operation.

The occurrence of lung complications is a danger, remote perhaps, but still to be avoided if possible; and with the cutting operations on the tonsil, the methods of avoidance are, a more general use of local anesthesia, manifestly impossible in children, and they constitute the great bulk of operative material; and an improved technic with clean cut work; care in handling the oozing blood and mucous secretions; with attention to the added danger that the suction instrument may actually bleed the already anemic patient by sucking blood directly from the severed vessels.

Haseltine says: "Let us begin by stating the seemingly obvious fact that the healthy tonsil with a physiological life history is not a hindrance to voice function. . . . It is our belief that the improved vocal quality and power noted by singers, after removal of diseased tonsils, is often, due as much to increased vigor and virility, as to changes in the throat itself" . . . "proper tonsil surgery

is not detrimental to the voice but the tonsil must be completely removed without injury to the other tissues of the pharynx" . . . "and the after care must be such as to preserve and, if possible, increase flexibility of the accessory voice producing structures." . . . "The complete removal of the tonsil with no injury to the pharyngeal musculature is by no means common." (3)

Even so, some few cases in the writer's experience have lost vocal control and been obliged to give up lucrative positions to secure other employment for which they had no special skill, and this after proper tonsil surgery, with no adhesions, and the faucial pillars intact. Very few operators give any aftertreatment to their patients beyond using thymol iodide or aristol or orthoform powder insufflated after the operation; or swabbing the tonsillar fossæ with spirits of turpentine. Few give any care to the daily toilet in the prevention of adhesions, or advise vocal training daily in singers and voice users generally until all the good that may be done has been accomplished.

Many articles about the tonsil have been written; some about the physiology and some about the anatomy of the tonsil; its influence on voice production; its guardian rôle to prevent the entrance of infection. Valuable contributions to journals and to the transactions of societies have been made concerning the surgery of the tonsil, whether the operation of tonsillotomy shall be done, leaving a small portion of tonsil tissue, or whether the operation of tonsillectomy or complete removal of every vestige of the tonsil is not best, including the capsule of the tonsil. The latter operation is, at present, the one advocated by most operators. The evils of the partial operation (tonsillotomy) have been dwelt upon to a great extent, and yet many people have undergone this operation in the early days with no bad results in later years. The few cases that find their way to the specialist compared to the many operated upon are not sufficient to settle the question. Tonsillectomy with the more perfect technic of late years designed to remove the tonsil in its capsule has been in vogue for a sufficient time to permit of some conclusions of practical value in regard to the after effects of the radical operation.

French says: "After seeing the results, in many cases, of the sweeping removal of the tonsils, we have acquired an increased respect for the value of the capsule of the tonsil, because of the demonstrated importance of the rôle it plays in the pharynx (4).

Makuen in an address to the Clinical Congress of Surgeons says: "The capsule of the tonsil is even more essential to the normal structural relations of the pharynx than the tonsil itself, and its removal is to be deprecated from the standpoint of one who has any regard for the phonatory and articulatory function of the adjacent muscles." The complete removal of the capsule of the tonsil robs the interpharyngeal musculoaponeurotic sheath of its main support. This is the reason for a collapse of the pillars of the fauces. The removal of this supporting structure likewise increasing the wound area and causing an anatomical change in the faucial relations is the deplorable result.

The report of the Johns Hopkins Hospital, if authority must be quoted for the statement, shows that an enlarged tonsil is not necessarily a diseased one. No doubt exists that since tonsil surgery came into being, thousands of tonsils have been slaughtered simply because they were larger than someone thought they should be. Simple enlarged tonsils showing no abnormality as to function or infection, are quite frequent in children whose adenoids are secreting freely, due in many instances to errors in diet alone. Attention to the latter and to the toilet of the nasopharyngeal space, with removal or reduction of the adenoids later, will secure a retrogression in the tonsils. This applies to tonsils that are not causing obstruction and are not enclosed in such a manner as to press upon the eustachian tube.

These conditions are recognized by the accomplished surgeon specialist; but many others have acquired the nerve to do what is really a "major operation often undertaken," as Cullom says, "with minor precautions." Without their knowing it some physicians and surgeons have become obsessed with the idea that the thorough and radical extirpation of the tonsil in its capsule is all that needs to be done. They are entirely oblivious of the importance of the capsule and the part it plays preventing cicatricial contraction. Much harm has resulted from the sweeping advice of the medical examiners of school children, to whom almost all tonsils that can be easily seen are diseased and a menace to health until radically removed. In some cities there is less indiscriminate work than in others, provided the chief medical examiner (as witness Philadelphia, in 1915) instructs his subordinates as to how to examine a tonsil, and what conclusions are to be drawn after the examination has been made.

OPERATIVE AFTER RESULTS.

The after results of tonsillectomy and adenoid operations (5) in the boys of Girard College have been tabulated as follows:

	Before.	After.	Improved per cent.
Sore throats	320	115	64.06
Tonsillar tissue present.....	571	255	55.25
Mouth breathing	105	81	58.46
Impaired hearing	48	11	77.08
Enuresis	46	21	54.35
Scholarship in forty-five cases ..	..	..	55.50
Voice, thirty-three cases tested ..	..	..	95.43
Health in opinion of patient. ..	..	..	70.05

No proof was obtained as to freedom or immunity from diphtheria after the removal of the tonsils. In all these 571 cases other factors contributed to the results, the dental department looked after the teeth, the food was carefully selected, the milk and water supply were under control, and an open air life and medical attention was also a part of the routine.

DATA ON 1,000 CASES COMPILED BY THE AUTHOR.

Of interest in this connection the following data have been obtained by the author, in correspondence with 1,000 physicians in Ohio, Indiana, and Kentucky:

Total number of tonsil operations, 10,756; deaths, 15; deaths in five out of seventy-one large cities written to, 18; primary hemorrhages, 432; secondary, 79; ligations for hemorrhage at time of operation, 488; hemophiliacs, 26; prolonged coagula-

tion, 54; voices lost, 4; voice tones gained, 2; septic cases before operation, 252; septic cases after operation, 9; fatalities from ether, 2; fatalities from bromoform, 1; fatalities from oxygen and ether, 12; cases needing stimulants after operation, 55; diphtheria after operation, 8; bronchiectases after operation, 3; pulmonary abscess after operation, 1; hyperpyrexia after operation, 14; emphysema of face after operation, 1; skin rashes after operation, 8; dryness of throat, many replies stated frequent, 39; adhesions of pillars, many replies stated frequent, 67; difficulty in swallowing, many replies stated frequent, 21; ear infection, many replies stated frequent, 35; shock, many replies stated frequent, 19.

CONCLUSIONS.

These statistics are brought to notice to direct attention to the facts:

1. That tonsillectomy does not insure against future attacks of sore throat, nor of other diseases and infections for which the operation is done.

2. That tonsillar tissue is present in nearly one half the cases after operation, and not always to the detriment of the patient nor a reflection on the operator.

3. That helioelectric, fulguration, and diathermic methods do not accomplish more than the cutting operations, their value being in the equally good results to be obtained in selected cases in comparison with the cutting methods; less the risk to the voice and of death from anesthesia, or uncontrolled hemorrhage; and without the shock to the patient from undue hemorrhage when the latter is controlled.

4. That badly diseased tonsils should be enucleated whether large or small unless some unusual factor contraindicates the use of general or local anesthesia, in which case secure the best results possible by helioelectric methods.

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VARYING MANIFESTATIONS AT DIFFERENT STAGES OF THE INFLUENZA EPIDEMIC.

A Résumé of Clinical Laboratory Findings of Two Groups of Influenza at Different Periods of the Influenza Epidemic.

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The clinical picture of influenza, recently termed Spanish influenza, as shown in recent epidemic form is so well defined in the minds of physicians that any attempt to add to this phase of the subject might seem superfluous. The great majority of cases observed at this post had three distinct symptoms which overshadowed all others, namely, headache, substernal pain, and fatigue. The grayish-pink anemic pallor of the lips with malaise and high tem-

perature, indicated to the admitting officer the serious type of the disease and its probable sequelae and prognosis.

Influenza made its first appearance at this hospital on September 26, 1918, when twenty-one cases developed in the genitourinary wards without the source of infection being determined. These patients had been in the hospital ten or more days prior to acquiring the disease, and two or more cases developed in each and every ward of the hospital simultaneously. From September 30th to October 19th, 355 cases were admitted. For ten days subsequent to this period no cases were admitted, owing to temporary cessation of troop transportation. From October 27th to November 15th, ninety-four cases were admitted. There are therefore to be considered two distinct groups of influenza cases separated in time by a ten day period between group 1, in which the disease was acquired at the height of the epidemic in this locality, and group 2, in which the disease was acquired in the period of decline.

Comparison of these two groups is of interest as there is a striking difference in the mortality and complications, although the treatment was identical in each, except that 0.5 c. c. of autogenous vaccine prepared from group 1, containing all of the microorganisms listed under group 1 below, was administered to group 2 on admission. It is quite probable, also, that conditions, such as rest in camp and accompanying favorable influences on general health affecting group 2, should be considered as a factor in comparison with group 1, the latter having been, in part at least, subject to long journeys in crowded cars and ambulances immediately prior to admission.

Subjective and objective symptoms of the two groups were identical on admission, though less severe in group 2, and laboratory findings were not grossly dissimilar as the following table shows:

	Group 1		Group 2	
	Sputum culture. Per cent.	Throat culture. Per cent.	Sputum culture. Per cent.	Throat culture. Per cent.
Nonhem. streptococcus	68	12.7	85	46.9
Bacillus influenza	2.7	18.3	3.5	7.5
Micrococcus catarrhalis	10.7	27.5	14.6	27.5
Streptococcus viridans	8.2	10.3	None	None
Streptococcus hemolyticus	1.8	2.4	None	4.5
Negative	3.1	28.6	None	14.2

The proportion of cases in which the streptococcus was found in this table would indicate that this microorganism is the lethal agent in this disease. The clinical picture certainly confirms such a conclusion, though group 2 seems to have escaped its lethal effect. Comparison of these groups as to complications is also of interest.

In group 1 there were 376 patients, 108 of whom developed pneumonia, while twenty-two or 5.8 per cent. died. In group 2, ninety-four cases were observed and two cases of pneumonia, with no death. Empyema occurred in two cases of group 1, but was not observed at all in group 2.

Group 1 had a considerable proportion of ileocolitis, one enteritis closely resembling typhoid, now convalescing slowly after five weeks of irregular temperature, and one case of nephritis. Group 2 had none of these.

The leucocyte count varied from 3,400 to 32,400, both these counts being made on the day immediately preceding the death of the patient. The counts

ran as follows: 6,800, 7,200, 11,800, 16,800, 9,600, 28,200, 10,200, 11,600, 3,400, 26,800, 11,200, 16,600, 9,200, 12,600, 11,800, 15,800, 16,400, 10,800, 9,600, 15,800, 16,400, 11,400, 12,200, 32,400, 14,200, 20,800, 16,400, 8,400.

The differential blood count in nine cases is recorded below, the figures given indicating the percentage found in each type:

Case.	Small mononuclear.	Large mononuclear.	Polymorph.	Hemoglobin.
1	11	3	86	90
2	15	3	82	95
3	18	3	78	65
4	15	4	81	60
5	30	13	57	70
			(Eosin. 9.)	
6	18	6	76	..
7	24	10	66	70
8	10	32	58	75
9	30	8	56	65

The blood pressure was almost invariably low with tendency to high pulse pressure, especially in group 1.

Of considerable interest in the comparison of these groups is the fact that but two per cent. of group 2 as compared with 28.7 per cent. of group 1 developed pneumonia, and these two cases, or two per cent., were mild. Logically, the administration of autogenous vaccine on admission to group 2 had a favorable effect on the disease. Reports of ward surgeons on its use in the treatment of lung complications of group 1 were also favorable, but vaccine so used was not from group 1 but a stock vaccine similar in composition to autogenous vaccine of our laboratory and made by the Jersey City Hospital laboratory, Jersey City, N. J.

Of the pneumonias in group 1, 101 were diagnosed bronchopneumonia, six as lobar pneumonia, type 2, and one was lobar pneumonia of type 4.

The following autopsy findings are, to the author, significant of the fatal pneumonias complicating influenza: The patient had a well developed and apparently normal physique. In the right lung multiple small abscesses were found centering about bronchi surrounded by thin connective tissue walls. The pleura firmly adhered to the parietal wall of the thorax. No effusion was found. The left lung showed gray hepatization of lower lobe. Minute hemorrhagic infarcts accompany same. Lung adhered to diaphragm. The bronchi were filled with purulent fluid. No pleural effusion was found. The heart showed few adhesions, not dense, between the left ventricle and the pericardium. The liver showed a cloudy swelling, but was not markedly enlarged. The gallbladder was normal. The kidneys showed a minute abscess in the cortex of the right. The colon was dilated throughout. The pancreas was slightly enlarged and hard. The muscular tissue did not show degeneration macroscopically. The right lung had, in addition, numerous small consolidated areas scattered throughout.

Eczematoid Ringworm.—Failing a better diagnosis, this was the one made by S. E. Dore (*Proceedings of the Royal Society of Medicine*, April, 1918) in the case of a girl of thirteen who had persistent symmetrical excoriation of the toes and dorsal and plantar surfaces of the feet for five months. Dr. Graham Little confirmed the diagnosis.

FADS AND FANCIES ABOUT PULMONARY TUBERCULOSIS.

*A Criticism of Doctor Gluck's Paper.**

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It would be very difficult to name a disease that has been subjected to as much theorizing as has pulmonary tuberculosis. Medical literature abounds in new ideas about the etiology, diagnosis, and treatment of the disease, ideas which are frequently contradictory to the knowledge accumulated by years of scientific and painstaking investigation, by past and present authorities on the subject. The predisposing factors in particular offer an inexhaustible field for metaphysical speculation and flights of fancy, and although nothing of any value has been added to the physical signs of the disease, as worked out by the masters in this field, which are sufficient, in the hands of the skilled examiner, to make a correct diagnosis, we frequently read of the discovery of some new sign linked with the name of the author which cannot be demonstrated to the satisfaction of any one except to that of the discoverer. The diagnosis of incipient pulmonary tuberculosis appears to offer a most favorable hunting ground for theories, fancies, and fads. To one acquainted with the subject, not much need be said about the treatment of pulmonary tuberculosis as being a topic well suited to him who is determined to add something new to our knowledge—no matter how inconclusive the evidence or hasty the observation. Specialists in the various branches of medicine have from time to time overemphasized certain relations between their specialties and the etiology and treatment of tuberculosis. But in no instance, to my knowledge, have there been put forth such extravagant statements and conclusions as are to be found in Doctor Gluck's paper. We are told in unequivocal terms that the prophylaxis we have so long sought, and the cure which has not as yet been found in the older methods of treatment and by vaccines, tuberculins, serums, etc., has been finally discovered to lie in the universal removal of adenoids, complete extirpation of the tonsils, and the correction of septal deflections.

I do not dispute Doctor Gluck's remarks in regard to his explanation of the causation of disease in general as being based upon "chemicomechanical factors." We can only say that we would desire politely to disagree with the statement that "the medical profession will regard the prevention of the more common diseases and, to a great extent, also their cure, from an entirely different standpoint than does the nose and throat specialist, whose view is more mechanical, and hence more efficient and far more practical." Is it not rather hard on our esteemed nose and throat brethren to consider their views on any subject "mechanical"? And is it certain that Doctor Gluck expresses their consensus of opinion that their views on the prevention and cure of disease are more efficient, and far more practical, than those of the general profession? Nor

do I wish to enter into any discussion of the physiology of "suboxidation" as put forth by Doctor Gluck. But I do desire to criticise some, or rather all, of the statements regarding the relation of the nasopharyngeal organs to the etiology and treatment of pulmonary tuberculosis. We might agree, not simply as a matter of courtesy but in truth, that "tuberculosis is not produced, or rather let us say, permitted to grow in a healthy body." This, as Doctor Gluck says, is "selfevident." But we cannot agree that "its inception and growth require something fundamentally wrong with the nasopharyngeal tract." And again, although we admit that a state of lowered resistance is an important factor in bacterial invasion, we cannot agree that the tonsillar and nasal fossæ tissues are the most important points of entry of the tubercle bacillus in the causation of pulmonary tuberculosis. Doctor Gluck states that in order "to contract consumption" the tissues must first assume the nature of proper culture material for the bacillus, and that "this can be accomplished ordinarily in only one way—by a deranged nose and throat."

Separating the chaff from the grain, we are fairly well agreed on the important modes and pathways of invasion of the tubercle bacillus, and the relative importance of the various points of entry. It has taken a tremendous amount of scientific work to arrive at our present knowledge and I fear that the medical profession, and particularly that group which has devoted itself to the study of the subject as a specialty, is not ready to lay it aside for Doctor Gluck's "more efficient and far more practical" views, even though they be more "mechanical." The tonsils, it is true, have been considered a point of entry for the tubercle bacillus by many authors. It has, however, not been generally accepted as of great importance, and certainly not as of the greatest importance. Least of all has it been accepted that, the possibility of tubercle bacilli passing through the tonsils and causing pulmonary tuberculosis should be taken as an indication in favor of their indiscriminate removal. Of still less importance, as a point of entry, are the adenoid tissues of the naso and oropharynx neither by their position nor by the character of the tissues. That "the modus operandi of the production of tuberculosis varies with the age of the subject, though in its final analysis is practically alike in all periods of life, excepting the very old, or the very sick, with completely broken resistance" is a statement somewhat upsetting our established knowledge. To go into the subject of primary and metastatic infection, at whatever period of life it occurs would occupy too much space. Suffice it merely to mention that according to our newer and accepted knowledge, invasion takes place principally in childhood and that clinical tuberculosis developing in adult life is a metastasis from within the body, and that infection from without in adult life is comparatively rare and is probably confined to the extremely rare cases of those who have escaped infection in early life.

The subject of the natural defenses of early childhood against invading infectious microorganisms which guard the child from destruction is a very

*The Real Value of Fresh Air in Tuberculosis and Many Infectious Diseases, by Charles Gluck, M. D., NEW YORK MEDICAL JOURNAL, October 12, 1918.

interesting one. However, the lymphatic system plays the most important rôle and it is for this reason that this tissue is so prominent in early life. The function of destruction of invading microorganisms is strongest in the lymphocytes, and it is on account of the formation of these cells in this tissue that the pharyngeal, lingual and faucial tonsils play such an important part in the defensive mechanism of the child. It is this same tissue which is best adapted for limiting the action of infective microorganisms. It is for this reason that the tonsillar tissue should not be sacrificed indiscriminately, until, with the development of a general cellular defensive function with advancing age, the lymphatic protection becomes of secondary importance. We agree that there are conditions under which the tonsillar tissue has to be, and should be, sacrificed but we cannot go to the extreme of believing, without conclusive evidence, that after the "timely" removal of the tonsils and adenoids "the child" always "continues to grow, free of almost all ailments thereafter," and that such a procedure would certainly solve the question of infant mortality from all diseases and of the prevention of tuberculosis, as Doctor Gluck asserts.

Taking up Doctor Gluck's opinions as to the method of production of consumption in adults, one must, in view of the accepted knowledge of the sources and routes of infection in adult life, entirely absolve the tonsils from the importance he assigns to them, irrespective of appearance and size. The same holds true of adenoids. Doctor Gluck further maintains that a deflected nasal septum is "essential for the production of tuberculosis" in adults. If this were the case how many of us would fail to fall victims to this disease? And even admitting that the tonsils, adenoids and deflected septum have some bearing on the etiology and treatment of the disease, is it not somewhat extreme to conclude that "by deductive reasoning we must conclude that we possess today a wonderful instrument for the prevention of tuberculosis and innumerable other ailments, and for a more scientific handling of these diseases when present" and that by the thorough and universal removal of tonsils and adenoids and by the correction of septal deformities we may, perhaps, achieve the eradication of "tuberculosis in all its forms." The only saving grace of all this array of extravagant statements is that Doctor Gluck modestly adds that "naturally this still remains to be proved." Not only does Doctor Gluck claim that his discovery is a panacea for tuberculosis but also, apparently, for all ills that our tortured flesh is heir to. One must be supported by weighty evidence, which Doctor Gluck admits he has not, to write: "It certainly is lamentable to feel that we possess such inaccurate methods in attempting to prevent tuberculosis, or effect a cure in people afflicted with it. The reason for this is that up to the present the mechanism of production of the disease has not been understood, but with a more thorough comprehension of this we will obtain more favorable results. We mistakenly attempt to eradicate the disease with the body in the same state as when the disease was contracted." "Deductive reasoning" alone, particularly when based upon wrong premises

about the pathology of the disease, is not sufficient to convince us that our methods of the prevention of tuberculosis, and of its cure, are inaccurate and that up to the present the production of the disease has not been understood.

In view of the above we are not surprised to read further on that "we can, therefore, say positively that no tuberculous patient is properly treated unless his tonsils are completely removed" and that "this practically means a complete submucous operation on the nasal septum in every tuberculous adult." And again we are told that to our profound ignorance of Doctor Gluck's views is due "the lamentable state of inaccuracy in the prognosis of tuberculosis." To top the climax Doctor Gluck refers to the boys in the trenches. Although the writer yields first place to none in patriotism he deplores the all too frequent appeal to our patriotic feelings at this time in the discussion of scientific subjects. It reminds one too much of the poster advertisements of various wares with a patriotic background.

And thus, we who have lulled ourselves into a belief that we have acquired a trifle of knowledge about tuberculosis and ye who have devoted your time to the study of other ills must awaken from the Rip Van Winkle sleep and learn that a tonsillectomy, a curettage of the nasopharynx in every baby and a submucous at a certain age not yet definitely determine upon, but apparently the sooner the better, will solve all our problems of prevention and cure of all cardiac, respiratory, vascular and "nephritic," and "alimentary" diseases. No further need of the study of pathology, of methods and instruments of precision! The "sterilans magna" has been discovered! Let us henceforth strive for that golden age when tonsils shall have become a harmless vestigial structure, when every baby will be born with a straight and nondeflectable septum and when there will be no more fads and fancies in medicine.

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THE SURGEON AND THE INTERNIST IN THE TREATMENT OF EXOPHTHALMIC GOITRE.

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In previous communications I have endeavored to point out that the long standing controversy between internists and surgeons, concerning what method to pursue in the treatment of exophthalmic goitre, is slowly but surely coming to a head through the accumulation of facts resulting from the increasing enthusiasm in the following up of patients for a long time after they have been discharged "cured." Not only have such men as Musser, Hall, White, and Mackenzie implied in their publications from time to time that Graves's disease is not at all a condition belonging in the realm of surgery, but even men whose practice consists largely of surgery of the thyroid gland tacitly affirm that hyperthyroidism is a nonsurgical entity.

In corroboration of these remarks, note the following quotations: "The sympathetic operation may slightly diminish exophthalmos but may be followed by very serious results, such as inflammation of the eye or even blindness. Regarding the ligation of the thyroid vessels, it still seems doubtful whether this procedure is followed by cure sufficiently often to justify its performance."—Berry. "How little is known today of the function of the thyroid even though surgeons have been removing them by the thousand! How many physicians still question the propriety of operating for toxic goitre and assume a skeptical attitude as to the reported results of surgical interference! It is my own belief that the present status of surgical therapy is but a stepping stone to the development of some method of arresting the toxic functional disturbances of the gland and that eventually other measures, perhaps non-operative, will be forthcoming, that will deal with the cause rather than the effect of deranged function and by removing the cause, break the vicious circle. . . . I want to refer to two minor groups of cases where the propriety of operation is questionable. The first is presented by the patient, a woman, with a small adenoma and a group of nervous phenomena that characterize the patient as a neurasthenic. The physician has labored with the case many months and as a last resort attributes the nervous phenomena to the thyroid involvement. On two or three occasions I have been persuaded to operate and the outcome has not been gratifying. With careful preoperative study of such cases, one should be able to avoid this pitfall. . . . As bearing on the effect of operation and the after-results, I have but a word to add in conclusion. No matter how intelligently the surgical management of the case has been executed, satisfactory end results cannot be obtained without quite as intelligent management of the aftertreatment. If the latter is not carefully carried out relapses will be more frequent, and the surgeon is dependent on the cooperation of the family physician. It has been our practice, on the patient's discharge, to send to the physician a suggestive outline of aftercare. The patients must be protected as far as possible from unnecessary physical or nervous fatigue, and to this Ochsner adds the importance of rather rigid dietary regulation on which he lays great emphasis."—Charles H. Frazier, in *Pennsylvania Medical Journal*, May, 1918.

In my prolonged study of diseases of the thyroid gland, I have yet to see a permanent surgical cure of genuine Graves's disease, though I admit that the great majority of patients operated on recover sooner or later from the unnecessary surgical shock and exhibit a presentable scar. But they are still sufferers from hyperthyroidism, and the few who get well are those who are sent by the careful surgeon to the careful internist for a course of careful postoperative nonsurgical treatment. The patient then becomes well through nonsurgical measures, and he is a nonsurgical cure. Surgeons' reports, therefore, emphasize not the clinical recovery of the patient, to say nothing of the remote or complete recovery, but rather do they endeavor to impress the reader with the lowness of their operative

mortality. Thus these writers commit the fallacy known in logic as non sequitur, i. e., it does not follow when a patient recovers from the surgical procedure, that he is cured of the malady for which operation was attempted. We have delved for generations in the mysteries of the thyroid gland with but few lucid facts in reward for our labors; volumes have been written on the physiology of the thyroid, the pathology, the physiological chemistry, and above all have many industrious experimenters devoted years of toil in expatiation of their individual theories on the pathogenesis of Graves's disease; but who can tell exactly how near we are to clearing up the mysteries of thyroid physiology and thyroid pathology? Is hyperthyroidism a disease originating in the thyroid gland itself or in some disturbance of the thymus? Do the palpitation and tachycardia, the trembling of all the muscles of the body, the protruding eyeballs, the extreme restlessness, the nervous diarrhea, the cold, clammy skin, all these constituting the picture of fright, indicate that the cause lies in a disturbance of the emotional balance with secondary thyrotoxicosis, or is the guilt to be fixed on the organs of reproduction? Does the cause lie in a shock to the central nervous system or is it in a derangement of the sympathetic nervous system, especially the cervical sympathetic? Are the suprarenal glands and pituitary body innocent bystanders in the development of the Basedow syndrome or is the entire picture instigated through some specific autointoxication from the digestive glands? What part, if any, does heredity play in the development of the disease? These and dozens of other questions may be asked, but the answers are not forthcoming in spite of the vast amount of literature to be secured on this subject. That exophthalmic goitre—and other diseases, eminently diabetes mellitus, arthritis deformans, and occasionally epilepsy—is in a large proportion of cases traced back to a sudden shock to the emotions, especially fright, has led many to believe that the loss of emotional balance is in a large measure responsible for the onset of exophthalmic goitre. To add to the perplexity of this question, we find occasional instances of spontaneous cure of advanced cases of exophthalmic goitre where the syndrome disappeared as mysteriously as it came and the patient after having gone the rounds of hospitals and physicians and having given up all hope of recovery, suddenly finds herself improved and becomes healthy and strong. Still more mysterious is the rare instance of recovery through a shock superimposed upon an already existing toxic goitre, exemplified by the following case:

I know of a woman whose enlarged neck and other enlarged Basedowian symptoms so preyed on her mind that she was subject to occasional attacks of suicidal mania. In one of these attacks she seized a large knife and tried to "put an end to it all" by cutting her throat. But her large goitre acted successfully as an insulator and the large vessels of the neck were unimpaired. She slashed herself again and again, only succeeding in severing several veins coursing through the peripheral portion of the tumor which caused her to fall to the floor in a faint from pain and loss of blood. When

discovered, she was taken to a hospital where the wounds healed kindly by first intention. At the same time it was noticed that the tumor which had existed for several years was becoming smaller. Soon the mass was seen to shrink with great rapidity and in three months it was gone, with amelioration of all other symptoms of the disease.

In the presence of such confusing etiological theories, conflicting pathological evidences and profound systemic changes especially referable to the circulation, the nervous system, and the metabolic balance, as evidenced by the progressive loss in weight and strength, does it not seem inconsistent to place the entire blame on the thyroid gland and to proceed surgically on the assumption that the removal of this gland spells cure, i. e., a restoration of the utility and happiness of the patient. It is admitted that the Basedow syndrome could be produced in animals and in human beings by the administration of excessive doses of thyroid substance. It is therefore conceded that most of the symptoms met with in exophthalmic goitre are produced by the presence of an excessive quantity of thyroid substance surcharging the blood, which is manufactured by the patient's thyroid gland. But whether the thyroid is primarily the cause and all the other manifestations are results of thyroid intoxication, or on the other hand, whether the thyroid hyperactivity is really secondary to some other primary cause is the question which both surgeons and internists must decide in view of the fact that the knife is far from successful in curing the disease, and also in view of the fact that it is almost universally recognized at present that the thyroid gland seems as one link of a chain of organs, and its aberration of function forms but a small fraction of the series of abnormal events occurring in all the ductless glands. Thus we have a vicious circle of a most malignant sort, engendering a type of autointoxication but little understood today.

Let us for the sake of argument assume that the diseased thyroid gland is responsible for the picture clinically known as Graves's disease, still surgery does not seem to be the cure. Remove all of a diseased tonsil and your tonsillectomy is complete and satisfactory. There will be no further recurrence; the patient is better off for its absence. Leave a part of said tonsil and usually we are in course of time confronted with the need for another operation, the remaining portion having served as a root for the regeneration of the removed tissue. Remove the thyroid, however, and you ruin or kill your patient through the resulting myxedema. Leave a portion of the diseased thyroid in order to conserve the life of the patient, and as the lingering portion of diseased tonsil, not only will it continue poisoning the body with or without a period of apparent improvement or even cure, but sooner or later the entire gland is regenerated, and we have again a full fledged case of exophthalmic goitre.

The real difficulty in the treatment of hyperthyroidism has been that both surgeons and internists have looked for immediate results and drawn their deductions and statistics accordingly. The eagerness to generalize hastily instances of apparent relief or apparent failure on the part of the thera-

peutists—surgical and nonsurgical—has been the stumbling block in the way of therapeutic progress in the treatment of this disease. Surgeons have frequently succeeded in giving immediate improvement, but more frequently these patients suffer a relapse which is sometimes of greater intensity than the primary shock of hyperthyroidism. Internists, even when proper measures are instituted, are impatient when results are not immediate, and turn their cases over to the surgeon. So that here also we are tending toward a vicious circle in the therapeutics of the disease. The truth of the matter is that the surgeon should show less haste, and the internist more patience, in the treatment of these cases. I base this conclusion upon the lack of statistics proving permanent cures in exophthalmic goitre on the part of surgeons, and upon the presence of a large number of permanent cures effected by some internists who skillfully and patiently employ the proper nonsurgical procedures through the length of time necessary to bring about complete recovery. Ample proof of these conclusions, in the form of case histories, will be furnished by the writer in another paper.

My object is to suggest to the profession to avoid haste in resorting to surgery and to be more patient in the use of nonsurgical measures, and when a general practitioner feels that his case has been treated nonsurgically for a reasonable length of time, without satisfactory improvement, it is further suggested that, instead of turning the patient over to the surgeon for operation, an internist, who has had exceptional experience in thyroid therapy, be consulted.

CONCLUSIONS.

1. Surgical indications in Graves's disease are:

a. Marked pressure symptoms where dysphagia and dyspnea are distressing; dangerous pressure symptoms in exophthalmic goitre are rare and usually respond promptly to carefully administered nonsurgical measures. b. Malignant changes in the thyroid gland. c. Instances where a subject of nontoxic goitre suddenly finds herself afflicted with the Basedowian syndrome. If it is concluded that the change is not due to the thyroid gland itself, but to the pressure of the tumor upon the cervical sympathetic, the removal of the latter or an operation upon the goitre to relieve the pressure may cure the patient. In this case, though the patient is suffering from what appears to be exophthalmic goitre, the case is not one of genuine Graves's disease, since there is no surcharging of the blood with thyroid substance.

2. All routes of research seem to lead to the conclusion that the *modus operandi* of the clinical picture of Graves's disease indicates a disturbance of many or all of the glandular tissues of the body; in such a status, operation upon the thyroid gland as a curative measure seems futile.

3. Some cases end in spontaneous recovery; it is such cases as these, where operation is performed, which are claimed as surgical successes.

4. The immediate and remote deleterious consequences of surgical interference, e. g., the accidental removal of the parathyroids resulting in tetany; the possibility of postoperative myxedema; injury to

the recurrent laryngeal nerve directly through the operation or subsequently by pressure of scar tissue to paralysis of the vocal cords, all these "must give us pause."

5. Operation is further capable of harm by the devitalization of the patient through anesthesia and shock and the various other dangers because of the existence of glycosuria in many cases.

6. Surgical procedures dangerously postpone the utilization of successful nonsurgical procedures.

7. Proper nonsurgical measures, persisted in with patience and enthusiasm, will cure every early and moderately advanced case and more than seventy-five per cent. of advanced cases of Graves's disease.

8. All good surgeons seem to admit by word and pen that their success depends upon the careful nonsurgical postoperative treatment which they employ as the basis for permanent cure.

9. As the art and science of healing become less homogeneous and more heterogeneous in character, and concomitant with this change we find a comparative reduction in the number of general practitioners and an increase in the number of specialists; and since the innumerable number of men engaged in scientific research have added so much to our knowledge of the rôle of ductless glands in medicine, it seems fitting that men adopt the thyroid as their field of study and practice. In so doing, the thyroid specialist will not only find a broad and fascinating field of study, but he will also render humanity an inestimable service in helping to eradicate this disease which is becoming more and more a prominent factor, with the increasing strenuousness of modern life.

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CAUSES OF SHOCK.

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As much research work has been accomplished on shock during the past eighteen months in the French and English armies, I propose to sum up the question as it stands and in the light of recently acquired physiopathological data.

There is undoubtedly a more uniform accord as to the primary and secondary causes of shock as is made evident by the clinical classifications offered. For example, Quenu refers to nervous shock (from commotion or immediate shock), hemorrhagic shock, and shock from cold and fatigue, from infection, and compound due to multiple wounds. He also describes toxic shock due to absorption of albumin in the traumatic focus. Gatellier differentiates pseudo-shock from fatigue and cold and divides the remaining forms into hemorrhagic—nervous commotion, multiple wounds or extensive contusions—and toxic shock. Generally speaking, it may be said that the intensity of the traumatic nervous perturbation, the extent of the surface of excitation—multiple wounds—the extent of damage done, the hemorrhage, fatigue, cold, and duration of transport are all factors

favoring shock. Among the psychic factors pain and fear have been advanced by Crile.

From another viewpoint, by the treatment employed which has often been successful, the same conclusion is arrived at, namely, economy of blood, pain, and heat, as has been rightly pointed out by Prevel. In this direction great advances have been made through better means of immobilization of the wounded, easy and rapid transportation in a heated automobile, advanced surgical posts, etc.

Let us now consider the action of the above mentioned factors from the cardiovascular standpoint. The psychic factors—pain, distress—and more generally, all emotions, are excitants of the nervous system, provoking a generalized vasoconstriction and the cutaneous vessels are constricted quite as actively as those of the viscera, the blood pressure rises and the heart beats with greater energy and in frequency.

A. Binet and N. Vashide, studying the action of the various psychic processes on the blood pressure, found that the latter increased from 1.5 to two centimetres Hg. under the influence of severe pain or mental calculation. The organic factors—hemorrhage and cold—are likewise excitants of the nervous system and more especially of the vasoconstrictor nervous system. Cold excites the sensitive cutaneous nerves and these transmit the impression to the vasoconstrictor centres which react by causing a contraction of the vessels in the region exposed to cold. If the surface exposed is extensive, an elevation of the arterial pressure ensues and this is followed by a normal reaction of cardiac hypertonia and polyuria. If, however, the pressure does not rise, a certain quantity of blood flows to the internal viscera and, therefore, the multiple causes of abdominal congestion at once become evident and, on the other hand, there are excellent results obtained by heating the wounded which reestablishes the equilibrium in the distribution of the blood mass. Hemorrhage, like cold, excites by a process more difficult to determine, by automatic and reflex means, the functions of the vasoconstrictor centres. Therefore, among the factors of shock, many are excitants of the vasoconstrictors. They are not always hypertensors because a compensating action may come in play—cardiac slackening from inhibition, reflex dilatation of the abdominal vessels—but most usually they are. One is thus led to attribute an important part to vasoconstriction in shock, and the question arises to what extent facts verify this hypothesis.

From very numerous oscillometric tests made at the front by Delaunay during the war, he often noted that a strong emotion certainly produced a vasoconstriction and arterial hypertension. The M_n often went up from three to five centimetres Hg. and the M_x from five to six centimetres Hg. The vasoconstrictive action is of short duration, and when it persists it is soon followed by a sort of cardiovascular relaxation. In case of wounds, the process is identical but with the essential difference that the wound *per se* produces stronger and more durable causes of vasoconstriction. Delaunay was particularly struck by the high blood pressure often met with in men immediately after the receipt of their wound, or a few hours after, when they had been

despatched to the rear in automobiles. In reality, these subjects supported this hypertensive paroxysm admirably and as soon as they were told that their wounds were not serious, that they were far removed from the danger zone, and then comfortably put to bed, they complained less of cold and pain, the hypertension rapidly gave way to a mild hypotensive reaction and a relaxation of the vasoconstrictor centre occurred, followed by deep, quiet sleep.

The same reactions exist, but in an exaggerated form, in the seriously wounded who cannot be sent to the rear. Their greater pain and distress on the day following, when they suspect the seriousness of their wounds, the distress of danger from the time they enter an ambulance in the danger zone, and the great loss of blood they have sustained all tend to increase the hyperfunctioning of the vasoconstrictor centre. Hypertension generally exists, but it may be wanting if the compensating action comes into play.

It is in these conditions that hypotension and shock occur after a variable lapse of time. Now what takes place? Delaunay is quite inclined to believe that in some instances there is a sudden disturbance in the adaptation of the heart to the high arterial pressure created by the wound, but that usually the hypotensive reaction is easily explained by the action of Cyon's cardioabdominal depressive reflex, or later on by an exhaustion of the central vasotonicity—in other words, there exists a sort of posthypertensive hypotension.

It may be argued that one often encounters patients with a hypertension with a very marked minima (twelve to fifteen for example) and a high maxima (twenty to twenty-five) who support their hypertension perfectly well, and this is unquestionably true, but in these cases the organism has little by little and progressively adapted itself to the high blood pressure, the heart is often hypertrophied, and at all events it has become slowly accustomed to perform its work in the new conditions. The nervous system and the vasoconstrictor centres in particular remain indifferent to the process. It is a slow, organic hypertension, while in the case of the soldier wounded on the battlefield the hypertension is sudden and of the nervous type and due to vasoconstriction. The hypotensive reaction following the phase of sudden vasoconstrictive hypertension has as a near result or immediate consequence, abdominal venous stasis according to whether this is reflex (cardioabdominal reflex) or mechanical (vasomotor atony). However this may be, as soon as the blood has become immobilized in the abdomen and has reached a certain amount the process is the same as in the case of hemorrhage and the state of shock is produced by anemic auto-intoxication.

Beside this form of shock, whose *primum movens* is an excess of vasomotor excitation, there exist others whose primary cause is different, as far as the circulatory disturbances are concerned, be they inhibition or intoxication.

From what has been said, from the point of view of practice at the front, it is necessary wherever possible, to fill out a card for all patients with

serious wounds in a state of shock or liable to develop into this state, noting the general and psychic condition, that of the circulation—heart, pulse, blood pressure—respiration, temperature, the importance of the hemorrhage, pain, etc. There is no doubt that surgeons will be greatly helped by these data.

Finally, from the viewpoint of general biology, from the foregoing remarks we may derive a particular conception of the state of shock. Its fundamental basis is, according to Pachon, a cardiovascular state of blood stasis. If there really existed in shock an inhibition of the chemical changes, or if by adaptation metabolism, and catabolism in particular, decreased in the same proportion as the circulation, the result would merely be a kind of hibernation with a lowering of the temperature, but a rapid fatal issue. Now, we know that this is not so. The chemical changes preserve their intensity while the circulation is reduced, anemic auto-intoxication occurs, the chemical composition of the tissues and blood is changed and all the organic functions are involved. It would seem, therefore, that with Delaunay, we may for the time being, at least, define the state of shock as a state of auto-intoxication resulting from discord between the chemical and circulatory functions.

The Cause of Wound Shock.—The Société de Biologie, Paris, has arranged to hold a series of interallied meetings for the discussion of the biology of war, says the *British Medical Journal*, November 9, 1918. The first, on October 19th, was on shock. The subject was introduced by Professor Walter B. Cannon, of Harvard University, who said that the characteristics of shock were persistent low arterial pressure, rapid pulse, pallor, sweating, and rapid superficial breathing. Shock, he held, was not due to loss of tone of the vasoconstrictor, nor to fat embolus, nor to acapnia, but to the tissue traumatism—that is to say, its origin was toxic. The phenomena of shock, appearing several hours after the wound, even when the paths of nervous conduction were severed, did not develop if the circulation in the wounded part was arrested, but appeared after it was restored. He therefore advised that, in addition to warming the patient and raising arterial blood pressure, the injured part should be separated from the circulation either by a tourniquet or the knife. Quénu, who followed, agreed that shock was a toxic condition, originating in the injured part; the signs of shock, appearing five or six hours after the wound, were due not to inhibition, but to absorption of toxic products. He mentioned the case of a soldier wounded in the foot, to which a tourniquet was applied. When it was removed nine hours later he was in good condition, but three hours afterward was suffering from shock, and Professor Cannon mentioned five similar cases. P. Delbet stated that bruised muscle introduced into the peritoneum in animals produced the phenomena of shock. It was manifested first in the nervous system, but later the cells accumulated in the capillaries, leading to diminished oxidation; changes occurred also in the liver cells.

Editorial Notes and Comments

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WAR AND THE RACE.

It is often assumed that war, by removing large numbers of the young and strong and vigorous, does a great deal of harm to humanity, and that a great war seriously slows up the evolution of a nation for a generation or more, at least. There are some surprising contradictions of this, however, which serve to show that the profound stimulation of humanity which comes during a time of war often more than makes up for those who are carried away by the casualties. A French surgeon, to whom the remark was made, when the war had been in progress for nearly three years and French losses in killed and wounded were mounting up to an almost incredible degree, that they were losing an enormous number of men, replied: "Well, for every man that we lose, we are making two men." Such a remark would seem to be scarcely more than a figure of speech, but apparently it must be taken as almost literal truth if we study some of the effects of previous wars in the amount of accomplishment achieved at various times. Evidently, what was lost from the efforts

of numbers was more than made up for in the intensity of effort by those who were left.

A typical example is to be seen after the Civil War in America when, in spite of the fact that large numbers of the young men were lost, the generation so far from being handicapped, seems almost to have been aroused to such efforts as made their achievements remarkable in history. As the result of the Civil War, particularly in Virginia and North Carolina, probably forty per cent. of the men under forty had died and without issue. It is said that in certain of the northern states, especially the New England states, the loss of adults, that is, of men of reproductive age, was almost as great in proportion to the population. It was this drained generation, however, that proceeded during the next thirty years to bring about a development almost unprecedented.

This sort of thing has happened in history, not infrequently. Above all, it has been pointed out that just after the Crusades there was a similar noteworthy result. Literally millions of men went on the Crusades during the twelfth and early thirteenth centuries and the losses, owing to insufficient preparation, inefficient transportation and inadequately organized care for the sick and the wounded, were enormous. In spite of all that, the generations of the thirteenth century proceeded to accomplish some of the greatest work that has ever been done, and there are some writers at least, who know the period very well, who claim for it the distinction of being the greatest century in human existence. It came immediately after the trials and hardships of a series of wars had stirred men's minds to their depths, and in this way brought out powers hitherto latent in the race which went bravely on achieving results quite unprecedented, leaving monuments that have had the admiration of men who have been interested in what was best in the power of humanity to express itself ever since.

It seems probable, therefore, that even the present great war, notwithstanding the immense losses of men, may have something of the same effect, if only the reaction toward renovation of the world is properly taken advantage of. It has been pointed out by one of the great masters of industry, whose help meant so much during war, that what is needed is not reconstruction in the sense of rebuilding what we had before, but building better and deeper and higher than before. A young English poet whom tuberculosis kept from joining the army and who was carried off during the war, said: "We shall have to have a very different world after the war

for all these men whose souls have been touched by flame in the trenches." Undoubtedly, we shall have a great many men thinking more deeply than ever before and stirred to accomplish more than would have been possible under the same circumstances before the war. The future is bright with promise, rather than dark with the eclipse of humanity's efforts for a time, and we are justified in looking for some magnificent results from this generation.

MICROLOCALIZATION IN DEMENTIA PRÆCOX BRAINS.

"The antilocalization tendencies of the Wundtians, and the interest in merely logical categories taken by Freudians, should not interfere with progress in microlocalization." With such a statement no practical psychologist would disagree, least of all those whose interests in the results of psychotherapy of any sort are based upon the dependence of healthy mental functioning on a suitable organism. They agree with Doctor Southard's emphasis upon the close interrelation in the finest histology of the brain and mind activity, and in evaluating the study of this Doctor Southard has not read aright the significance of therapeutic investigation and analysis of the functional mental life, if he anticipates an objection to his fundamentally important study of microlocalization in dementia præcox brains [E. E. Southard, *On the Focality of Microscopic Brain Lesions Found in Dementia Præcox. Bulletin Massachusetts Commission on Mental Disease*, vol. ii, No. 1, April, 1918], or fears an unappreciative rejection of such a study. They would one and all endorse the words of Southard quoted above and heartily agree that dementia præcox peculiarly presented a field in which "microlocalizations in the nervous system, and especially in the cerebral cortex, are threads running to the broadest issues of physiology, embryology, and psychology."

In tracing the history of the study of mental diseases the writer points out the value of the more powerful lens of the histopathologist, which makes the problem of organic disease localization a far more exact and correct one than otherwise could have been conceived. His application of histopathology to the finer localization of dementia præcox led to the study of four brains tending toward dementia præcox and one toward manic depressive psychosis, all of which showed no anomalies or scleroses. His problem resolved itself, he found, into a study of parenchymatous or neuronc versus interstitial neuroglia lesions

in the case of the dementia præcox brains. All of these four brains revealed lesions in the supracortex of the nature of cell loss and of more or less disproportionate gliosis, except one case in which there had been symptoms of paranoia, without the distinctly schizophrenic phenomena of the other cases, which these lesions, the author believes, should demonstrate organically. He is led to regard the supracortex, or upper layers of the cerebral cortex, as the location of lesions associated with schizophrenic disturbance. Or, as he puts it elsewhere, the evidences of psychic disintegration must be looked for and are found in the region which has to do with the higher processes of psychic association or synthesis, and here he finds the destructive changes in evidence in the subjects who had suffered this psychic disintegration. At the same time these researches seemed to confirm the conjecture that the infracortex or lower layers of the cerebral cortex were the organic correlation of lower level symptoms such as catatonia and hallucinosis. The latter was substantiated in the paranoiac brain in which signs of schizophrenia were lacking organically as they had been in the psychosis of the patient. The hallucinations present were accompanied by organic lesions of a mild degree. He characterizes this differential localization in regard to higher and lower functions as only an alluring suggestion which needs as yet far more substantiation.

As regards further microlocalization of physical evidences of the various symptoms, the frontal region seems to be the one for those of ordinary delusions, but the localization of paranoiac delusions is uncertain and indefinite. Auditory hallucinosis is manifested in the temporal lesions, but in one case of severe symptoms of this type there was evidence of connection in activation of the supracortex and infracortex in these regions. The lesions accompanying catatonia are not only shown to be in the post central and parietal regions, but more specifically these lesions are infracortical ones. The confinement of the lesions to these definite localities, although at the same time they were bilateral, was particularly brought out with great clearness, particularly in one brain.

The writer intends this report of his studies to be suggestive only of the definiteness and intensiveness of histopathological studies for the future along these important lines, and of the significance to the pursuit of knowledge and enlightenment in this widespread disease. The importance of his final observations thrusts itself

upon any one interested in the subject from whichever approach, the psychic or the anatomical, for it is becoming more and more fully recognized that neither method of investigation can be complete without the other. "It remains," he says, "unsettled whether these lesions are secondary in point of time to a noncelldestructive phase in the disease, or whether the lesions of which these microscopic effects are indicators began *pari passu* with the symptoms; that is, it remains a question whether we are dealing with the excess wear and tear process of cell mechanisms morbidly employed, or whether the morbidity of neural function is an exact equivalent of the neuronie and neuroglia morbidity."

THE SPEED LIMIT.

The placid countenance of Washington looking out from a Stewart or Trumbull canvas seems to rebuke us for our joy in hurry. One would little suspect that the father of our country was ever infected with the speed microbe, and yet it is recorded by Lawrence Washington that the great man often "rode from Rockingham to Princeton, which is five miles, in forty minutes." A mile in eight minutes for five miles on an eighteenth century road and just for the pleasure of it was not exactly moderate riding. We have no record of the number of chickens and dogs trampled under foot in the general's swift passage, and we do not know whether he slowed down as he passed the more thickly settled (if there were such) neighborhoods.

The joy of fox hunting lies chiefly in the speed of the pursuit, and Washington, when at home with nothing more exciting to occupy his time, was up before daylight thrice a week for this splendid sport. Washington once remarked that the only quality that he cared for in a horse was that it "would go along." The question arises, if he were alive today, would he be content with any but the most powerful automobile, and, would he escape arrest for exceeding the speed limit?

But perhaps Washington was by no means typical of his time in respect to his delight in rapid motion. Surely ours is the age of strenuosity, and men in general, until within a few years, have gone their way with dignity and deliberation. Alas, we fear that if our ancestors were less strenuous, it was due simply to a little matter of lack of opportunity and means. The editor of one of the popular monthlies of 1859 wrote: "One of our most pernicious evils is the excessive facility with which we exhaust life. There is no end to

our ingenuity in devising plans to wear it out. We treat life as a thing to be tortured. . . . We eat up life; we drink it; we roast it and fry it; we blow it away in vociferous talking; we rattle it to pieces over rough streets and turn it into steam to rush along highways. Our muscles have as much put upon them as buffalo hides, and our nerves are charged with electricity enough to report the news of a continent through the cable of an Atlantic telegraph. Nature made the heart a quiet forcepump, and we use it as a furious fire engine."

It is the way of evolution, so far, at any rate, that man should always be speeding up, for the healthy, vigorous part of society is always in a race, whether at work or at pleasure, and only the strongest will win in the contest. We may preach the moderate pace but we must prepare to succor the victims of exhaustion who fall by the way. The good old times were not so slumbrous, and though there was no horrible honk honking nor menacing roar of aerial motors, it was simply because these were not yet invented and not because there was no craving for hurry.

INFLUENZA IN TORONTO AND ONTARIO.

According to a report prepared by Dr. Charles J. Hastings, Medical Officer of Health for Toronto, that city passed through the recent pandemic in one week less time than did American cities of similar population. This very good result, according to Doctor Hastings, is attributable to preparedness on the part of the health department; but, in his report, it is not definitely stated just in what way Toronto was prepared. No doubt many cities throughout Canada and the United States would have appreciated and profited by a statement of the preparedness. It appears, however, that good work was accomplished in Toronto once the epidemic gained entrance into Ontario. There is no evidence that Canada did anything to prevent influenza from getting into that country, any more than did the quarantine officers at our own American ports of entry.

Toronto, with a population of 490,000, had 1,614 deaths from influenza and the pneumonias, according to reports made by physicians to the department of health; and it is to be presumed for a similar period, Boston, with a population of 800,000, had over 4,000 deaths up to October 19th; Buffalo, with 476,000, had 2,170 deaths; Montreal, with 640,000, had 3,892. In Toronto the greatest incidence of the diseases was in patients from ten years to forty years of age, al-

though forty-four cases were recorded under one year, and twenty-eight over seventy years.

Before the epidemic had gained foothold in Ontario, the board of health of that province considered the advisability of handling it on precisely similar lines to any other communicable disease. They decided, however, that it would be impracticable, in spite of the general opinion, that it is a disease contracted in the home. There appear to be considerable differences of opinion between physicians abroad and physicians in America on this point: some consider it to be air borne, particularly in England, while in America it is thought the disease is conveyed by contact. The provincial officer of health in Ontario, Dr. J. W. S. McCullough, states that four fifths of the medical officers of health in Canada and the United States have expressed the opinion that the placarding and quarantining of these cases have proven ineffectual, because laws made in that direction cannot properly be enforced. There is reason to believe that sometimes minorities are right, while majorities rule. The opinion seems to be rather general that had some combined effort been made toward prevention, some measure of success in lessening the terrible toll of human life might have been achieved, and has led to the announcement by some of those of authoritative importance, that hereafter it will be best to class this disease with the other communicable diseases.

If isolation and quarantine can be practised and are helpful in camps and institutions, it is inconceivable why these measures cannot be carried out in the home, where contact is admittedly the prime factor in the spread of the disease. Quite apparently quarantine should occupy the attention of any conference of public health officials in the near future. Had quarantine measures been actively, intelligently, and intensively practised in this epidemic, who knows but that there might have been a marked diminution in the incidence of influenza.

So far there has been much discussion of quarantine in the medical press; and the medical societies have been equally dilatory, generally taking their cue from the health officials. The civilian practitioner, possibly owing to the fact that he is frequently called upon to make reports without compensation, is none too anxious to increase his labors by voluntary work in the interests of the State. Assuredly, however, the private practitioner and the medical societies of State, city, county, and province should insist that a disease contracted in the home should be kept in the

home. Quarantining the first families, with contagion in their midst, similarly as are the first soldiers affected in a camp or barracks, is quite as rational and should prove equally as effective. It appears to be the duty of physicians to inquire further into the statement that "any laws made in that direction cannot properly be enforced."

THE STATUS OF INCOMPLETE MILITARY HOSPITALS.

The Surgeon General of the United States Army had laid out a very ambitious program in the matter of providing hospitals, both general and special. That this program was well justified is amply proved by the long casualty lists which have continued to appear from day to day although active hostilities ceased nearly two months ago. Had hostilities continued on anything like the same scale there would have been need for every hospital bed planned for. Fortunately the need for many of these disappeared with the cessation of hostilities. But there is a question at least in the public mind as to whether or not we now have sufficient accommodations for all the sick and wounded who are yet to come home. It is to be hoped that we have, for the Secretary of War has taken the ground that the appropriations for hospitals were made only for the duration of the emergency and that these appropriations are no longer available. Under this ruling work has been discontinued upon many hospitals. The Secretary has directed that no further steps be taken in the erection and equipment of these hospitals on the ground that the emergency no longer exists.

News Items.

Harvey Lecture.—The second lecture in the series will be given on Saturday evening, January 11th, by Colonel Eugene R. Whitmore, Medical Corps, United States Army, his subject being Infectious Diseases in the Army.

Experience of a Surgeon in the War Zone.—At the annual meeting of the New York Academy of Medicine, held Thursday, January 2d, the address of the evening was delivered by Colonel George E. Brewer, Medical Corps, United States Army, on Experiences of a Surgeon in the War Zone.

Studies in Sensory Disturbances.—At a joint meeting of the Section in Neurology and Psychiatry of the New York Academy of Medicine and the New York Neurological Society, to be held Tuesday evening, January 7th, the programme will consist of a presentation of Studies in Disturbances by Dr. Joseph Byrne, chairman of the section.

Personal.—Dr. Simon Flexner, director of the Rockefeller Institute for Medical Research, has been made a member of the Legion of Honor by the French Government in recognition of distinguished services rendered to the Allied cause during the war. It has been said that a number of other Americans have been made members of the Legion, though the names of all have not yet been published.

Organizations Assigned for Early Convoy.—Among the organizations which have been assigned for early convoy to the United States, are the medical detachments of the 422d Telegraph Battalion, the 30th Balloon Company, and the 109th Aero Squadron; Mobile Hospital No. 39, Mobile Hospital Company Nos. 100, 101, 102, 103, 104, and 105, Mobile Surgical Units Nos. 100, 101, 102, 103, and Base Hospital No. 2.

Finances of the Bronx Hospital.—A complaint has been filed with the State Board of Charities asking for an investigation of the financial affairs of the Bronx Hospital. Since the hospital did not receive any funds from the city, there seems to be a doubt whether its books are subject to the inspection of the State board. The charge is made that approximately \$150,000 had been collected, the collectors being given commissions of forty to fifty per cent. of the amount but that the assets of the institution only amount to about ten or fifteen thousand dollars. The charge is denied by Alexander Selkin, the financial secretary of the institution.

The Incidence of Special Diseases in the Army.—For the week ending December 20th, the annual rate per 1,000 cases of pneumonia reported for all troops in the United States was 37.03, and in the American Expeditionary Forces, 26.55. The number of cases reported the same week for dysentery, was 1.54 and 4.65; for malaria, 2.36 and 0.32; for venereal diseases, 64.23, and 30.25; for paratyphoid, 0.0 and 0.31; for typhoid, 0.0 and 0.94; for measles, 21.06 and 5.81; for meningitis, 1.13 and 1.91; for scarlet fever, 3.63 and 1.37. The rate for influenza among the troops in the United States was 89.03. The annual death rate from disease alone for all the troops both in the United States and in France for the week ending December 12th, was 12.81.

Medical Enlisted Reserve Corps.—There has been considerable doubt as to the status of men in the Medical Enlisted Reserve Corps of the Army, especially as to those ordered to active duty from the Reserve. We are informed by the Office of the Surgeon General of the Army that the status of the two groups are quite different, says the *Army and Navy Journal*, for December 21, 1918. Men who are in the Medical Enlisted Reserve Corps and have not been called to active duty will remain in that corps, until such time as the entire corps is demobilized; that is, individual applications for discharge from the Medical Enlisted Reserve Corps will not be approved. It is impossible to predict at this time when the entire Medical Enlisted Reserve Corps, members of which are on inactive status, will be discharged. Men who were formerly in the Medical Enlisted Corps, but have been called to active duty, are no longer members of the Medical Enlisted Reserve Corps, but are soldiers on active duty in the personnel of the Medical Department of the Army. Such men must await their turn in the general demobilization. It is reported, but actual orders have not yet reached the Surgeon General's Office, that it is the intention to discharge in the near future all graduates of medicine, dentistry and veterinary medicine who are now serving as enlisted men. Until orders are issued, it should not be assumed that this will be done.

Care of the Mentally Defective.—The Surgeon General of the Army made a statement to the Senate Committee on Military Affairs on December 13th, covering the care of the mentally defective soldiers in the army. About 2.5 per thousand of the soldiers in the camps in this country, and about 10 per thousand of the overseas troops have developed mental or nervous diseases requiring special treatment. Every base hospital is provided with facilities for emergency treatment of cases of this type, beside which there are six hospitals overseas for the treatment of such cases. Out of 2,500 shell-shock patients awaiting transportation to New York, 2,100 were restored to normal conditions within two days after the signing of the armistice. In the course of the hearing, the point was brought out that fear does not cause shell-shock, as it occurs among some of the men who have received decorations for special bravery.

A Tribute to the Late Doctor Bissell.—The medical board of Saint Vincent's Hospital, New York, has learned with profound regret of the death of their colleague, Dr. Joseph Bidleman Bissell, who for many years was a visiting surgeon to this hospital. Under the promptings of patriotism, and despite the fact that he was beyond the age limit set by the military regulations, he entered the service of his country and in that service contracted the disease which brought about his sudden and untimely end. A surgeon of high professional skill, resourceful and direct in the business of every day, a pleasant and loyal companion, he will be greatly missed in this hospital by the poor, by the Sisters and by his colleagues. He made the supreme sacrifice as truly as if he had laid down his life on the field of battle in the service of his country.

Signed, GEORGE DAVID STEWART, M. D.,
President Medical Board.
PETER MURRAY, M. D.,

Secretary.

Home Coming Transport Stranded.—The American troop transport, *Northern Pacific*, ran ashore off Fire Island on January 1st. She had, on board, 2,973 troops, of whom 1,671 men and seventy-three officers were sick or wounded. Colonel J. M. Kennedy, surgeon of the Port of Embarkation, sent Lieutenant Colonel F. J. Pierce, Medical Corps, with 220 officers and enlisted men by special train to Bay Shore, to care for the patients as soon as they could be landed. The litter cases will be sent to Debarkation Hospital No. 3 in the old Greenhut store, the mental cases to the Messiah Home in the Bronx, the contagious cases to Secaucus, N. J., while the less serious cases will be distributed between the Grand Central Palace, St. Mary's Hospital, Hoboken, and Debarkation Hospital No. 2 at Fox Hills, Staten Island. The naval officials sent a fleet of destroyers and tugs and a cruiser to standby and give any necessary aid. It is said that the ship is in no danger and that, as soon as the troops are removed, it can be floated. The local Red Cross societies arranged to feed the troops as soon as they were landed, and the Woman's Motor Corps had six ambulances at hand to aid in the transfer of the patients to the train.

Modern Treatment and Preventive Medicine

A Compendium of Therapeutics and Prophylaxis, Original and Adapted

POLYVALENT SERUM THERAPY IN CEREBROSPINAL MENINGITIS.

By LOUIS T. DE M. SAJOUS, B. S., M. D.,
Philadelphia.

(Concluded from page 1129.)

Comprehensive prophylactic measures against cerebrospinal meningitis are especially difficult to apply, owing to the great number of infected non-contacts and the peculiar epidemiological characteristics of the disease, the distribution of cases being usually in sparsely populated and apparently unconnected districts.

Bijl, 1917, writing of his experiences with cerebrospinal fever in Holland in the preceding three years, observes that instances of direct contagion were met with, but were very uncommon. The general occurrence of the cases "in long jumps" seems to suggest that carriers constitute the main agent of distribution, but Bijl also believes that many actual cases in the past have been overlooked, since bacteriological studies are alone capable of affording a differentiation of the sporadic from the epidemic type of the disease, and such studies have only of late been seriously undertaken. Andrews, 1917, summarizing extensive researches conducted under military auspices in England, notes that, since the meningococcus found in the pharynx early in meningitis cases is always the same as that in the cerebrospinal fluid, the disease is probably spread by the nasopharyngeal secretions, and new cases arise in persons who are already carriers. Compton is said to have demonstrated that carriers are prone to develop the disease in humid weather, in an even temperature, and absence of sunlight. On the other hand, Thomsen and Wulff, 1917, as well as Fildes and Baker, 1917, insist that carriers themselves but very seldom develop the disease. According to the latter authors, a case of cerebrospinal fever develops rarely in a person who is susceptible to infection and who acquires it from a healthy, insusceptible carrier. According to this, the general prophylaxis of cerebrospinal meningitis would consist, not merely in the isolation of actual cases, but in the detection and immunization of susceptible persons and in the elimination of meningococcic infection, in so far as is possible in carriers. At all events, Andrews points out that, as a result of the bacteriological investigations carried out at Millbank, England, it became possible in many instances to trace the spread of the disease by the identification of carriers harboring given types of the meningococcus. When the carriers in any locality became too numerous to be dealt with, such identification demanded the concentration of efforts to prevent the spread of the disease upon those carriers who actually harbored the epidemic types of the meningococcus, and were therefore presumably the most dangerous.

According to Raffaelli, 1917, epidemic meningitis is actually a meningococcus sepsis. Among twenty-

two cases, meningococci were found in the blood, he asserts, in all but two instances. During epidemics, in which atypical and misleading symptoms frequently occur, examination of the blood for the organisms would much more certainly disclose carriers than the usual procedure of studying the nasopharyngeal secretions. Blood cultures taken by Bæslack, Bunce, and their coworkers, 1918, in three cases of marked toxemia without meningeal symptoms or infection of the cerebrospinal fluid, were positive for meningococci.

Detection of persons susceptible to meningitis is at present doubtless impracticable as a preventive measure, in the absence of a test analogous to the Schick test in diphtheria. Elimination of carriers, however, is a procedure that has already been availed of. Isolation of the carriers until negative is of prime importance in this direction; but Herrold, 1918, has observed persistence of the germs in the nasopharynx after six weeks of segregation in seventy-three per cent. of instances. Gordon and Black, 1916, sponsored the use of chloramine for ridding the nasopharynx of carriers of the meningococci, causing these subjects to inhale the agent in a steam nebula at repeated daily sittings of twenty minutes each. Other antiseptics have also been tried. Pizzini, 1917, detected a connection between body lice and meningitis in two epidemics, and recommends antilousing procedures in the prophylaxis of the disease. Quarelli, 1917, has reported gratifying experiences with intravenous vaccine injections in prophylaxis, and Thomsen and Wulff have also written favorably of this method of prevention. Halliday Sutherland, 1916, lays stress on the fact that meningococci are very sensitive to cold and succumb in thirty minutes when exposed to a temperature of 60° F.; on this basis he recommends ample ventilation of dwellings with air from outdoors in the colder months of the year—the months in which the air indoors is warmed and saturated with moisture. The prophylactic value of proper physical and mental hygiene, to obviate reduction of the resisting powers of the body, as well as of avoiding overcrowding in dwellings, has long been known. Again, as already mentioned, during an epidemic, early identification of the type of organism responsible is of great importance, in order that a suitable therapeutic serum may be employed or prepared without delay.

The mode of administration of serum in established cases of meningitis is so well known as to warrant little consideration here. Flexner, 1917, lays stress on persistence with intraspinal injections until the temperature has remained normal for at least two days. The injections should be given by the gravity method with an elevation of but twelve or fifteen inches, and should occupy from ten to twenty minutes. In certain cases it is necessary to aspirate the lateral ventricle and inject serum directly into it. Syk, 1917, emphasizes the need of adequate amounts of serum.

As the effect of the serum depends markedly upon the day of the disease on which its use is begun, early diagnostic tests are constantly being sought. Attlee, 1918, makes it a rule to test for neck stiffness in all acute illnesses with headache. Netter and Salanier, 1917, found meningococci in vesicles developing upon the purpuric patches of meningitis, and deem examination of smears from such lesions of value in making an early diagnosis, the information secured being even more reliable and prompt than that obtained from blood cultures. According to Hagen, 1917, lumbar puncture gives positive findings long before there is stiffness of the neck; he also considers lead blue spots between the petechiæ or alone an indication for immediate serum therapy even where the spinal puncture fluid is still sterile.

As for the different modes and forms of specific treatment, Amoss, 1917, advises giving one or more doses of serum intravenously in addition to the intraspinal treatment in all very severe or fulminant cases. Fanciulli, 1917, deems intramuscular injections of serum, if begun early, as efficacious as intraspinal injections in conjunctivitis or keratitis complicating meningitis; Zarzycki, 1917, advises serum instillations; in dacryocystitis, injections into the lacrymal sac; in iritis and metastatic ophthalmia, subconjunctival injections; and in middle ear involvement with mastoid reaction, the introduction of wicks dipped in serum into the meatus, and subcutaneous injections in the mastoid region. Finally, it is of interest to note that in severe recurrences or relapses occurring after the disease had been apparently conquered by the serum, Di Cristina and Sindoni, 1918, were able to reduce the mortality from ninety-eight to 16.5 per cent. by administering vaccines intravenously.

Calcium Content of the Blood in Infantile Tetany and the Effect of Treatment by Calcium.

—John Howland and W. McKim Marriott (*Quarterly Journal of Medicine*, July, 1918) discuss at some length the various theories which have been propounded to account for the pathogenesis of infantile tetany. Such varied factors as disease of the parathyroid glands, improper diet, absence of breast milk, excessive quantity of cows' milk, deficiency of an essential substance or "vitamine," intoxication by calcium, intoxication by guanidin or methylguanidin, and a lack of calcium have been considered by different investigators as the causative agent, but a scrutiny of the evidence offered in support of each theory shows that it is not sufficient to establish the claim of having solved the problem. The rôle of calcium in the production of infantile tetany has received much attention, and it is from the standpoint of the calcium content of the serum that the subject is approached by Howland and Marriott. The normal calcium content of the serum, as determined by taking the average for sixteen healthy individuals, is 10 to 11 mg. per 100 c. c. of blood. A study of the blood in twenty-one cases of rickets was made to ascertain whether any changes in the calcium of the serum result from rickets alone. A moderate reduction (to 8 mg.) was noted in some cases, while a number of the apparently active cases showed a normal amount of

calcium. On the other hand, in tetany, during the active symptoms, the calcium content of the serum is invariably reduced, falling in one instance as low as 3.5 mg. per 100 c. c. In eighteen cases of tetany, the average calcium content of the serum was 5.6 mg. The constancy of the reduction of the calcium content of the serum supplies a method of differentiating tetany from other convulsive disorders of infancy, as the authors found no reduction in cases of convulsions due to petit mal, epilepsy, etc. The cause of the decreased calcium content of the serum in tetany remains an open question. Howland and Marriott's conception of the disease is that some unknown factor causes the reduction in the calcium content of the blood, and that many of the symptoms are directly referable to this, and that they may be prevented or made to disappear by repeated doses of calcium. The magnesium content of the serum was normal in active cases of tetany. The inorganic phosphates of the serum were not significantly increased. The "alkalosis" of Wilson, Stearns, and Thurlow was studied, but no evidence was adduced that this is a factor in the production of infantile tetany. Cathodal hyperexcitability was invariably accompanied by a marked reduction in the calcium of the serum, and anodal hyperexcitability usually by a slight decrease. Calcium administration has a very prompt effect in preventing all the symptoms of active tetany. Calcium chloride, given by mouth, causes an increase in the calcium of the serum and cessation of symptoms.

Surgical Treatment of Frontal Sinusitis without Facial Scarring.—Julien Bourguet (*Bulletin de l'Académie de médecine*, October 22, 1918) is dissatisfied with Killian's operation because of the frequent subsequent recurrences, due to gradual closure of the communication between the frontal sinus and the nasal cavities. The author's operation is performed by the nasal route, avoiding any incision on the face. A rectangular flap with its hinge below is first made on the inner aspect of the nasal bone proper and the ascending portion of the maxillary and is reflected downward upon the inferior turbinate. The posterior margin of the flap is at the head of the middle turbinate; the anterior, near the pyriform opening; the superior, in the ethmoido-nasal angle. Half of the middle turbinate is next resected, and the bulla ethmoidalis and adjacent ethmoid cells are curetted and destroyed, anterior ethmoiditis always accompanying the frontal sinusitis. The next step is to remove the bony mass which covers, anteriorly, part of the frontonasal canal. For the purpose a curved protector is introduced forward into the sinus, to protect its posterior wall, and a long, cylindrical rasp is used to reduce the bone from below upward. As soon as the rasp has entered the frontal sinus another rasp, cylindroconical, and with the base of the cone above, is substituted. This reduces the bone from above downward and thins down the posterior aspect of the ascending portion of the maxillary and the anterior plate of the frontal. The mucous flap is now replaced, leaving a broad opening connecting the frontal cavity with the nasal fossæ. Suppurative frontal affections soon yield under these conditions.

A New Treatment for Vincent's Angina.—Lagarde (*Paris médical*, October 12, 1918) states that while Labarraque's solution, methylene blue, and powdered arsenobenzol have given good results in Vincent's angina, the constitutional symptoms improve but slowly under their influence, and complete recovery occurs only after twelve or fifteen days. Recently the author has used Dakin's solution in thirteen cases, with far superior results. Irrigation of the diseased area was carried out twice daily with a fountain syringe and a litre of solution consisting of one fourth Dakin's solution in three fourths tepid boiled water. A tongue depressor was used in the procedure. The patient was also required to gargle several times a day with the same solution. Where other agents had failed to relieve the general or local condition, the Dakin's solution caused marked improvement in a single day, the patient's weakness and lassitude passing off and the dysphagia being greatly diminished. At the close of the second day even solid food could be taken without pain and a fibrinous repair membrane, like that formed after tonsillectomy, replaced the necrotic deposit over the area involved. Bacteriological examination for fusiform bacilli and spirilla became negative after the third irrigation, and by the fourth day recovery was apparently complete. Lagarde accounts for these results partly by the detergent and mechanically cleansing action of the irrigations, the microorganisms previously protected by the putrescent mass having to be reached before the constitutional symptoms can be expected to subside and the local tissue to undergo repair. Experiments *in vitro* showed a powerful germicidal effect of Dakin's solution on the specific microorganisms of the disease. Local destruction of toxins by the sodium hypochlorite probably also plays a beneficial rôle, permitting more rapid phagocytosis locally and obviating impregnation of the general system with noxious material.

Antenatal and Postnatal Syphilis.—John Adams (*British Medical Journal*, November 16, 1918) reports most promising results from the treatment of syphilitic mothers and their children, beginning at about the sixth month of pregnancy. The results would probably have been better had it been possible to begin the maternal treatment earlier. The treatment is controlled throughout by means of the blood Wassermann test. Upon the birth of every living infant blood is collected for this test from the severed end of the cord, and subsequent samples of blood are secured from the heel. Immediately upon the diagnosis of syphilis in the mother, treatment is begun with one of the salvarsan substitutes, either novarsenobillon or galyl. One of these is given in full doses once weekly by intravenous injection and at the same time intramuscular injections of forty per cent. grey oil are given, the dose being 0.065 gram (one grain) of mercury. Galyl is given in glucose solution. The treatment is well borne by pregnant women and is continued up to the day of labor and begun again immediately upon recovery. If the baby's blood gives a positive reaction to the Wassermann test salvarsan or galyl is begun at once along with the simultaneous injection of mercury, both being given intramuscularly into the buttocks, one drug in each. The doses are repeated

weekly. The new born infant is about one seven-teenth its mother's weight and the doses used are that fraction of the mother's dose. The initial dose of galyl therefore is 0.02 gram (one third grain) and that for mercury is 0.015 to 0.03 gram (one fourth to one half grain). Both are increased gradually as the child grows, and the treatment is continued until the Wassermann reaction becomes negative. The babies usually give negative reactions sooner than do their mothers. With this plan of treatment carried out on thirty mothers, six babies were born free from all evidences of syphilis, seven were syphilitic and became negative under treatment, three were dead *in utero* before maternal treatment began, one died from syphilis after birth, one from other causes, and six remain positive under treatment.

Infectious Diseases of Children.—D. P. West (*Virginia Medical Monthly*, October, 1918) emphasizes the fact that with practically all of the contagious diseases the symptoms may be precisely the same during the first twelve or twenty-four hours. At the immediate onset there is rarely a single symptom upon which a physician can rely to make a diagnosis. Yet the most contagious period in practically all contagions is during the early hours of onset. Therefore, in acute illness in a child, with high fever, nausea, vomiting, headache, and possibly convulsions, no physician has the right to make an absolute diagnosis. If, upon thorough examination, there is no positive clinical evidence, the patient should be isolated at once. After giving a cathartic, prescribing a diet, and making the patient comfortable, the physician must await further developments.

Treatment of Gonococcal Urethritis.—J. Janet (*Presse médicale*, October 24, 1918) notes that among the men in active military service at the front the treatment of gonorrhea must be practically limited to balsamic drugs, the injection treatment being resumed whenever the rest periods permit. Under all other circumstances the treatment can be carried out with all due precision. The abortive treatment, which is the ideal procedure, is successful in two thirds of all cases, provided it can be begun within twelve hours after the discharge is first noticed. Later it may still be attempted, but with less chance of success. It consists in administering for three days with the syringe a urethral injection of twenty per cent. argyrol solution, preceded by irrigation of anterior urethra with one in 500 argyrol solution. After each act of urination during these three days the patient gives himself a urethral injection of a ten per cent. solution. All injections are to be retained five minutes. The basic treatment of gonorrhea consists of irrigations with potassium permanganate solution, anterior in the case of anterior urethritis, and complete in the case of urethritis, both anterior and posterior. The solutions used range from 0.05 to 0.25 gram per litre, in inverse relation to the degree of inflammation existing. Two irrigations a day are required in acute gonorrhea; they may be limited to the anterior urethra for the first day or two in the presence of very acute anterior and posterior urethritis. They should never be discontinued if complications appear exerting, on

the contrary, a favorable effect on them. Prostatitis, shown by persistent turbidity of the urine in spite of the irrigations, requires weak solutions only—0.05 or 0.1 gram per litre. Massage is to be avoided, being indicated only where all inflammation has subsided. Epididymitis, treated in the same way, generally improves rapidly enough to render puncture or intraepididymal injections of electrargol unnecessary. Gonorrheal rheumatism requires both urethral irrigations and gonococcic vaccines; the latter, however, are still to be perfected, after which it will probably be possible to combine them advantageously with the local treatment of urethritis.

Stab Wound Drainage in Pelvic Infections.—

H. W. Yates (*American Journal of Obstetrics*, December, 1918) states that the benefits of stab wound drainage in pelvic infections should command the attention of every surgeon. It should be his constant endeavor to close without drainage in so far as safety will permit, and drainage materials should be removed earlier than is now the general practice. Rubber drainage tubes have achieved their usefulness as soon as nature has formed a thin, protective encasement about them, and should then be removed; this will do away with a large percentage of post operative sinuses. Most infected areas in the pelvis are suitable for cul de sac or stab wound drainage. Where there is a collection of pus which has gravitated into Douglas's pouch, the vaginal route, other things being equal, should be chosen. Even here, when rubber tubes are used with knots or T's on the end for retention, they are not without danger; in one of the author's cases pressure necrosis and rectovaginal fistula occurred. Where it is necessary to open the abdomen from above to deal with lesions, one must earnestly consider the number of small hernias following the placing of drainage in the lower angle of the wound and the number of large hernias resulting from improper union on account of infection of the whole incision by virtue of the drainage. The abdominal incision should, in fact, be left free to close by primary union. It is much safer to establish stab wound drainage on either side, capable of doing all that drainage would do in the midline. Under these conditions the duration of drainage is of less importance, since the arrangement of the muscles at the stab wound is such as to close off completely the small openings whenever the drainage is removed. Only skin, fat, and fascia having been cut, the internal oblique, external oblique, and transversalis effect perfect closure, and there is no fear of subsequent hernia.

Treatment of Severely Comminuted Fractures of Diaphyses.—R. Leriche and A. Policard (*Presse médicale*, October 17, 1918) note that in badly comminuted fractures due to shell fragments or bullets exerting explosive effects, the aim has hitherto been to remove small bone fragments but to spare fragments of some size—three or four centimetres—that are still attached to muscle or the periosteum of the shaft. Such treatment they deem unwise for several reasons. Firstly, in this procedure one is likely to overlook, in the wound, feebly but definitely infective debris capable of preventing early suture of the soft parts and tending toward the formation of a cicatricial fibrosis which will

impede osteogenesis. Secondly, a great risk is run of leaving foreign bodies of microscopic size in the wound, and which, independently of all infection and even after successful primary suture, will induce fibrous deposits hindering the penetration of the new bone tissue. Thirdly, fragments are kept which are not continuous with the periosteum of the shaft, will be displaced by muscular contractions, and, for this reason, will not serve in a useful consolidation. Finally, fragments are preserved which are greatly exposed to a rarefying process and are unsuitable for rehabilitation by healthy bone. In preference to such an uncertain procedure the authors advocate complete fragment elimination at the first operation in order to insure immediate asepsis of the wound, this being followed as soon as possible by complete operative repair in two stages—the first for repair of the soft parts by delayed primary suture, and the second for bone repair, if the occasion for it exists, by osteosynthesis or bone transplantation. The repair of the soft parts is performed in several layers on the third day; that of the bone, three or four days after removal of the sutures, i. e., fifteen or twenty days after suture of the soft parts. In the last year the authors have operated upon nine cases by this method. There were four osteoperiosteal transplantations, three for the forearm bones and one for the tibia, and five osteosyntheses. All cases were successful. In one of the most recent, bone continuity and the motor functions were re-established by the thirty-fifth day.

Septic Sores and Nile Boils.—H. Warren Crowe (*Lancet*, November 16, 1918) describes these two skin lesions which have proved of considerable military importance in tropical regions, and finds that the common organism causative of the septic sores is a streptococcus, while that causing the Nile boil is the *Staphylococcus epidermidis albus*. In both of these lesions secondary organisms play a part, and the chief causative organism is isolated in pure culture only by special technique, which is described by the author. Since both of the conditions are prone to occur together, or one to follow the other, the routine treatment should be by means of a mixed vaccine containing several strains of each organism. The dose of this vaccine should contain 500,000 of each of the two types of organisms and should be given twice weekly, until all the lesions have healed, no new ones appear, and no scars of Nile sores start weeping after an inoculation. Larger doses of the vaccine cannot be used for treatment because of the severe local and focal reactions they produce and because of the tendency to the rapid increase in the number of lesions. Along with the vaccine treatment certain surgical measures are of the utmost importance. The Nile boils must be incised immediately so as to divide completely the central slough, and one must not wait until the boil comes to a head. This incision with a dose of the vaccine will cure a boil in forty-eight hours and entirely prevent the development of large boils. Septic sores must be kept from forming weeping scabs by soaking and removing the dried serum. Large, discharging sores require moist dressings, while small, healing lesions are best painted with fifty per cent. alcohol containing one part per thousand of brilliant green.

Miscellany from Home and Foreign Journals

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the contrary, a favorable effect on them. Prostatitis, shown by persistent turbidity of the urine in spite of the irrigations, requires weak solutions only—0.05 or 0.1 gram per litre. Massage is to be avoided, being indicated only where all inflammation has subsided. Epididymitis, treated in the same way, generally improves rapidly enough to render puncture or intraepididymal injections of electrargol unnecessary. Gonorrheal rheumatism requires both urethral irrigations and gonococcic vaccines; the latter, however, are still to be perfected, after which it will probably be possible to combine them advantageously with the local treatment of urethritis.

Stab Wound Drainage in Pelvic Infections.—

H. W. Yates (*American Journal of Obstetrics*, December, 1918) states that the benefits of stab wound drainage in pelvic infections should command the attention of every surgeon. It should be his constant endeavor to close without drainage in so far as safety will permit, and drainage materials should be removed earlier than is now the general practice. Rubber drainage tubes have achieved their usefulness as soon as nature has formed a thin, protective encasement about them, and should then be removed; this will do away with a large percentage of post operative sinuses. Most infected areas in the pelvis are suitable for cul de sac or stab wound drainage. Where there is a collection of pus which has gravitated into Douglas's pouch, the vaginal route, other things being equal, should be chosen. Even here, when rubber tubes are used with knots or T's on the end for retention, they are not without danger; in one of the author's cases pressure necrosis and rectovaginal fistula occurred. Where it is necessary to open the abdomen from above to deal with lesions, one must earnestly consider the number of small hernias following the placing of drainage in the lower angle of the wound and the number of large hernias resulting from improper union on account of infection of the whole incision by virtue of the drainage. The abdominal incision should, in fact, be left free to close by primary union. It is much safer to establish stab wound drainage on either side, capable of doing all that drainage would do in the midline. Under these conditions the duration of drainage is of less importance, since the arrangement of the muscles at the stab wound is such as to close off completely the small openings whenever the drainage is removed. Only skin, fat, and fascia having been cut, the internal oblique, external oblique, and transversalis effect perfect closure, and there is no fear of subsequent hernia.

Treatment of Severely Comminuted Fractures of Diaphyses.—R. Leriche and A. Policard (*Presse médicale*, October 17, 1918) note that in badly comminuted fractures due to shell fragments or bullets exerting explosive effects, the aim has hitherto been to remove small bone fragments but to spare fragments of some size—three or four centimetres—that are still attached to muscle or the periosteum of the shaft. Such treatment they deem unwise for several reasons. Firstly, in this procedure one is likely to overlook, in the wound, feebly but definitely infective debris capable of preventing early suture of the soft parts and tending toward the formation of a cicatricial fibrosis which will

impede osteogenesis. Secondly, a great risk is run of leaving foreign bodies of microscopic size in the wound, and which, independently of all infection and even after successful primary suture, will induce fibrous deposits hindering the penetration of the new bone tissue. Thirdly, fragments are kept which are not continuous with the periosteum of the shaft, will be displaced by muscular contractions, and, for this reason, will not serve in a useful consolidation. Finally, fragments are preserved which are greatly exposed to a rarefying process and are unsuitable for rehabilitation by healthy bone. In preference to such an uncertain procedure the authors advocate complete fragment elimination at the first operation in order to insure immediate asepsis of the wound, this being followed as soon as possible by complete operative repair in two stages—the first for repair of the soft parts by delayed primary suture, and the second for bone repair, if the occasion for it exists, by osteosynthesis or bone transplantation. The repair of the soft parts is performed in several layers on the third day; that of the bone, three or four days after removal of the sutures, i. e., fifteen or twenty days after suture of the soft parts. In the last year the authors have operated upon nine cases by this method. There were four osteoperiosteal transplantations, three for the forearm bones and one for the tibia, and five osteosyntheses. All cases were successful. In one of the most recent, bone continuity and the motor functions were re-established by the thirty-fifth day.

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was no evidence of cardiac dilatation. Aside from the respiratory conditions just noted the complications were few in number. The bacteriological features of the epidemic were carefully investigated and cultures and smears were made of the sputum, both with and without pneumonia, of swabs from the throat and nasopharynx, from the blood, and from the various internal organs after death. The influenza bacillus was persistently absent from all these cultures and smears, pneumococci being the predominant organisms with a considerable number of infections with hemolytic streptococci. The pneumococci belonged predominantly to Type IV and were of very high virulence. Pathologically the fatal cases showed either bronchopneumonia, which was generally of the confluent variety, or evidences of an intense inflammatory pulmonary edema. The heart showed little or no involvement or muscular weakness. In the treatment of influenza great care was taken to avoid all undue exposure; rest in bed was provided indoors; there was free purgation; gargles were employed; and acetylsalicylic acid and Dover's powder were given. Great care was also taken of the men during convalescence, on account of the danger of developing bronchopneumonia. In the cases developing acute inflammatory pulmonary edema all measures likely to be of benefit were tried, but nothing seemed to have any material influence. Secondary bronchopneumonia was treated along the general lines for this condition.

Serofibrinous Pleurisy of the Anterior Mediastinum.—Roubier (*Paris médical*, September 14, 1918) states that serofibrinous pleurisy of the anterior mediastinum, which may be either left or rightsided, is often dramatic in its onset. The violence of the functional symptoms indicates involvement of the diaphragmatic pleura. The condition is characterized clinically by a zone of dullness limited to the anterior half of the thorax and comprised between the sternum and the nipple or anterior axillary line. There is also marked displacement of the cardiac apex to the opposite side; the apex gradually returns to its normal position as the dull area diminishes. Clear perception of the cardiac impulse and absence of muffling of the heart sounds are of diagnostic import, permitting exclusion of pericardial effusion. Where thoracentesis is considered necessary it should be carried out anteriorly, within the area of dullness, in the third or fourth interspace and in the region of the nipple. In the case reported by the author there was marked pain in the side and dyspnea at the onset, with tender points along the course of the phrenic nerve. Throughout the disease the patient was unable to lie on the right or affected side—the opposite of that which is observed in ordinary pleurisy, in which the patient generally lies on the involved side. The preliminary friction sound was followed by the appearance of dullness extending from the clavicle to the liver. Tapping was carried out in the third interspace, one centimetre within the right nipple, 100 mls of fluid being withdrawn at the first puncture and 200 mls at the second, on the next day. Marked functional improvement followed the elimination of even this small amount of fluid, and the effusion was reabsorbed in about two weeks.

Intestinal Obstruction.—H. B. Eisberg and J. W. Draper (*Journal A. M. A.*, November 19, 1918) present the results of their further studies on the causes of death and the source of the lethal agent in cases of intestinal obstruction. They show by duodenal transplantation experiments that the duodenum and its appendages, either singly or collectively, produce the lethal agent. They find that there is a true maximal lethal line at which obstruction proves most rapidly fatal. This line is in the second portion of the duodenum and obstruction above or below it causes death in direct mathematical ratio to its distance from the line. The lethal material seems to be of biochemical origin, similar to the parathyroid or other endocrine secretions, interference with which causes death. The precise nature of the lethal agent is not known and further work must be done to show its relation to the proteose which can be isolated in the test tube under certain conditions.

Experimental Production of Lesions, Erosions, and Acute Ulcers by Repeated Injections of Pilocarpine and Adrenalin.—G. A. Friedman (*Journal of Medical Research*, July, 1918) demonstrated in rabbits injected with pilocarpine, lesions, erosions or acute ulcers in the mucosa of the stomach. When the rabbits were injected with pilocarpine and adrenalin, lesions were seen in the mucosa of the stomach and duodenum. These injections of pilocarpine in rabbits produced various degrees of spastic contraction of the stomach, resembling the hypertonic stomach in man. In summarizing his results, Friedman states that the production of gastric and duodenal ulcer will depend upon the synergetic work of vagotrope and sympathicotrope hormones, as in the rabbits after repeated pilocarpine and adrenalin injections. A discussion of his experiments leads him to suggest a fruitful topic for consideration—whether the function of the adrenals is really disturbed in Graves's disease.

Alopecia and Earwax.—J. Deroide (*Presse médicale*, October 7, 1918) states that the view of Jacquet as to the noncontagiousness of alopecia is now generally accepted; clinical observation shows that his dystrophic theory of the origin of the disease is seldom of fault. Jacquet attributes a predisposing rôle, in some instances, to a complex organic disturbance which uranalysis reveals, and in other instances to heredity. On the soil thus prepared alopecia is excited by peripheral, visceral or central foci of irritation, situated most frequently in the teeth. Other irritative foci, acting reflectly, comprise the throat—e. g., tonsillar disease—or some involvement of the pleura or ears. In two cases recently witnessed a wax earplug was clearly the exciting factor of alopecia. The patients were men aged thirty-two and fifty-two years, respectively, exhibiting typical patches of alopecia in the occipital and temporo-occipital regions on both sides. The mouth, teeth, pharynx, nose, and chest were all negative upon careful examination. In each case both auditory meati were blocked by a plug of cerumen. In the second week after removal of the wax, hair began to grow in the alopecia patches, and later it became firm and abundant, though apparently destined to remain permanently white.

Surgical Importance of the Amygdalæ of the Cerebellum.—William J. Moore (*Glasgow Medical Journal*, October, 1918) calls attention to the fact that the medulla oblongata is protected, anteriorly and posteriorly, by a fluid cushion provided by the prolongation of the subarachnoid space, and laterally, by the amygdaloid bodies of the cerebellum, which are solid, semielastic bodies. By these means waves of force produced by violent blows or falls on the head, or falls from a height upon the feet, are dispersed and to some extent warded off from the medulla. In particular, in fractures of the posterior fossa of the base of the skull in which the line of fracture runs towards the centre of the lateral margin or margins of the foramen magnum, it is prevented from reaching the medulla by the presence of the amygdalæ between it and the bone. If a small piece of the margin of the foramen became detached, it would lacerate the substance of the amygdalæ to a certain extent, with most probably very little, if any, serious effect to the patient. Again, in the case of a longitudinal fracture of the base of the skull in which the line of fracture runs down either the central or lateral aspects of the basilar portion of the occipital bone anteriorly, and involves the tabular portion of the occipital bone either directly, posteriorly, or posterolaterally, the amygdalæ and cisterna would exert a mechanical protective function.

Dyspeptic Coma with Acidosis.—Marcel Labbé (*Bulletins et mémoires de la Société médicale des hôpitaux de Paris*, August 1, 1918) reports a case of fatal digestive disorder, without apparent pathological changes in the gastrointestinal tract or liver at the autopsy, in which coma and acidosis constituted prominent clinical features. The patient was a man who had acquired malaria and amebic enteritis in the East; disappearance of amebæ under treatment, however, had not been followed by appreciable benefit, anorexia and cachexia gradually growing worse. A peculiarity of this case, which distinguished it from cases of dyspeptic coma previously reported, was the removal of the acidosis and coma by alkaline treatment, this, however, not preventing the death of the patient by collapse soon after. Labbé does not favor recognition of two classes of dyspeptic coma, according as it is or is not accompanied by acidosis. The diaceturia, acetonuria, and ammoniuria, while they suggest participation of these bodies in the intoxication, do not imply that they are the sole cause of the coma. The latter is due to coexisting violent coma producing poisons, not as yet isolated, but derived particularly from protein material, as Hugounenq and Morel have maintained and the author demonstrated through the noxious effect of a meat diet in diabetics with acidosis or imminent coma. Dyspeptic coma often occurs in cancers of the alimentary tract, but is not directly caused by toxic bodies from the growth itself. In a number of cases Labbé has been able to show the relation of hepatic insufficiency and coma with acidosis. In the present case, however, the liver was seemingly normal histologically. The cerebrospinal fluid exhibited the acidosis. Labbé believes the rôle of inanition in causing acidosis has been greatly overemphasized.

Multiple Primary Malignant Tumors.—Ralph H. Major (*Bulletin of the Johns Hopkins Hospital*, October, 1918) reports the case of a woman sixty years old who entered the hospital suffering from a tumor of the face. The clinical diagnosis of rodent ulcer was made and x ray treatment begun. The patient complained of headache, loss of appetite, and was at times irrational. Death occurred and at autopsy the most interesting finding was a large polypoid growth, with areas of ulceration on the surface, at the cardia of the stomach. Microscopical examination showed that there were two quite different tumors present—a carcinoma of the face and a roundcelled sarcoma of the stomach. A bibliography containing 196 references to multiple primary malignant tumors is appended.

Ecstatic Intoxication in Religion.—James H. Leuba (*American Journal of Psychology*, October, 1918) inquires why intoxication and ecstasy are assigned the supreme place in religion. Drug intoxication and the higher mysticism are closely related; and drugs are commonly employed by uncivilized peoples in religious ceremonies. The negroes of the Niger have a fetish water, the Mexicans the peyotl, the Hindoos their hemp, etc. Rhythmical bodily movements yield similar results, as is seen in revival meetings. Even now when intoxication is no longer considered union with the Divine, it inspires the poet and the orator. This, Leuba thinks, is because it satisfies certain deep biological demands: it brings deliverance from fatigue, restraint, and tension, and creates a sense of unlimited possibility and exhaustless energy. Here then is the significance of the idea that in ecstasy man communes with the gods.

Rapid Detection of Ova in Human Stools.—Charles A. Kofoed and Marshall A. Barber (*Journal A. M. A.*, November 9, 1918) have developed a very simple, rapid, and efficient method for the detection of ova of intestinal parasites in samples of human stools. The method consists in the collection of a fairly large specimen of stool in a paraffined paper container. A large sample of the feces is left in this container and is thoroughly mixed with concentrated brine by stirring with a small stick. The mixture is then allowed to stand for an hour, after the coarse float has been forced beneath the surface by means of a disc of No. 0 steel wool. With a wire loop half an inch in diameter the surface layer is sampled off onto a series of clean microscopic slides. These are then examined without a coverglass and are run through with the aid of a mechanical stage. This plan brings all of the ova to the surface and concentrates them, and since a large sample of stool can be used mild infections are seldom missed. It is usual to find ova in positive cases at the first running through of a single slide. The method has been used in comparison with other methods and gives a larger proportion of positive results, with less labor and less consumption of time. Practically all of the work can be done perfectly well by previously unskilled assistants, who can learn the technic in one or two lessons. The authors describe in detail the perfected plan for the routine examination of large numbers of men, such as the personnel of an army camp.

Bacteriological Investigations of the Urine in Influenza.—Dujarric de la Rivière (*Presse médicale*, October 24, 1918), to obviate the inconvenience of demonstrating the Pfeiffer bacillus from the blood, sought to obtain the same information by making cultures or inoculations with the urine. The urine was procured aseptically with the catheter and added in ten mil quantities to citrated peptone water, into which a few drops of hen's or duck's blood had previously been allowed to fall. This procedure not only proved successful in showing the Pfeiffer bacillus, but permitted of its detection in ten cases in which blood cultures had been negative. The same procedure, carried out in the case of two control subjects not suffering from influenza, yielded negative results.

A Further Study of Freshmen.—Margaret Montague, M. M. Reynolds, and M. F. Washburn (*American Journal of Psychology*, July, 1918), in their investigations of members of the freshman class at Vassar College throw many interesting sidelights on the personal equation in pedagogy. Thus, a student who dislikes writing is more apt to be interested in mathematics than one who likes it. Accurate verbal memory is likely to be accompanied by fluent oral recitation. The "hard directions" test was found to be a less reliable index of academic success than the "reading backwards" and the verbal memory test. No relation was found between suggestibility and academic success.

Isolation of Pfeiffer's Bacillus from the Sputum.—E. E. Ecker (*Journal A. M. A.*, November 2, 1918) describes an apparently practical and simple method for the isolation of Pfeiffer's bacillus from the sputum in comparatively pure culture. The method rests upon the fact that this organism is not easily affected by the bile salts, while pneumococci and the other accessory organisms are dissolved or inhibited by these salts. The sputum is mixed with a half per cent. solution of sodium taurocholate and allowed to stand for at least twenty minutes. Then streak cultures are made on human blood agar plates and incubated for about twenty hours at 37° C. The Pfeiffer bacilli then appear in minute, colorless, transparent colonies which can easily be detected and differentiated.

Incidence of Cerebrospinal Meningitis in French Army.—P. Nobécourt and C. Richet, Jr. (*Presse médicale*, September 26, 1918) present endemoepidemiological data concerning the occurrence of meningococcic cerebrospinal meningitis among the French troops. The disease disappeared during the latter half of the year 1917, but reappeared in the month of December and underwent an epidemic recrudescence in the first half of 1918. Disseminated cases occurred at various points in the army, and likewise aggregations of cases in the same units without, however, the production of actual epidemic foci. American troops seemed predisposed to the disease. The two forms of the meningococcus, A and B, were detected in the same infected foci. Severe meningitis began to be noted with the appearance of the B type of meningococcus, which seems to be particularly virulent. Polyvalent serum appeared to have but little action on it, and often it resisted even a specific serum.

Oral Sepsis and the Cardiovascular System.—Alexander G. Brown, (*Southern Medical Journal*, September, 1918) concludes as follows: 1, Focal infections of the mouth—chronic alveolar abscess, chronic pericementitis, acute and chronic infection of tonsils—and other oral, nasal, and aural cavities adjacent, produce serious, grievous, and dangerous diseases of the heart, namely, endocarditis, myocarditis, pericarditis, pancarditis. 2, Often unrecognized, because of their slow, insidious progress, grave maladies of the heart are produced secondary to gross, filthy, offensive criminal disease of the mouth. 3, Care of the human mouth and accessory cavities to prevent focal infection, or the early eradication of oral infection when present, is an insurance against the occurrence of many systemic maladies. 4, Thorough mouth inspection should be made on every new patient coming for treatment or diagnosis. 5, Old patients with recurrent diseases, whose condition we may feel we know, should receive careful and painstaking mouth, nasal, and aural inspection, in a search for any possible storage of septic bacteria. 6, Dentists must be impressed with the importance of complete and accurate removal of every focus of primary infection; otherwise secondary metastases cannot be improved or cured. 7, Röntgen ray is necessary for detecting foci in roots of teeth, whether crowned or not, in the bone of the lower jaw; but the evidence of gum infection, tonsillar infection, and salivary gland infection, must be determined by inspection and study by the diagnostician.

Acute Nephritis in Scabies.—G. Milian (*Paris médical*, September 21, 1918) notes that scabies, while a relatively benign disease, is sometimes accompanied by complications which render its prognosis less favorable. These complications often appear when the treatment, by rubbing with an ointment, is instituted, and were formerly ascribed to metastasis or drug poisoning. In reality the intoxication theory cannot be substantiated. The condition is nearly always one of germ mobilization—especially streptococcic—induced by the skin traumatism attending the rubbing, which opens up countless avenues of entrance to the organisms. The author accounts thus for the case he reports, of parenchymatous nephritis in a scabies patient twenty-eight years of age. The eruption showed considerable infection, with impetiginous patches. After two rubbings at a two day interval, the second one administered by mistake, unmistakable evidences of nephritis appeared, viz., edema of the face, especially of the eyelids, dyspnea, cryesthesia, insomnia, headache, gallop rhythm, albuminuria, etc. There was no oliguria, the output of urine remaining almost constantly at 1,500 grams a day. The infectious nature of the nephritis was shown by the accompanying high temperature, which ran parallel with the albuminuria, as well as by infective manifestations such as impetigo, dermatitis, skin abscesses, inguinal suppurating buboes, and axillary abscesses. Streptococci were found in the pus and in the urine. The cutaneous impetigo complicating the scabies is believed, as a result of the therapeutic rubbings, to have been the source of a streptococcic septicemia.

Proceedings of National and Local Societies

AMERICAN LARYNGOLOGICAL ASSOCIATION.

*Fortieth Annual Meeting, Held in Atlantic City,
N. J., May 27-29, 1918.*

The President, Dr. THOMAS H. HALSTED, of Syracuse, in
the Chair.

(Continued from page 1135.)

Report of Syphilitic Necrosis of the Intermaxillary Portion of the Superior Maxilla.—Lieutenant Colonel CHARLES W. RICHARDSON, of Washington, presented the history of a young man, twenty-six years of age, married, a stock broker's clerk, first seen on April 16, 1917, on account of intense pain in the floor and lateral wall of the left nasal chamber. There was no swelling or inflammation and no interference with the function of the left nasal chamber. The patient had shortly before been operated upon, or stated that he had been operated upon, for a mild affection of the septum, although there was no evidence of such operation having been done. His condition was attended with great suffering. After a few days, during which transillumination and x ray examinations of the incisors and lateral bicuspid as well as of the left antrum were made—all of which were negative—a Wassermann was made which resulted in a double positive. As there was great tenderness over the upper incisors, four of these were removed. Salvarsan was given. In spite of this, the intermaxillary bone separated by rapid necrosis in one mass.

The important and salient features of this case are: 1, Severe and continuous pain without any objective signs; 2, severe necrosis without any inflammatory swelling; 3, complete limitation of the necrosis within distinct anatomic borders.

Doctor SWAIN reported a similar case to Doctor Richardson's, in which the patient had severe pain. After proper internal and local treatment, he removed a sequestrum fully as large as that which Doctor Richardson had shown. A fistulous tract led through to the floor of the nose. The entire premaxillary bone came away, but complete healing resulted.

Report of a Case of Large Osteoma Involving the Right Frontal Sinus and Uncovering the Adjacent Brain.—Dr. JOHN F. BARNHILL, of Indianapolis, presented the case of a girl of sixteen years who first noticed a swelling on her forehead a year ago, which caused no symptoms, but was increasing slowly in size. X ray plates showed an oval tumor involving the right frontal sinus, with absorption of the external and internal plates of the sinus wall. Operation was performed on August 21, 1917. An area of half an inch in circumference was wanting in the frontal wall of the sinus, and through this the hard glistening tumor presented. The remaining portion of the frontal wall was removed by rongeur and the tumor forcibly pried out by stout bone rasps. It was attached to and extended into the infundibulum. The dura was ex-

posed and absorbed over a large area. Some softened bone about the margin of the dehiscence was rongeured away, and a light sprinkle of iodoform powder applied to the exposed dura and brain. The infundibulum was enlarged by means of a bone rasp, a drain tube inserted, the cavity was lightly packed with sterile gauze, and the external wound completely closed. Recovery, with but slight scar, was entirely uneventful.

The tumor was an osteoma, weighing a little more than 600 grains, with great density.

Dr. JOHN M. INGERSOLL, of Cleveland, said that at the meeting last year he had showed some radiographs of an osteoma of the frontal sinus in a boy fourteen years old, following a blow from a baseball. This patient had been under observation for three years. Doctor Ingersoll had been very hopeful during the first year after the operation but the radiographs that he had exhibited last year showed a recurrence and revealed the fact that the osteoma had grown back into the brain cavity so far that it was inoperable. The tumor grew originally from the infundibulum into the frontal sinus, just as it had done in Doctor Barnhill's case.

The general opinion was that the tendency of these growths to recur was very marked. At the present time they had under observation, at Lakeside Hospital, a man who had an exophthalmos, one eye being pushed downward and forward by an osteoma growing from the external part of the orbit. The x ray taken two months ago, compared with one taken recently, showed that the osteoma was slowly increasing, but with the known tendency of these growths to recur rapidly, they had hesitated to operate.

Dr. JOHN E. MACKENTY, of New York, said that there had been an interesting case of osteoma of the frontal bone, at the Manhattan Hospital. It involved the frontal sinus and extended back along the base of the brain, going through to the dura. The condition was pretty well recognized under the name of ivory osteoma of the frontal bone, and it was a rather serious operation. This man's condition was due to syphilis. Doctor Mackenty was anxious to know whether this girl's blood had been examined for syphilis. The man subsequently died of meningitis. His tumor was not operable.

The consensus of opinion was that when these tumors were very large, they were inoperable because the difficulty of getting them out entirely was so great.

Doctor BARNHILL, in closing the discussion, said that this girl was an only child; that there was no evidence of hereditary syphilis and, except for this ivory hard tumor, he had considered her a perfectly well child. He would be greatly amazed if this should turn out to be a sarcoma and would be greatly astonished if it returned. He was well aware that sarcoma was more common in that region than anything else. When he pried it off, it snapped from the infundibular attachments with a crack such as would a piece of marble, and in sawing through it was so like ivory that it could be

compared to a billiard ball. There was no suspicion on the part of any one that it could be sarcoma, but knowing the tricks of sarcoma so well he would not say that it was impossible for it to have been one.

Report of a Case of Prolonged Intubation.—

Dr. EMIL MAYER, of New York, reported the case of a boy, aged nine years, who had had diphtheria at the age of two, for which tracheotomy was done, resulting in a tracheal fistula, for which he was admitted to the hospital. Attempts to close by this plastic operation failed, with the result that a tracheotomy tube had to be inserted. Stenosis of the larynx followed, which was treated by divulsion, with subsequent introduction of an intubation tube. This tube had to be removed under suspension and promptly reinserted at intervals for a period of five years, always under general anesthesia. Finally in April, 1918, the intubation tube was removed, and a tracheotomy tube was inserted for a couple of days. This was removed, the wound closed, the patient breathing since through the natural passages. Doctor Mayer considered that the special points of interest in this case were: 1, Persistent presence of a tracheal fistula, in spite of every faithful attempt at its closure; 2, stenosis of the lower portion of the larynx due to contraction of the natural parts, and their consequent disuse; 3, the impossibility of intubating except under general anesthesia and under suspension; 4, persistent collapse of the larynx as soon as extubated; 5, prolonged wearing for five years of an intubation tube; 6, ability to breathe through the natural passages after all these years, in spite of the loss of at least two anterior rings of the trachea. To this happy outcome was attributed, to a great extent, the growth of the patient, who, from a little boy nine years old, four feet in height, was now nearly fifteen years old, and had attained a height of five feet five inches, with natural increase in size of all his organs, including the trachea and larynx.

Dr. THOMAS H. HALSTED hoped that Doctor Mayer would help him out on a case that was at present under his care. He had been called, three months ago, to see a child a year old who had had a mild laryngitis for several days. A general physician had been in charge of the case. Doctor Halsted found the child cyanosed and the dyspnea very great. Examination revealed nothing. He had the child sent to the hospital, and went there in his car, after telephoning for them to have the instruments ready for immediate intubation. The tube was put in immediately and a culture was made and found negative. Antitoxin was given on general principles. At the end of six days the tube was removed, but had to be put back immediately and artificial respiration instituted. Antitoxin was given during the first few days. The throat was examined repeatedly, but the culture remained negative. During three months he had extubated eight times and intubated nine times. A direct laryngoscopy had been done a month ago, but nothing but an ashy appearance of the trachea was found, resembling a pseudomembrane. This was followed by a bronchoscopy. The existence of a foreign body was suspected, and the child was x-rayed several times, without result. The child

was perfectly well otherwise, had gained in weight, walked about and enjoyed itself, and had no difficulty in swallowing. However, Doctor Halsted did not know how to get rid of the tube. The grandmother believed that it was all due to teething. The child has had one very slowly erupting tooth, one of the molars, which had been exceedingly painful. It had taken that tooth, which looked as if it were ready to erupt when the thing happened, until now to come through, and in the meanwhile a number of other teeth had erupted.

Dr. CHARLES W. RICHARDSON, of Washington, wanted to know if in Doctor Mayer's case there was any regeneration of the cartilage later on, which caused the box of the larynx to stiffen up so that its firmness made it possible for him to eventually take out the tube and dispense with it entirely. Regarding Doctor Halsted's case, he said he had reported a series of cases of laryngitis hypertrophica subglottica acuta, a few years ago, no doubt of the same character. Such was the usual history of these cases. They were usually very intractable with regard to the removal of the tube, and had, in the past, given him more trouble than the fewer retained tubes in diphtheritic cases, as would naturally be expected, owing to the fact that the urinary trouble in these cases was subglottic in the cricoid region. Of course, when the tube was removed in these retained cases the stenosis immediately, or soon thereafter, recurred. In Doctor Richardson's cases a period of three or four months elapsed before eventually being able to dispense with the tube.

Dr. HENRY L. SWAIN, of New Haven, said that he had had some success in cases such as Doctor Halsted had described. He had given large doses of antispasmodic before attempting to take the tube out. In that way the tube could be removed, whereas it would not be feasible if the child were in possession of all his reflexes. He had three cases of this type in the hospital now. One is just like Doctor Halsted's case, and the others are retained tube cases; he had trouble to get rid of them. He was sorry that he forgot Doctor Richardson's suggestion, and thought it explained the situation perfectly. He was called in consultation and thought it would be a good thing to do a tracheotomy and take the tube out. At the time of the operation and later, he had tried to look in from below and see the condition of the larynx and find out what its interior contained, but without success. Some time after the tracheotomy this child had a sudden choking fit and died. He could find no explanation, unless it was general uremia. The other children got well, but in these the patient had to be almost stupefied before the tube could be removed. In one case the child had to be kept under the narcotic for twenty-four hours.

Dr. EMIL MAYER, replying to Doctor Richardson's question, stated that there had not been so much reformation of cartilage, but that on account of the long continued presence of the tube all the tissues about the trachea became as hard as whipcords. There were almost bony ridges on each side, which served to prevent the collapse that surely would have occurred from the falling in of the soft parts.

Regarding Doctor Halsted's case, it seemed as though an acute laryngotracheitis of some kind was the original cause requiring intubation. Doctor Lynah, in a masterly paper on Prolonged Wearing of Intubation Tubes, recently called attention to the immediate collapse that took place in many instances when the tube had been removed, requiring a hasty reintubation. In fact, he refers to a case in a boy who was extubated and returned to the ward. The boy was under the impression that the tube was still in situ. He was kept in the hospital for some time, and every time he misbehaved they threatened to remove the tube and he immediately behaved. Doctor Meyer suggested that Doctor Halsted introduce a much larger intubation tube next time, and to have the patient under some opiate, so that the general reflexes would cease, watching over the patient for that time of immediate danger and the likelihood of having to do a tracheotomy.

Regarding the question of Doctor Swain, as to whether the patient did not receive quantities of antispasmodics, Doctor Mayer said that the boy had never been extubated except under general anesthesia. He had been receiving an eighth of a grain of morphine, and had then been completely anesthetized while the tube was removed for cleansing, and this latter had to be done in a hurry. He had been anesthetized over twenty-five times, and each time the anesthesia became more difficult because he was pretty well soaked with the drug. It had been a most interesting case, and one of the most important deductions that could be made was the wonderful tolerance of the larynx. The keeping of a tube in a larynx for a month's time seemed to make no difference to the patient.

Surgery of Laryngeal Malignancy.—Dr. HUBERT ARROWSMITH, of Brooklyn, said that, as a result of MacKenty's work and his own recent experience, modeled very closely thereon, he was inclined to tentatively suggest the adoption of Moure's antecedent tracheotomy, to accustom the lower air passages to the direct impact of air, which might lessen their immediate postoperative irritability and susceptibility; the tracheal opening to be made high, as Jackson had indicated, because that would not interfere with the later mobilization of the trachea. Otherwise the two step operation seemed to offer no special advantage. This was the ideal field for the employment of oil-ether colonic anesthesia, as devised by Gwathmey. It made the whole procedure infinitely easier for both patient and operator. Even if really painless under local anesthesia, such an ordeal produced an enormous apprehension which would be detrimental to the patient, and the degree of infiltration of the tissues necessary to produce insensitiveness would interfere with their repair. Laryngeal spasm did not occur with rectal anesthesia; bleeding was very much less; there was no tracheobronchial irritation from the directly inspired anesthetic, which very largely obviated the necessity for subsequent repeated applications of the suction apparatus—in itself an agent of some danger; and there was much less likelihood of postoperative vomiting, most undesirable under these conditions. The laryngolo-

gist for every possible reason was the man who should do laryngeal surgery, both external and internal. If he saw all these patients at an early date, thyrotomy would more often be performed. Laryngectomy could not be repudiated on any such grounds as mutilation, or the loss of voice. Laryngectomized patients were in no worse plight than the blind, the deaf, or the helplessly crippled. Many of them seemed to get a fair amount of happiness out of the mere fact of existence, and were not by any means incapable of selfsupport. In judiciously chosen cases this operation offered a good deal more than a probability of clinical cure, and in most instances a definite retardation of the fatal ending.

Of two patients operated upon by Doctor Arrowsmith, one died six weeks later of pneumonia. The other was in good condition, and at work, six months after operation. In a third patient, in whom only a tracheotomy had been done, the final sufferings were so great that Doctor Arrowsmith regretted that he did not give the patient "a fighting chance by as farreaching a dissection as possible," rather than witness such sufferings as this man endured during the last six months of his life.

Dr. JOHN E. MACKENTY, of New York, expressed the opinion that most of the cases were seen too late for any hope of permanent cure. Of twenty-three cases seen by him recently, seventeen were inoperable, except in the way of alleviation. Only one case of the twenty-three was incipient. He considered this a terrible commentary on the present condition of the diagnosis of this disease. The fault was, no doubt, largely with the general practitioner, who did not take notice of the early symptoms. Any one of cancer age complaining of hoarseness which lasted for more than six weeks should be under observation. Undoubtedly the operative mortality had decreased during the last few years. He thought that care in the technic would reduce the operative mortality to a very small fraction. Partial laryngectomy was an operation seldom required; he had added no cases of this procedure to the former record. Besides, hemilaryngectomy was more dangerous as an operative procedure than total laryngectomy. It seemed to him that it was the neglect of small details following operation that produced the mortality. He was wedded to the one stage operation, but hoped he was not prejudiced, and saw some reason in the use of the high tracheotomy that did not in any way injure the trachea. He had been impressed by Doctor Arrowsmith's exhibition of colonic anesthesia, and believed that an advance had been made in colonic anesthesia, because it lessened the amount of hemorrhage and of blood getting into the trachea, which was important in guarding the patient against pneumonia.

Dr. CORNELIUS G. COAKLEY, of New York, thought that a one stage operation was much to be preferred to a two stage operation, in some cases. If the growth was small and one can afford to wait for the adjustment of the respiratory tract to the new method of breathing, the latter was all right; but if the case was likely to result in total laryngectomy the one stage operation was to be preferred.

Dr. ROBERT CLYDE LYNCH, of New Orleans, said that he had six cases of intrinsic carcinoma of the larynx that he had operated upon, under suspension at the present time. Four of these patients were perfectly well at present. In the remotest case, it had been four years since the time of operation; in the most recent, about eight months. So far, there had been no recurrence, but he realized that to operate in cases of intrinsic carcinoma of the larynx by that means was not good advice. He feared that some men might think that this was an operation of choice and do it, and thus do more harm than good. In the second place, it seemed to him that as we progressed along the line of study of operation for carcinoma of the larynx, the operations would be divided into two types—the thyrodotomy and the laryngectomy types. The cases requiring hemilaryngectomy, very likely, give much better results under total laryngectomy. Doctor Lynch had seven cases with five cures and no immediate deaths, within ten days from the operation. The recurrence taking place within ten months was the shortest time in which a recurrence took place. Five of these patients were perfectly well up until the present time, and all can do without pad and pencil, in that they have been able to develop a type of speech that is understandable by their associates.

The procedure which Doctor Lynch had employed had always been by means of a preliminary tracheotomy, and at first low down, but now high up. He had not seen any cases in which the tumors had grown so large within two or three weeks following the tracheotomy as to make him feel that the tracheotomy itself had jeopardized the patient's welfare. Giving the ether vapor anesthesia and giving the vapor through the tracheotomy tube had facilitated every manipulation during the operative procedure. He now took away with the larynx the superficial thyroid muscles, the sternothyroid, and sternohyoid, that group of muscles overlying the anterior face of the larynx. At first he had started rectal feeding after the operation, but that had been supplanted by the use of the nasal tube or the introduction of the small catheter, used as one would a stomach tube, keeping the end of the catheter out of the stomach; that was important, in order to get away from the nausea or postfeeding vomiting. The tube should be inserted down to the neck, so that esophagus may take care of the swallowing to the stomach.

The method of the care of the trachea, seemed most important. His plan was to pare the trachea and larynx and attempt to separate the trachea from the esophagus at one point, and then to put in a tape, so that the trachea might be held up until it was bent in that fashion. When things were ready, the trachea was cut from above down, and the only bleeding that occurred being from the mucous membrane of the trachea. Before the trachea was cut a heavy silk suture was put in and held by an assistant. This prevented any blood from going down into the trachea. The anesthesia was carried on through a small tracheotomy tube, which lay in the opening, and was also under the care of the assistant, who steadied the trachea. It was important to be sure that nothing entered the trachea.

Doctor Lynch did not know whether that was what prevented pneumonia or not, but there had been no postoperative disturbance, and the remarkable gain in weight and the comfort that these people had enjoyed after the removal of the mass made it well worth while. It seemed as though laryngectomy was not nearly so bad a thing for the patient as one would gather from reading the older articles on these subjects.

Carcinoma of the Epiglottis and Root of the Tongue Removed by the Simpson Radium Needles.—Dr. OTTO T. FREER, of Chicago, said that Dr. Frank Simpson, of Chicago, in 1914 had devised short, hollow needles one and one sixteenth of an inch long and one sixteenth of an inch thick, made of steel and platinum plated with gold, the cavity of the needle being packed with twelve millimetres of radium sulphate, which was sealed within the needle after the detachable eye portion of the needle had been screwed down upon its hollow shank. The wall of the hollow needle was three tenths of a millimetre thick—thick enough to filter out the irritating alpha and softer beta rays, while permitting the hard beta and gamma rays to pass freely through the wall of the needle. The needles were stout enough to endure the firm grasp of a needle holder for their introduction into the tissues. With several Simpson needles the effective so called cross firing of radium rays might be produced—that is, instead of the radium rays proceeding from a single source in the centre of a growth it was easy to place a number of needles at its periphery as well as in the centre, so that not only was the growth evenly influenced by multiple radiation, but the apparently healthy zone about the tumor was deeply penetrated by the rays, so helping to prevent a local return of the growth. Their comparatively easy insertion was a valuable quality of the needles so that only occasionally, where a tumor was tough and resistant, was it necessary to place them in a preliminary knife cut, for as a rule they might be directly thrust into the growth.

It was generally agreed that malignant tumors should be destroyed at one sitting by one very large dose of radium. This was not only done in order to minimize the danger of metastases risked by waiting for the effect of lesser doses at intervals, but the effect of a single large dose was found to be proportionately greater than that of the sum of smaller ones that equaled it in quantity. It had also been found that a tumor was less influenced by later doses than by the first one, a species of tolerance being established for radium. The demand for a single completely effective large dose of radium rays was filled by leaving the Simpson needles in place for from nine to twelve hours. Their efficient screening prevented the undesirable integumental burns that were so common before it became known that the soft beta rays and the alpha rays must be filtered out.

Owing to difficulty in accurately inserting the needles with forceps in this case, the roughening of the surface of the costly needle by the blades and the annoyance caused by the dragging thread that trailed the needle, Doctor Freer constructed a needle placer for inserting the needles, a device which, in

this case of a carcinoma of the laryngopharynx had permitted their exact introduction into the flesh with an accuracy and ease that, it seemed to him, would make it possible to needle even intrinsic carcinomas of the larynx by the indirect, mirror method of laryngoscopy—a method so much less distressing to the patient than direct or suspension laryngoscopy.

Observation of Pneumococcus Infection of Nasal Accessory Sinuses.—Dr. CORNELIUS G. COAKLEY, of New York, stated the results of his observations in 128 cases, the acute ones with a history of a duration of one month or less numbered 109; the remainder were chronic. Pneumococci were present in forty-four per cent. of the acute cases, and in most of these they were the sole organism. In the chronic cases this organism was found in but thirteen per cent. These results seemed to warrant the inference that in acute inflammations probably half the cases might be due to autoinfection, while the other half were due to infection from some outside source. In the chronic cases the larger number were accompanied by autoinfecting organisms.

Doctor Coakley recorded a case of pneumococcus tonsillitis followed at an interval of two weeks with a pneumococcus infection of the left antrum. In the second case both antra were successively involved, one at a later period than the other, with a pneumococcus in each instance. The third case had beginning infection in the larynx and trachea, secondarily involving his antrum, with pneumococci. The fourth case had a bilateral maxillary sinusitis; there was a pure culture of the pneumococcus in both. Signs of consolidation were found at the base of the right lung next day, and antipneumococcus serum was administered, followed by a chill, rising temperature to 106°, and an immediate drop in the temperature with pneumococcus in his sputum, without any further attention to his antra, as the patient was too ill to be treated. Spontaneous recovery followed. The fifth case recorded was the wife of the preceding patient, with pure culture of pneumococcus from the discharge, evidently following infection from her husband. The sixth case was one of an acute otitis with pure culture of the pneumococcus, arising from an infection in the left antrum. From a study of these cases Doctor Coakley felt justified in drawing the following conclusions: 1, Pneumococcus infection of the nose and its accessory sinuses did not in any large percentage of cases result in a pneumococcic infection of the lungs. Only one of these patients developed pneumonia; 2, there would seem to be direct evidence that in one of the cases the infection, pneumococcus I, was transferred from husband to wife.

It was thought that most severe acute rhinitis attacks were the result of infection, either with auto-genous or foreign bacteria or viruses. The presence of pneumococcus rhinitis and sinusitis during the stage of profuse secretion, accompanied by coughing and sneezing, must be a fruitful source of disseminating pneumococci, some of which may only invade the upper air passages of the victims of the infection, while in other patients, finding a suitable soil in the deeper air passages produce a pneumonia. There was abundant evidence that pneumonia was infec-

tive, and might not one source of infection be in these pneumococcic head colds?

Dr. CLEMENT F. THEISEN, of Albany, said that some time ago he had published a paper on Pneumococcus Infection of the Nasal Cavities in Children, which was based on a small epidemic that he had witnessed in the Child's Hospital in Albany. In these cases the children ranged from four to fourteen years of age, and numbered not over half a dozen. In all the cases the pneumococcus from the nasal secretion had been obtained. In two cases there was a marked exophthalmos with serious ethmoidal and frontal involvement. These two children were operated upon and made good recoveries. One death occurred, in a child of four, with sinus involvement and a high temperature. Pneumococcic serum was administered without effect. In all the cases there had been profuse nasal discharge, very high temperature, and very serious involvement of the cervical lymphatics, and the pneumococcus had been obtained in pure culture from the nasal secretion.

Dr. HENRY L. SWAIN, of New Haven, mentioned three cases he had recently in which the pneumococcus Type I had been found, and in which the immediate onset of pneumonia necessitated the calling in of an internist, in order that the necessary attention might be given to the chest condition, so that he could not follow the case for a number of days. Two of the three patients recovered.

Doctor Coakley, in closing this discussion, said that the only case in which there was a question of giving pneumococcic serum of Type I was the one in which the serum was very efficacious. He was surprised to find that from such a severe attack the patient had recovered from his sinusitis without further treatment.

(To be concluded.)

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Principles of Bacteriology. By ARTHUR A. EISENBERG, A. B., M. D., Cleveland, Ohio; Director of Laboratories of St. Vincent's Charity Hospital; Demonstrator of Pathology, School of Medicine, Western Reserve University; Visiting Pathologist, St. John's Hospital; Visiting Pathologist, Luthern Hospital; Fellow American Association. Illustrated. St. Louis: C. V. Mosby Company, 1918. Pp. 190. (Price, \$1.75.)

Eisenberg here gives us an excellent text on bacteriology, adapted primarily for pupil nurses. It offers, however, a simple exposition and a rapid review of the main points in present knowledge that others may find useful. He has felt the need, in lecturing to nurses, of a dependable elementary reference book that will not be above the heads of his class and will present accurately the latest permanent conclusions, which heretofore have been available only in too technical discussions. An excellent feature which the author believes has been somewhat overlooked and which he has here introduced is emphasis upon the connection between bac-

teriology and prophylaxis. He thus includes in each chapter on individual organisms a section on the mode of disinfection and prophylaxis. He has also included much information and instruction on the simpler technical laboratory procedures and cultural diagnosis, "giving complete and detailed directions, taking nothing for granted and leaving nothing to the imagination." The book is divided into three parts: General Bacteriology, dealing with general information about bacteria, the destruction of bacteria, infection and immunity, general bacteriological technic, and applied bacteriology; Special Bacteriology, under which the main groups and individuals are discussed carefully, simply, and perhaps satisfactorily for the purpose, but in this respect we felt a slight incompleteness in treatment. Section III deals with diseases of unknown causation, bacteria in the soil, air, water, and milk, and general care of the laboratory. A list of questions aiming at review of the subject, never would be missed, and seems not to have much point, but is harmless. A good bibliography is appended. On the whole, this little book is well worth the publication. It will in all probability reach the class it is written for and will meet the needs of many others.

Diseases of Infancy and Childhood. Designed for the Use of Students and Practitioners of Medicine. By HENRY KOPLIK, Attending Pediatricist to the Mount Sinai Hospital; Consulting Physician to the Hospital for Deformities; Formerly Attending Physician to the Good Samaritan Dispensary, the St. John's Guild Hospitals, New York; ex-President of the American Pediatric Society; Member of the Association of American Physicians and of the New York Academy of Medicine. Fourth Edition. Revised and Enlarged. Illustrated. Philadelphia and New York: Lea & Febiger, 1918. Pp. ix 883. (Price, \$6.00.)

Koplik's *Diseases of Infancy and Childhood* has ranked high in the literature of pediatrics and the present edition, the fourth, establishes it even more securely. The practitioner can confidently look to this text for the latest experience and proven conclusions in this field and will find reflected from the author's work at Mount Sinai Hospital much that is new and scientifically founded. Its scope is complete and its general plan excellent, and the author's style is direct, positive, and authoritative. The edition has been enlarged and revised in many directions. The subject of acidosis and the problems of infant feeding have been dealt with extensively, although, as the author points out, there is still a vast amount of work to be done in these fields. Much new and valuable material has been added to the chapters on diphtheria, poliomyelitis, and meningitis, and syphilis and tuberculosis have received considerable attention, real advances only, however, being reported in order not to present confusing problematical detail to the practitioner. Recent work on blood diseases and new methods of precision in diagnosis in circulatory diseases are presented. Doctor Koplik gives us his own valuable and significant hospital experience and that of his private practice in connection with statistics, plates, röntgen reproductions, charts, and pulse tracings. An impressive feature of this text seems to be the thoroughness of treatment of each topic combined with a splendid conciseness and directness, covering in less than a thousand pages, including a good and complete index,

full discussion of all essential matters. The work is, in short, a thoroughly satisfactory one and can be heartily recommended to the practitioner.

Compendium of Histopathological Technic. By EMMA H. ADLER, Formerly Technician, Pathological Laboratory, Presbyterian Hospital, New York. New York: Paul B. Hoeber, 1918. Pp. 92. (Price, \$1.25.)

This modest little book should fulfill the purpose of its author "to supply the untrained student with a brief account of the methods found most useful in the pathological laboratory of the Presbyterian Hospital," although this limitation does not, oddly, belie the title, "Histopathological Technic." Why be exclusive about it? The methods are good, sound, and up to date and are carefully presented. Formulas and directions are clear and cover the ground, although in a very condensed style. We remember, however, that the author has avowedly confined herself to an introduction for the untrained student, and does not offer a substitute for standard textbooks on technic. We strongly suspect that Miss Adler could expand her eighty-odd page compendium, still satisfying the needs of the untrained student and at the same time cover in greater detail and in the long run meet more fully the title *Compendium of Histopathological Technic*. Four chapters cover respectively Fixation of Tissues, Paraffin Sections, Frozen Sections, and Celloidin Sections. Appendices contain direction for preserving museum specimens and several important formulas for standard solutions. Frozen section technic is properly emphasized. It seems to the reader that a good deal of important material is included under the head of Paraffin Sections, or at least under the page running head, such as bloodstains and silver impregnation, which obviously should not be under paraffin sections. The whole section on Special Stains deserves a separate heading equal in typographical value to the four main divisions and should attract its due of legitimate attention.

Births, Marriages, and Deaths.

Died.

BOYD.—At Camp Merritt, N. J., on Tuesday, December 24th, Dr. S. Harold Boyd, of Philadelphia, Pa., aged thirty years.

BROWN.—In Norwich, N. Y., on Thursday, December 19th, Dr. Arthur H. Brown, of Auburn, N. Y., aged sixty-four years.

CURRIE.—In Brookline, Mass., on Monday, December 23d, Dr. Donald H. Currie, of the United States Public Health Service, aged forty-two years.

DU BOIS.—In New York, N. Y., on Sunday, December 29th, Dr. Matthew B. Du Bois, aged seventy-eight years.

HUMPHREYS.—In Philadelphia, Pa., on Wednesday, December 25th, Dr. Edward Humphreys, aged sixty-one years.

KIP.—In Paterson, N. J., on Monday, December 23d, Dr. Henry Kip, aged sixty-seven years.

MEYER.—In New York, N. Y., on Monday, December 23d, Dr. Max Meyer, aged sixty-four years.

MURRAY.—In Sacramento, Cal., on Saturday, December 14th, Dr. Carl Lindley Murray, aged eighty-four years.

OWEN.—In France, in November of 1918, Dr. Richard C. Owen, of Arlington, Mass., aged twenty-three years.

RUDOLPH.—In Germantown, Cal., on Monday, December 16th, Dr. Oswald Ferdinand Rudolph, aged sixty-seven years.

WOLFE.—In Baltimore, Md., on Saturday, December 21st, Dr. George B. Wolfe, aged thirty-three years.

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THE MEDICAL TREATMENT OF CANCER.*

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New York,

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The glamour of surgery has, during the last two decades, quite excluded from the minds of the medical profession and laity much thought of the medical treatment of cancer. Under previous medical care these cases had commonly been seen to go from bad to worse, with a considerable mortality, until the disease was considered incurable, and of late the belief has been that the only hope is offered by surgical removal. Then the immediate result of well conducted operations often seemed favorable, for a time at least, with the possible expectation that with a recurrence of the malady there was still hope that further operations might succeed in eradicating the disease; and for the last two decades surgery has had full sway.

But, alas, both the medical profession and the laity have been blind to the steady and really alarming increase in the mortality from cancer since 1900, as shown by the statistics published by the United States Government. In the year 1900 the mortality from cancer was sixty-three in 100,000 population, and in 1916 it had risen to 81.8 or 18.8 more persons dying from the disease in each 100,000, an increase in the death rate of 29.84 per cent. ! During this same period the mortality from tuberculosis has fallen from 201.9 to 141.6 persons in each 100,000; a decrease of 60.3 persons, or 29.86 per cent., under careful medical treatment !

There could hardly be a more eloquent argument than this for the application of medical acumen to the study and treatment of cancer. It must be remembered that the results in the treatment of tuberculosis have not been attained through the application of any one specific remedy, for tuberculin has played but a small and uncertain part in the improvement of its vital statistics, which have been secured mainly through nutritional lines of treatment. In the same manner, after the enormous amount of laboratory, experimental, and clinical work done in cancer, which have yielded only negative results, we cannot expect to find any specific remedy for cancer, such as mercury is for syphilis, quinine for malaria, or antitoxin for diphtheria, and we must search for its true pathology and

treatment along medical lines: for now it is recognized on all sides that the knife does not cure cancer, but only removes some of the products of the disease.

Unfortunately, the historical path of cancer is strewn with the wrecks of blasted hopes regarding various remedies, quack and other, whose virtues for the cure of the disease have been heralded for a while, only to sink in oblivion, to the sad disappointment of trusting sufferers from this dire malady. Various serums have been tried, with varying success in certain cases for a while, but these, too, have gone the way of the others. The reason of this is plain, because from the real nature of cancer they could not be expected to alter permanently the constitutional conditions occasioning the malignant growth. The x ray and radium do seem to have considerable power in altering and often removing morbid tissue, when it is accessible; but, of course, they cannot reach the underlying cause which produces and reproduces the same lesions, any more than can surgery.

We are, therefore, thrown back upon seeking to discover what is this underlying cause of malignant new growth, and determining what measures can be employed to so alter the system that this departure from normal nutrition shall not occur. For it is acknowledged, by all, that cancer represents only a deviation from the normal life and action of certain ordinary cells of the body, which were once healthy, but which for some reason, difficult to understand, take on an abnormal or morbid action: with this there is a continued tendency in them to malignancy which invades contiguous tissue, associated with a pernicious anaemia which in the end tends to destroy life.

It could lead us far beyond the proposed limits of this paper to attempt to at all study the underlying causes of cancer, which have been pretty well considered elsewhere (1). But in order to fully understand what is to follow, brief mention may be made, somewhat dogmatically, perhaps, of the grounds upon which the medical treatment of the disease is justified and is to be based.

First, we may very briefly examine the claims that cancer is a wholly local disease, which may be eradicated by surgery, if taken early enough. In most, if not all, surgical writings cancer is regarded, primarily at least, as a purely local affection, and the subject of a possible constitutional cause or

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the reason of its continued malignancy are seldom even alluded to. Cohnheim suggested that the origin of cancer was in what he called "embryonic rests," or wrongly placed prenatal epithelial tissue elements. This theory is more fanciful than satisfying or demonstrable, and it is difficult to understand why such "embryonic rests," after remaining so long quiescent, should suddenly take on such malignant and destructive action, unless the blood stream has become so altered as to furnish a proper pabulum for their rampant growth. Ribbert later developed a somewhat similar hypothesis, but neither of these theories has been substantiated by others, and no one has ever seen cancer develop from such cells; although it is granted that the local lesion of carcinoma must start in some particular cell or cells which take on morbid action.

Failing to find an idiopathic local cause for the origin of malignant tumors, recourse was had to a parasitic theory, and the most diligent search has been carried on by innumerable observers to discover the parasite. But as one microorganism after another has been proclaimed, its etiological relation has been disproved by other observers, and now few scientists believe that cancer is caused by a living parasite. Many of these latter are certainly found on ulcerated lesions and undoubtedly contribute to the later destructive process, but none have ever been demonstrated to cause such a new growth, in spite of most faithful experimentation. The fact that surgeons, nurses, or pathologists never acquire the disease from contact is pretty conclusive evidence that no such parasitic cause exists, for cancer is certainly not contagious or even inoculable.

Still contending for a local etiology of cancer very many have insisted upon local irritation as the efficient cause for its occurrence. The arguments and illustrations for this are indeed strong, but when carefully analyzed they are found quite insufficient to account for the real nature of the trouble; although it must be accepted that in many instances it acts as the exciting cause of the special local lesion. Thus, few can question that cancer of the lower lip may be excited by pipe smoking; cancer of the mouth by decayed and irritating teeth and betel chewing. Many physicians assert that cancer of the breast is the result of a blow or pressure, cancer of the uterus from laceration of the cervix, and cancer of the stomach from peptic ulcer. But for the numerous instances of internal cancer, as of the kidney, bladder, or brain, no such cause can be predicated. Moreover, when we really study the matter, and consider how relatively few cases of cancer of the lip occur in smokers, how almost every woman at some time may have a blow on the breast, and how few cases of cancer of the mouth develop in those with bad teeth, we readily see that there must be some other element than that of the local irritant to induce a true cancer, which causes a local lesion to run such a malignant, persistent, and fatal course. It is quite as reasonable to ascribe a syphilitic gumma, or a tuberculous joint, or a gouty toe to local injury, although that may have been the immediate exciting cause of the disease in some particular locality.

Heredity has been blamed for the advent of mal-

ignant disease, but statistics of life insurance companies show the contrary, and a careful, recorded, clinical study of intelligent private patients with cancer fails to show any greater percentage of ancestral occurrence than is accounted for on natural grounds. Thus, every one has many ancestors and near relatives, some of whom may have developed the disease from the same causes, which will be considered later. The very rare instances of "cancer families" which have been recorded may be easily explained in this way, namely, that the persons probably lived the same kind of life, and were subjected to the same systemic disturbances as those which produced cancer in the person under consideration.

In the absence of local or hereditary causes for cancer, we are forced to the belief that there is some constitutional or systemic change in the composition of the nutrient fluids of the body which causes certain cells or portions to take on such a morbid change. There is no more difficulty in understanding the local phenomena of cancer than there is in understanding why other diseases seize upon special localities. Thus, in gout the great toe, or the tendo Achilles, is commonly affected, a syphilitic new growth may occur in various sites, even in the brain or arteries, or a tubercular lesion may develop here or there without any known cause. What the first changes are, and why they occur, will probably always be a mystery.

It would carry us too far away from our immediate subject to attempt to consider fully the pathological changes which go on in normal cell life as compared with those observed in cancer tissue, but a brief mention of some important points can be made with advantage. Karyokinesis, mitosis, or indirect cell division, is at the bottom of all growth, both normal and malignant, and the two classes of growth differ only in their methods and activity. In normal tissue growth and reproduction the nucleus with its chromosomes and the centrosome divide equally, one half going to each new cell, into which the mother cell divides, the centrosome being the dynamic or controlling center for the reproductive activity of the cell. In healthy tissue this cell proliferation proceeds in an orderly manner, forming normal, homologous structures: in the case of skin, hair, and nails these are removed mechanically. In internal structures, while new cells of homologous nature are thus reproduced by anabolism, the older and effete cells are removed by catabolism, the two processes together constituting metabolism. The elements of which these effete cells are composed are split up into their component parts and carried off by the blood or lymph stream, and either discharged as effete substances or reutilized in the system along physiological lines.

In morbid or malignant growth of epithelial or gland cells, constituting cancer, there seems to be some error in the division of the elements of the cell, and the centrosome or controlling center of reproduction is lost or deranged in the offending cell or cells, which then proceed on their untoward course of destruction. These multiply more or less rapidly and form a mass of heterologous tissue, incapable of being utilized in the system, invading con-

tiguous tissues and tending to ulceration. Whether this original error in mitosis is caused by irritation, physical or chemical, or from loss of nervous control cannot be told. There seems to be some reason to support the view advocated by Williams (2), namely, that tumor formation and growth are but forms of agamogenesis, or nonsexual production of cells, distinctly related to the decline in growth of the body in general. Hence, while the forces of growth, development, and reproduction are in greatest activity in early life, the tendency to this disease is relatively small; but when growth declines and nutrition is relatively slow, the cells undergo gemination, owing to perverted nutriment, and thus hyperplasia and not inflammation is the starting point of every neoplasm. The interesting thought in regard to this curious tendency to cell misbehavior is that it is sometimes spontaneously arrested, and can also be overcome by proper constitutional measures, as many testify. To understand rightly how this can be accomplished we must briefly consider some of the constitutional conditions observed in patients with cancer, even in early stages of the disease, and with increasing severity as it advances. It may first be remarked that patients developing cancer often seem to be in such perfect health, even with ruddy complexion, that it is hard to convince them that the local lesion, suspected or discovered, can possibly be of the very serious nature which later developments prove. As in surgery it is so strongly claimed that the very early recognition of cancer, and early operative interference are most important, so especially in regard to its medical treatment the best results are obtained when the disease is recognized early and proper dietary and medicinal treatment are rigidly enforced, as experience abundantly shows. However, during all the course of cancer, even to the end, the benefits of strict medical supervision are often surprisingly manifest. Every effort, therefore, should be made to establish the diagnosis early, and every endeavor should be maintained to see that each detail of treatment is carried out with absolute fidelity, even long after the original lesion has disappeared. Otherwise any laxness and return to the same conditions of life which caused the first new formation to develop can reproduce the disease in the original site or elsewhere.

To understand rightly the constitutional nature of cancer, and the reasonableness of a medical treatment, brief reference must be made to some of the systemic conditions which have been established experimentally by the laboratory, and by clinical experience. The blood has long been recognized as a factor of importance in connection with cancer, as is clinically manifested by the intense cachexia and anemia commonly present and always strongly marked toward the end. Many studies have been made on the cytology of the blood in these cases, all of which confirm many radical changes in its solid elements, as I have constantly observed. Unfortunately there have been relatively few studies of the plasma of the blood, whereas it is from the plasma that the blood corpuscles are formed, and that is the principal agent in the development and nutrition of tissues, normal and malignant. For it is to be remembered that the chyle, conveying products of di-

gestion, is discharged by the lymphatics directly into the venous blood current, and that the venous radicles also absorb much of the nutritive material directly from the abdominal organs. The plasma, therefore, carries with it a varying quantity of partially assimilated material, to be oxidized in the lungs and slowly purified by the agency of the kidneys. There is great need of laboratory studies along these lines, and also on the alkalescence of the blood, which has been found to have a marked diminution in cancer.

The urine, reflecting the character of the arterial blood, has been extensively studied in cancer, and my innumerable volumetric analyses more than confirm all that has been observed. In some cases I have had the daily output of the urine saved and measured for weeks and months, and in some instances for over a year, often with complete volumetric analysis each week or two; and rarely is it found to be the same as that of a healthy body. This does not refer to albumen, or casts, or sugar, but in regard to its measured acidity, its mineral contents, urea, indican, etc. As an indicator of the manner in which metabolism is carried on, it is of the very greatest importance. Almost invariably, the total amount of solid excreted by the kidneys is found to be deficient in relation to the weight of the individual; this is constantly observed even in the very early stages of cancer. The output of urea is almost invariably diminished, often very greatly, as I have verified time and again in many cases. The nitrogen partition has been found to be at fault by many observers, as also that of sulphur, the details of which have been elsewhere presented, with a great increase of neutral (unoxidized) sulphur, with indican, showing intestinal fermentation, as I have constantly observed. All this indicates errors in protein metabolism. Imperfect intestinal excretion and constipation are almost invariably found in the subjects of cancer, even in its earliest stages, and long before, so that autotoxemia from intestinal fecal absorption and the products of microbic action must be looked upon as one of the elements of blood derangement which favor the development of malignant tissue. The saliva is almost invariably found to be acid, even in early cancer, instead of alkaline or neutral, as I have noted in hundreds of testings made before and after eating in patients in the New York Skin and Cancer Hospital and in my office. As dietary and other treatment with proper mastication is carried on correctly, with improvement in the general condition and in the cancer mass, the saliva returns to its normal alkalinity, but with a tendency to relapse into an acid condition. I think I have never failed to find it acid in cancer of the deeper oral region. It is interesting, in this connection, to recall that Mayo has remarked that cancer is apt to develop in regions exhibiting an acid reaction. Thus, while it is common in the stomach it is absent in the alkaline duodenum, and again common in the acid colon; it is also frequent in the bladder under acid conditions.

Time does not permit of further elaboration of the constitutional relations of cancer, such as the relation of the ductless glands to the disease, which has received considerable attention. But from the

benefit which has been observed from the administration of thyroid extract and perhaps some other extracts in certain cases of cancer, it would seem that the endocrinous glands, which have such an influence on metabolism are factors in connection with the genesis and cure of cancer. That diet, good or bad, has a great influence on the formation and growth of tumors there can be no doubt, as has been shown by many observers. The subject is so large a one that it can hardly be more than touched upon here, but it is of immense importance in connection with the medical treatment of cancer. One need only recall the almost complete immunity from the disease which has been repeatedly reported in aborigines and in those living in countries or regions where the food is wholly or largely vegetarian. Also, the reported increase of cancer mortality in proportion to the steady increase in meat eating in many countries and localities, as I have shown elsewhere. Some have also emphasized the relation of cancer to deficient or deranged supply of the mineral substance required by the healthy body, and of late much attention has been directed to the relation of vitamins to normal and diseased growth.

Not to dwell too long upon the many evidences of the constitutional or systemic relations of cancer, pointing to deranged metabolism as its basic cause, we will pass at once to the more practical matters relating to its prophylaxis and treatment. First, we must dwell very briefly on the dietetic relations of cancer which have been well established by research laboratories, statistics, and clinically. The details and references relating to these facts are given fully in the books already referred to. Experimentally, it has been found that mice living on rice cannot be inoculated with cancer. In another series of experiments seventy-five per cent. of inoculated white mice living on normal laboratory diet acquired the disease, while only nineteen per cent. of those on a nonprotein diet were affected; moreover, the tumors in the latter in thirty days were hardly larger than those in the former in ten days.

Statistically, it has been abundantly shown that cancer mortality has increased immensely with an increase in the consumption of meat. Thus, in England the amount of meat eaten per capita has doubled in the last fifty years and the number of cancer deaths has quadrupled. The same has been shown, though in a lesser degree, in Australia, and in many other countries. In the United States the mortality from cancer has risen almost thirty per cent. since 1900, while our yearly per capita of meat eating has increased steadily and greatly, so that a few years ago it was reported from Washington to be the enormous amount of 172 pounds per capita, which is much more than in England. There is also strong statistical evidence to show, that the continued increase in the consumption of coffee and alcohol has something to do with the rising mortality of cancer. Holland is shown to be the highest per capita consumer of coffee of any country in Europe, and the cancer death rate there, in 1905, was among the highest, while Hungary was the smallest per capita consumer of coffee and the cancer mortality was only twenty-nine per 100,000, or a little over one third that in Holland. The people in the United

States consume one third of the total coffee produced, or more than Germany, Austria, Hungary, France and the United Kingdom combined.

Clinically it has been shown by many observers, all over the world, that cancer is practically unknown among the aborigines, who live simple and mainly vegetarian lives, while the same people rapidly acquire the disease when they come in close contact with foreigners and acquire their habits, including the free consumption of meat. During a rather extensive trip through the Far East I was unable to see or even hear of any cancer, although I met a large number of medical men and made diligent inquiry regarding the same. As I wished to verify my views in regard to the rarity of the occurrence of cancer among those who lived on rice or other vegetarian diet, I visited very many civil, military and missionary hospitals, with a total of many thousands of patients, and ministering to many millions of population. In Japan, Korea, the Philippines, India, Siam, and Egypt, I met the same response, that cancer was rarely seen among those vegetarian natives. From many years' experience with the disease, in private and public practice, I have so constantly observed the remarkable results of an absolutely vegetarian diet in controlling cancer, and these results having been watched by many physicians, that the conviction is irresistible as to the influence of diet in this dire malady.

If time permitted, I could make quotations from a large number of prominent physicians and surgeons who fully bear me out in the claims here made. These statements have often been brief but conclusive in medical and surgical writings and, taken collectively, leave little ground for debate. None, however, have heretofore attempted to gather together all the evidence already presented of the constitutional origin of cancer, and apparently little impression has been made upon the medical profession or the laity as to any other method of reaching the disease than by the knife, nor has there been any attempt to formulate the measures which offer any particular hope of reaching and remedying the cause of the malignant growth. And yet, quite recently Aebli, a Swiss physician, has shown very clearly, by the analysis of large numbers of cases both of those had been operated upon and those who had been left practically alone, that even then the advantage of the knife cases, as to longevity, is negligible. With a most careful, intelligent, and continued dietary and medical treatment it can be readily shown that the advantages of such a method of overcoming the disease far exceed anything which can be predicated of active surgery. Moreover, if the underlying causes of cancer can be established, and by what means these can be overcome, we have advanced a long way toward the prophylaxis of this dire disease. For, it is recognized as certain, and shown by statistics that the knife can never control cancer, since after active propaganda as to early operation the mortality has risen so steadily and greatly, that it is now acknowledged by surgeons that ninety per cent. of those once affected die from its ravages. In the year following this active propagandism the United States mortality statistics show that the percentage of

deaths was nearly double that of the average of the five preceding years.

In regard to the exact manner in which dietary and other errors in life result in such a derangement of cell activity as to produce malignant growth we are yet a good deal in the dark, and possibly we shall never know. But all evidence as to the constitutional cause of cancer points to metabolic derangement, caused in various ways, prominent among which are dietary errors, connected also with faulty action of one or more of the different organs of the body. Undoubtedly, nervous shock or strain, insufficient bodily exercise, impure air, imperfect mastication, possibly microbic action and many other elements contribute to cause such systemic derangements as lead up to the faulty metabolism which produces cancer. The point to recognize is that the blood current which nourishes everything has in some way become so deranged, either in regard to its organic or inorganic constituents, that nutrition is not properly carried on, and certain cells take on an abnormal or morbid action, which we call cancer. If means can be found, dietary, hygienic, or medicinal, of restoring a perfectly healthy action of the system, and a normal or relatively perfect blood stream, the depraved cells again take on healthy action and even a retrograde metamorphosis can take place in tumors which have been already formed. This event experience abundantly testifies.

The elements in the medical treatment of cancer, and its prophylaxis, have already been indicated in what has preceded, and little more need be said in closing. Each and every case of cancer is a study in itself, and much skill, medical acumen, patience, grit, and perseverance must be applied if true success is to be expected. While, in surgery it is recognized that the results vary greatly, with the skill of the operator so much more in the medical treatment of cancer all the qualities mentioned are required. We have learned the lesson in regard to tuberculosis, in which the death rate has diminished nearly thirty per cent. since 1900, while that of cancer has risen nearly thirty per cent. in the same period of time, the disease tuberculosis being constantly overcome in spite of the continued presence of the bacillus; let us learn this lesson in regard to cancer, where no such microbic cause exists.

As you will recognize from what has already been said, diet is the most important part in the treatment and prophylaxis of cancer. Without the exactly proper diet, rigidly carried out for a long time, and even indefinitely, no good results can be expected. To aid in carrying this out, a diet card has been prepared for my medical cancer clinic, in the New York Skin and Cancer Hospital, which I also use in private practice. These can be freely obtained by application to the superintendent of the hospital, in person or by letter. While the diet on this card has been worked out by our dietitian it is not presented as perfect, and changes can undoubtedly be made with advantage. The average daily ration represents 2,100 calories, with about 140 of vegetable protein, and it is calculated for the use of a patient of about 150 pounds, in bed or not taking active exercise. The rules given on the card are to be accurately followed. This schedule has been used

by large numbers of patients with most satisfactory results. Patients in private and public practice are frequently questioned as to their faithfulness in carrying out, absolutely, the requirements of the "green card."

But diet is not the only measure of importance in the treatment of cancer, although as stated it is the first and most important, without which all else is in vain. Proper internal medication is always needed, and that continually over a long period of time, in order to secure and maintain a correct metabolic activity which is antagonistic to the cancerous tendency. As previously mentioned, if there is a relapse into the same systemic conditions which produced the original malignant tumor, there is no reason to expect that the same deadly process will not repeat itself.

The medicinal treatment of cancer is a hard subject to speak briefly about. As already intimated, there is no specific for cancer and probably never will be. Each case has to be studied most carefully, even week by week, and during prolonged treatment very many remedies may be needed to meet the various requirements, in order to make the metabolism correct and to keep it so. To aid in this a constant and careful study of the urine is necessary. This relates to the total daily output, securing an efficient elimination of solids in proportion to the body weight, the actual volumetric acidity, the organic and mineral ingredients, etc., which have been presented fully in the volumes referred to. For this, repeated and complete volumetric analyses are necessary. The importance of these methods can hardly be overestimated. Much care must also be exercised in securing a full and satisfactory intestinal elimination, which is to be assiduously cared for and not left to the patients discretion or treated in a routine or careless manner. There are many minor items in regard to the care of these patients which cannot be entered upon now, and have been treated of elsewhere, but it can only be stated that attention to the smallest details of life are essential to securing the best results in the plan of treatment under consideration.

It was stated, a while ago, that there was no specific for cancer and probably there would never be, but there is one remedy which has so continually proved of inestimable value that it should be mentioned. That is one of the salts of potassium, as has long been used by me, and more lately confirmed by several observers. This should never be neglected in handling these cases, and may be administered over long periods with advantage, alternated perhaps with various tonics from time to time. The salt I prefer and have used for forty and more years, is the acetate of potassium, in doses of from fifteen to thirty grains, generally combined with *nux vomica* and fluid extract of *rumex root*, given three times daily, half an hour before meals, well diluted. Fluid extract of *cascara* is commonly added, in doses sufficient to secure full and free daily action of the bowels. Iron and phosphatic preparations are also called for in most cases, even over long periods, and very many other remedies may be needed from time to time to render the metabolism correct. Morphine is very commonly

given to cancer patients, even soon after they have begun to experience pain, but this is very undesirable, as it interferes seriously with the action of the internal organs, and lessens the chance of recovery. In many cases I have found relief from aspirin, given even every two hours. This not only diminishes the neuritic symptoms, but even helps in the treatment by rectifying the rheumatic element, which is often a feature in cancer. In looking over my histories of cases I find that practically no morphine has been taken even in recurrence after operations and those that have ended fatally.

I will not burden you with statistics showing the advantages of the medical treatment of cancer, as already outlined, nor with histories of cases. Suffice it to say that in my long experience there is absolutely no comparison between the results thus obtained and those claimed by surgeons. In dozens of patients I have seen breast tumors which had been diagnosed as cancer, often by several competent surgeons, in whom the tumor has entirely disappeared and remained absent, when the patient had been faithful to treatment long enough. Some of these cases which I have reported date back thirty years and more, for some of whom operations had been arranged for by surgeons, and a number of them I have watched for ten to sixteen years and they have remained entirely well. I have reported two cases of uterine cancer, who had been refused operation by several surgeons, and had been proven microscopically to be very malignant, who have been perfectly well over two years, as testified to by the examination of others. A patient with a cancer of the bladder, treated also by fulguration, has remained well over two years, and one with cancer of the prostate improved marvelously, but was lost sight of. In two cases of cancer of the stomach, so diagnosed by others, the trouble seems to have disappeared.

It has been difficult in a single address to present satisfactorily so great and important a subject as the medical treatment of cancer. But I trust that enough has been said to impress you with the fact that the disease has medical relations which offer more hope than the knife, especially if the case is taken strongly in hand from the beginning and the treatment continued faithfully and long enough. Already the subject has attracted attention everywhere, and during the past year there has been a singular dearth of surgical writings on cancer in the journals, and an increasing number of articles along the lines here considered. The good results are perhaps indicated in the mortality records of cancer by the New York City Board of Health, for the first six months of this year. During this period the deaths from malignant disease were 2,480 against 2,488 for the same period last year, whereas those of last year were 127 more than in the first half of the preceding year, 1916. This is in spite of an increased population and an increase in the total number of deaths, amounting to 423, in the first half of this year, over the first six months of 1917.

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THE DEVELOPMENT OF CONSCIOUSNESS.

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The world word of the moment is "efficiency"; but the world seems to be in some confusion as to the interpretation of the word. Nations are at odds over it; individuals glimpse it from different angles. As a result efficiency fails to demonstrate itself; the word does not fulfill its promise. And why? Because efficiency is not the word; the world has misplaced its definition. Consciousness is the word; consciousness is what the world is seeking, not efficiency. Efficiency is the merest superficiality as against consciousness. Efficiency is three dimensional; consciousness is four dimensional.

But what is consciousness? That is a difficult question, but our answer will not be far from the truth if we say that consciousness is recognition, conscious recognition. That is, consciousness is that faculty of the cerebral cells of the human brain through which the individual recognizes and interprets his environment. He possesses not only the ability to recognize, but also the ability to translate; not only is he conscious of his environment, but he is conscious also of its meaning. He recognizes its relationship to himself; he gets at the very heart of things. He finds that there is an inside as well as an outside, and that for recognition to be complete it must come from within. That is why I affirm that consciousness is four dimensional; its cognition is all embracing. Efficiency sees only the externals, only three dimensions, only the surface; it is only a reflex response to environment. In consciousness the response is controlled, reason directs the reaction.

In this view consciousness is mind; but there are other views of consciousness. It is not certain that all consciousness is mind. Mind consciousness is cerebral consciousness, the associated action of the cerebral centres; but there is another consciousness that is merely cellular. Cellular consciousness is reflex consciousness; the cell does not become conscious until it is aroused by an external stimulus. In mind consciousness the mind knows what to do without having to be told; in cellular consciousness the cell knows what to do only when it is told what to do.

In the cellular or reflex consciousness we have the primal reaction to environment. It was characteristic of the primal cell; it is characteristic of all animal cells today, from the primitive cell of the ameba to the supremely specialized cell of the human cerebrum. All animal cells have this capacity for reflex response to environment, and, to the student of cell behavior, the designation "reflex consciousness" does not seem an improper one. It will not be a far surmise, in fact, to suggest that this cell consciousness is the beginning of mind consciousness. The phylogenic line has been a developmental line; the complex human body of today has been evolved from the primal cell through the upward toil of a hundred million years. The main functions of the human organism, as complicated and as extensive as they are, all have their counterparts in the primal cell. There is the beginning of the digestive

function in the ability of the cell to prepare its food; the beginning of respiration in the taking in of oxygen; the beginning of circulation in the movement of the fluids of the cell; the beginning of the excretory system in the ability of the cell to rid itself of waste products; there is the beginning of sex in the ability of the cell to revitalize its protoplasm through contact with another cell; and, lastly, there is the beginning of mind in the cell's response to contact.

We perceive, then, that consciousness is developmental, and because it is, that it manifests itself in varying degree. In the cells of the human organism outside of the cerebrum it does not proceed beyond the limits of the rigid reflex; within the cerebrum the manifestation is twofold. Within the cerebrum we find both reflex consciousness and mind consciousness. It is this complex consciousness that confuses us in the attempt to understand the working of the human mind. The reflex consciousness, using the apparatus of the mind consciousness, appears to belong to the mind; but here, as elsewhere, appearances are deceiving. Uncontrolled reflex action is not mind. As the beginning of mind it may be a mind excitant, but of itself it cannot be mind. But the reflex, because it was the activating stimulus of the animal cell, became the dominant influence in the cerebral cells of primitive man. At this time mind was a secondary influence. It was secondary because it was secondary in point of development. Mind was just beginning, while the reflex had been an active influence since the beginning of animal life. Mind was the result of the reaction between the cerebral cells of man and his environment. This reaction was, in the beginning, purely reflex, purely automatic, for it proceeded through a monotonous environment, an environment placid, never varying. But later, when the environment of primitive man changed, as it did, often abruptly, and always to great extremes, the changes were reflected in his behavior. His brain acquired a broader grasp, his cerebral centres a greater development, and through these the man came to understanding. This ability to understand, this power of mind, was, of necessity, of slow growth, for it followed the development of brain tissue. An ever varying environment sending new and ever varying stimuli into the brain was creating new stations for the reception of the new images brought into it. The brain was being built up through a long and laborious process; and it was through this process that mind was being developed. But this mind, primitive in every respect, responded to external stimuli through mere automatism. It could not respond in any other manner, for the response coming through the cerebral cells, was forced to follow their mechanism. It was pure reflex action; the ingoing stimulus started the reaction. There was no full consciousness to understand and to direct the reaction; there was only this reflex consciousness. The expression of the brain centres does not proceed beyond their ability to express. While the primitive man possessed consciousness it was only a primitive consciousness, with no power beyond the period of its development; but, as the man developed, so did his consciousness develop.

The development of consciousness in the man of

today, then, must proceed as did the development of consciousness in the primitive man. It begins with the beginning of the individual, and has to be built up, step by step, as the individual is built up. That is, it follows the development of the individual brain, and proceeds along natural developmental lines. As it began with the childhood of the race, so now it begins with the childhood of the man. It may be developed only through the developing child; it may not be forced in upon the already developed man. And the result may not be obtained in a single day: one day is the beginning, another the ending. Today is the foundation laid; tomorrow is the superstructure reared. The child is today; the man is tomorrow. It may be perceived, then, that the development of consciousness is the matter of the development of the child brain.

But, why should we need to discuss this matter? If consciousness is developmental does it not take care of itself? Doesn't the child brain, following the regular developmental process, come into consciousness at its appointed time? In truth, it does; man would be hopeless if it did not, but the process has its limitations. The result, in a brain left to its own devices, becomes uncertain. It may develop into a brain with full consciousness, or a brain with only a fractional consciousness. In fact, the brain with the fractional consciousness becomes the rule. The relatively small number of men who possess a full mental equipment testify to this; and, comparing these few with the vast numbers who are only mediocre, it becomes apparent that there is a lack somewhere. The fact is that nature is a devious worker; she is handicapped by her own process. Her gains are made only after great effort, at the expense of great wastage. Very often the mountain labors and brings forth a mouse!

It becomes obvious, then, that the brain needs help in developing its own consciousness, in developing mind. While the process is developmental, and should, under the rules, take care of itself, the human brain comes into full consciousness only through outside help. That is, the development of consciousness depends upon environment, upon the reaction between environment and the cerebral cells. It is a present past reaction, with the result dependent upon the present, environment. The cerebral cells having been developed in the past, represent that past. The brain cells are laid down by the growth process, but this does not activate them. They are ready for work, but they do not know how to work. If they attempt to work they do not advance beyond their structural limits. That is, the cerebral cells, having had no active experience, perform only as crude cells, even though of normal structure. The cells need a period of preliminary training before they are able to functionate properly. It is the function of environment to give this training to them.

Study of the phylogenic process in brain development will demonstrate the truth of the last statement. Let us illustrate this by an appeal to the imagination. Here is a little story, which, while not actually a true story, is based upon truth.

Once upon a time there lived an individual named Aman; Aman, meaning not-man. Now

through appeal to his human side. We must remember that the human urge, however slight, however slow its manifestation, is always present and always ready to respond to encouragement. All we need to do is to attract and hold the attention of the human, and we accomplish this through an appeal to memory; it is memory that enables the child to grasp ideas. If we present an idea to a child that is entirely new to him, if there is no familiar spot to attract him, he will not be able to understand it; but, if we dress the idea in old clothes, if we put it in a familiar environment, the child will have little difficulty with it. To the bare, unfamiliar idea the child brain would react as would the purely animal brain; that is, not at all. The animal, being nonconscious, cannot grasp bare ideas of unfamiliar images. The animal possesses curiosity, but not understanding; he sees, but his brain is not able to interpret. The child brain being more animal than human has the animal characteristics predominating. The child manifests an interest in everything about him, in those things he does not understand as well as in those he does; but this interest in the abstract is merely animal curiosity. If the thing before the child cannot hold his attention, cannot arouse his memory, he loses interest in it.

In our endeavor with the child, then, we must remember the dual quality of his brain: the animal, having millions of years of existence behind it; the human, being a comparatively recent creation. The character of the child brain is determined by the reaction between the two, and the reaction, again, by memory and environment. Environment begins the reaction, memory completes it. If there is no memory, that is, conscious memory, then the reaction becomes merely reflex, and of no great value; if, on the contrary, there is conscious memory, then the reaction enters into consciousness and becomes of superlative importance to the individual. The reaction becomes a present-past reaction, with memory and environment the determining factors.

(To be concluded.)

ENVENOMIZATION SUGGESTED AS ETIOLOGY OF OBSCURE WAR DISEASES.

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The increased interest manifested in discovering the causative factor of the diseases of the present war impels the amplification of a theory published in November, 1917 (1). The variance of views upon the etiology of war diseases and the idea put forward by most observers that an underlying toxemia is at work in almost all cases, together with the fact that their symptoms apparently resemble those resulting from bites of animals and insects known to be venomous, suggest the question to me, whether there is any possibility that the products of the vermin encountered by the soldiers in the trenches and battle fronts of Europe could have an etiological relation to these war diseases. Bacterial

and chemical toxin, overexertion, and vermin as transmitters have been put forth as possible predisposing and determining causative factors, but the possibility of an animal venom has not, so far as I know, been seriously considered. Infestation by a few lice probably could not produce results appreciable to the individual or attending physician, but is there not a possibility that the harmless few when multiplied by many might produce disturbances such as those classed as soldier's heart (2), which have occurred not only in this war, but in the Civil War (3), both of which are notorious by reason of their vermin?

The clinical picture of soldier's heart is well described by Hortshorne in the *American Journal of the Medical Sciences* in 1864 (5), by Da Costa in a review published in the same journal in 1871, and in many of the present day journals since the outbreak of the war in 1914. A comparison of these articles will show that we are dealing in both instances with comparable conditions. War nephritis also stands in a class by itself in so far as geographical distribution is concerned, making its first appearance during the American Civil War and produced its highest case record from March, 1862, to March, 1863.

All phyla of the animal kingdom with the exception of porifera are known to have members poisonous to man and higher animals. From among arthropods the following groups have representatives that are more or less poisonous to man: Araneida, scorpionida, acarina, myriapoda, hexapoda including larvæ of moths and butterflies. The larvæ of the European brown tail moth are the most serious. The hairs from this moth, its cocoon and caterpillar, in susceptible persons, produce a dermatitis accompanied by symptoms pointing to a systematic infection. Its barbed hairs can be transmitted to the body by handling vegetables or plants or from infected clothing; even breathing in or swallowing these hairs produce trouble. Tyzzer (5) has demonstrated that the hairs contain a poison which produces a change in the red blood cells.

Every practising physician has seen cases of enlarged glands due to the presence of pediculosis capitis, a condition which suggests a systematic poison. May it not be that during the act of piercing the skin and sucking, the louse deposits a portion of its salivary secretion in the tissue? Again pediculosis pubis is often associated with steel gray lesions on the sides of abdomen, thorax, and inner sides of arms and thighs. The louse injects the pigment while feeding. Similar lesions have been experimentally produced by inoculating the crushed louse. Not all infested persons show the pigmentation, a point suggestive of a special predisposition. The idea suggested in this article will be better served if we presuppose all venoms injected or inoculated to be free from bacteria and protozoa.

The louse is only one member of a large class under consideration, whose mouth parts are specialized to either bite or suck or fitted to both bite and suck. The bed bug injects an irritating fluid in order to increase the flow of blood to the part. The European bed bug is extremely irritating, especially

to Americans. The wood tick is sometimes parasitic to man, causing an itchy, painful urticarial lesion. The bird mites, fowl mites, chicken lice may also become parasitic on man and escape observation because they resemble grains of sand. The mite of scabies needs no description. *Pediculoides ventricosus* is found in straw (on which our men frequently sleep) and grain, and causes straw itch or grain itch. This little animal requires a magnifying lens of moderate power to detect it. Contrary to the habit of the mite of scabies, it does not burrow in the skin but pierces for the purpose of securing nourishment, at the same time introducing a toxic substance as a result of which there may be a local eruption of erythema, urticaria, or vesicopapules, in addition to a slight fever, moderate leucocytosis, slight albuminuria and often eosinophilia following an infestation. The sand flea is capable of producing an adenitis.

The common house fly has its mouth parts modified into a specialized brushlike apparatus used to brush particles of hard food together, which is either mixed with or dissolved in a salivary secretion from the ridges of its mouth. The food thus prepared flows into its mouth along a dorsal furrow in its proboscis. It needs little imagination to appreciate the fact that much of the fly's salivary secretion is included in our dietary. It is not beyond the possible to imagine that arthropods feeding on sick or dead animals should themselves be rendered pathological and thus influence the next person fed upon.

We think of insects chiefly as being dangerous in so far as they introduce protozoa or carry bacteria. The louse is the transmitter of typhus and the flea of plague. The flea as it engorges itself on the blood of the host deposits excreta on the skin. The irritation of the bite causes scratching and thus the bacillus *pestis* contained in the excreta is introduced into the new host. Animals frequently become diseased as a result of the biting and sucking of insects and allied animals. In many cases local irritation is produced to the extent of pain, redness, swelling and disturbed function. In others the redness and swelling may occur without any sense of irritation or only after the withdrawal of the sucking apparatus. Often mosquitoes feast leisurely on the exposed parts of our bodies while we remain ignorant of their presence. From Africa we learn that great forest animals die from the bites of locusts.

It has been proved that size has little to do with the virulence of a venom. A young cobra just escaping from its egg has a venom as virulent as its mother's. The fact is well known that some persons suffer intensely from mosquito bites even to the general impairment of health accompanied by marked local reaction; others respond similarly to bedbug bites. In India and China we have a fever referred to as sand fly fever. In China this fever is especially marked during May and June. Natives are immune; all others suffer.

The little hook worm as it attaches itself to the wall of the intestine introduces a secretion which prevents the clotting of blood. With this precaution it drinks of its special nectar leisurely, and when it detaches itself for a new field, the little spot con-

tinues to bleed. The hemorrhagic substance introduced by the worm continues to act and constitutes possibly its gravest danger. The local and systemic effect of a few hook worms is probably negligible, but with a heavy infestation the amount of ill health is tremendous and the toll in life heavy. There are many other metazoan parasites to be considered, such as tape worms of many kinds, *trichina spiralis*, filaria, schistosoma, and flukes each with a preference for different organs. Probably all of them secrete a digestive ferment which, to say the least, is a foreign substance in the human body. May it not be possible that the filaria produces a cytolyisin which selects as its special tissue the endothelium of lymph vessels?

For information regarding the constituents of venoms, their effects on the various tissues and organs of the human subject, we are thrown back largely to the many valuable studies made of snake venoms and those of a few of the smaller animals. The studies made on venomous animals have brought out the fact that their venoms are nothing more than digestive secretions provided not for defense but for digestion. Even when the fangs of snakes are not erected the secretion from the poison glands has free access to the mouth cavity. The quantity and strength of available venom depends on the nearness to a feeding and is always less after feeding. In some cases, before ingesting the prey, the digestive fluid is introduced into the prospective meal and given time to act; in other cases the prey is swallowed before the venom acts. Snakes are known to swallow birds and digest them so that little trace of bone is found and feathers and hair are felted. The warming of a small South American frog causes it to send forth an exudate which, rubbed on the arrow of the Indian, furnished him with one type of poisoned arrow. The Hottentots pound the head of *bitas arietans* into pulp and mix it with certain plant juices for poisoned arrows. So, African bushmen use the body fluids of the *Chrysomelid* beetle on their poisoned arrows. The blood of the victim shows that the poison has a hemolytic action associated with inflammation of mucous membranes and subcutaneous connective tissue and that general paralysis causes death. Post mortem examination of bodies of domestic animals such as cows, horses, etc., killed by eating the larvæ of the European cabbage butterfly reveal hemorrhagic gastroenteritis, splenitis, and nephritis.

Sponge divers malady follows contact with sea anemone. The diver complains of itching and burning, papules of horny consistency appear, soon a red zone shows which becomes bluish, then black and spreads. In a few days the skin sloughs and leaves a deep ulcer which suppurates. The systemic symptoms are shivering, headache, thirst, fever with pain in back and limbs. Domestic animals fed with one sea anemone die in a few minutes with convulsions. A layer of grease is the fisherman's protection. Injection of sea urchins causes paralysis and death of animals. In rabbits it produces asphyxia and general paralysis in two to three minutes. *Pedicularia*, the soft prehensile organs of sea urchins, contain a special poison which acts on the nervous system. Frog serum contains its antivenom.

There are venomous fish, the Synanceia in particular, which when introduced into tissues causes acute local pain which extends through the limb. Patients are anxious, have fainting attacks, become delirious, striking and biting those around them and beseeching that the limb be cut off; some have amputated the injured limb themselves. Riley and Johansen say, "Probably all species of spiders possess a toxin secreted by the poison glands. A few possess a toxalbumen derived from the general body tissue which is of great virulence and may even cause death in man and higher animals." Certain spider bites cause sensations of pain with swelling and muscular contractions. Such spiders have killed milch cows. A dry extract of *Lactordeus* injected into dog or cat causes death with phenomena of dyspnea, convulsions, progressive paralysis of respiration and heart. Newly produced spider eggs are more venomous than older eggs. It is known, too, that the eggs of cobras, vipers, bees and toads contain a specific poison, an additional fact which may explain some cases of mysterious poisoning encountered in the Far East. May not the eggs of many arthropods be poisonous? Scorpions, myriopods, insects and bees all produce a neurotoxin. In fairness to our subject, the one-celled animals cannot be omitted, and by way of example we will simply refer to the toxic effects of malaria, *amoeba histolytica*, trypanosomes, leishmania, ciliates and flagellates, and with permission of the bacteriologist, spirochetes.

The study of venoms has resulted in a broad classification. They all fall into one of two possible classes, namely, those with a specific action on blood containers and on nervous tissue. The most recent investigations show that many of the snake venoms contain both neurotoxins and hemotoxins. The elapine type with the cobra as a representative gives us an example of the neurotoxin producers, while the viperine type represented by rattlesnake and Russell's viper gives us our example of hemotoxin producers. The proteolytic enzyme of viper's venom may produce in young mammals violent inflammation of mucous membrane of stomach and intestines, the animal dying from exhaustive hemorrhages in the digestive tract before any nervous symptoms appear. The venom of the Australian elapids introduced into the circulation causes clotting; when the dose falls short of that effect there is a transitory increase in the coagulability followed by diminished coagulability. A smaller dose produces thrombosis only in the portal vein, another sized dose will produce thrombosis in portal veins, right heart and pulmonary arteries. There is a very marked difference in the reaction of blood to venoms—some will never clot. Sodium chloride is an activating salt which is necessary for the production of a fibrin ferment. The coagulating power of venoms is largely influenced by the chemical composition of the blood at the time of introduction. A very slight alteration in degree of alkalinity or quantity of neutral salts in the blood is sufficient to render the individual hyposensitive or hypersensitive as far as coagulation is concerned. Hemolytic power of venoms is not operative on all blood cells alike, a fact which may account for the reported increase in the resistance of the red cells to hemo-

lysis while jaundice lasts in cases of epidemic jaundice. The hemolytic action of venom lecithid is almost instantaneous on cells with low resistance. An interesting fact has been noted that while treating cobra venom with blood in the experiment of making cobra lecithid the acidity is raised. At a certain acidity the process is checked and it is not until an alkali is added that the process proceeds to the formation of the thermostable lecithid. This is an observation which may explain remissions in the temperature runs of many fevers of known bacterial origin and those of obscure etiology, such as trench fever. Noguchi says, "Venomized corpuscles which are not hemolyzable even in water are readily hemolyzed by weak solutions of acid or alkali, and in these cases the venomized cells succumb to the latter effects much more easily than the normal corpuscle." A mixture of venoms is capable of producing differences in result. The amount of hemolysis with snake venom depends on the amount of venom and also on the amount of activator. Cholesterol in the presence of lecithin has an antihemolytic power on snake venom. It is known that neurotoxic venom (cobra) enters into combination with lecithin to form the thermostable venom lecithid which is many times more poisonous than the native venom. A very minute quantity of venom in the animal body assumes a high potency. Keyes says "that there are two kinds of blood corpuscles according to their susceptibility to the hemolytic action of snake venom; 1, the corpuscles which undergo hemolysis by venom without a second substance; 2, the corpuscles which become hemolyzed only when auxiliary substances are present at the same time." One investigator claims that certain blood cells have an intracellular complement.

The venoms of toads, frogs and salamanders are composed of mixtures of poisons which are analogous to vegetable alkaloids; others are similar in effect to toxins of microbic origin; while others are related to snake venom. On questioning my Ceylonese teacher the statement was made that the bites of what they call harmless snakes are frequently remotely followed by muscular tremors which are permanent. The histological changes caused by the saliva from one of the poisonous lizards, *heloderma horridum*, are similar to those induced by snake poison. The saliva of all snakes contains a poisonous element and some have it in other body juices—blood especially.

There are parenchyma cell solvents in certain viper venoms. The histological changes induced on the nervous system by cobra venoms do not show in cases proving fatal in less than two hours; other venoms produce definite changes in much less time, while in chronic cases, the patients, who die in about ten days, show an atrophy of muscle and nerve. Experimental poisoning in animals has revealed that with certain venoms there is a tendency for hemorrhages to occur in the lower portion of the body, gravity being the suggested cause. The poisons of the cobra type may act on the heart and respiratory centres simultaneously; with a higher dose the heart is involved before the respiration, but by varying the rapidity with which the venom reaches the circulation clotting can be added and all three may be the cause of death. If such an animal escapes an

early death it may die later from pathological changes in lungs and kidneys. If patients poisoned by a hemolytic venom overcome the immediate effect they may ultimately die as a result of the bacterial infection of the hemorrhagic tissues because of the fact that the germicidal property of blood plasma is lost in the presence of snake venom.

With the fact in mind that in recent years it has not been considered good practice to give alcoholic stimulants in cases of snake bite, it may be of interest to note the result of experiments. One investigator asserts that alcohol with fresh venom or with venom in aqueous solution, throws down a precipitate; another shows that all poisonous ingredients are coagulated by absolute alcohol, but that the presence of a trace of water renders the supernatant fluid toxic; Calmette has demonstrated that a dried precipitate of venom retains its poisonous properties over twenty years. Precipitating a snake venom may guard it from immediate elimination and place it in a position where it can continuously supply its poisonous elements to the blood. Even the handling of poisonous serpents that are preserved in alcohol is dangerous; one fatal case has been reported from Petrograd. Langman's report of experiments with snake venoms show that they produce specific changes in ganglion cells, amounting to a true acute degeneration. His experiments revealed changes in the following areas: anterior horn of spinal cord, cells of cortex, cerebellum, olfactory lobe, basal ganglion, medullary nuclei, spinal ganglion, with the most marked changes in the anterior horn and Purkinje's cells, and mitral cells of olfactory lobe.

If in the case of war diseases an animal venom is at fault, analogous to those already investigated, we may thus expect to find it operating through the nervous tissue or through the blood system. Venom acting on the blood may do so through one or more of the following poisonous elements: hemolysin, hemagglutinin, cytolysin, while the poison known as neurotoxin acts on the nerve tissue. It is the present belief, so far as snake venoms are concerned, that all these elements are present. The outstanding symptoms depend on the element in preeminence. If this element is a neurotoxin then there is a paralysis of respiratory and cardiac centres. In the event of its being a hemotoxin, we may have pictures depending on whether the toxin is one which coagulates blood or renders it more fluid, whether it agglutinates red cells or white cells or both, whether it produces hemolysis or whether it is due to its special affinity for the endothelium of capillaries and small veins. This endotheliolytic action is especially well marked in the glomeruli, producing hemorrhage and hematuria. According to Calmette, both neurotoxins and hemotoxin act on the liver, influenced by the size of dose and slowness of action; the slower the action the more pronounced is the pathology. The kidneys show lesions of the glomeruli, their walls rupture and blood is extravasated. The lining of Bowman's capsule swells. Parenchyma vessels are distended and torn. When liver and kidneys are badly involved the spleen as well as the muscle fibres of the heart shows changes associated with peripheral hemor-

rhages. The lungs show many small infarcts. The pathological picture is also modified by the coagulating or anticoagulating power of the venom. There are certain conditions which influence the degree of virulence of snake venoms such as season, moulting, recent biting or feeding. The physical condition of the individual receiving the poison is not without its influence. The claim is made that pigs are immune because of their subcutaneous fat. Even human blood may take on poisonous qualities under certain conditions as shown by the well known fact that blood for transfusion calls for a most careful examination, both of receiver's and donor's blood; for unless the bloods are harmless to each other the receiver's life may be sacrificed.

The introduction of a venom into the human system gives clinical pictures of great variation which may range, figuratively speaking, from the dimness of a snow scene to that of an intenseness of color savoring of unreality. Our intense picture results from a heavy dose in a susceptible person, while pictures of intervening grade are produced until we reach symptoms so poorly defined that nothing is noted but a slight functional disturbance.

Bacteria show preference for certain tissue; in the same way do the venoms of animals act. The venoms of no two species of snake are identical, each shows affinity for some special tissue; for example, the venom of the poisonous water snake selects nervous tissue other than the central ganglia.

It is found that the products of the digestive apparatus have an antivenomous effect on snake venoms, frequently inactivating them. This is true during active digestion, but in the intervals enough may dialyze to cause death. Martin states that neurotoxins are filterable, while hemotoxins are not filterable. One investigator asserts that blood serum is necessary to the activation of venoms. All native snake poisons are inactivated by a temperature of 150° C. No individual poison is destroyed with less than 65° C. but a cobra venom that has been activated by blood serum and has reached a certain chemical combination is thermostable. Calmette reports that death from cobra poison is due to its effect on the nuclei of the accessory and hypoglossary nerves and lastly on the origin of the pneumogastric nerve.

The mode of introduction sometimes influences the time of death, if into a blood vessel that effect is more rapid. The hemorrhagin in viper venom shows a specific affinity for the endothelial cells in the walls of blood and lymph vessels. Speaking of the action of snake venom upon the heart the Carnegie Institute report says, "Sometimes there are small hemorrhages in the periphery, but seldom in the substance. The muscular fibres present a slight fatty degeneration only in cases where extensive histological alterations are seen in the liver and kidneys." Venoms of snakes have a softening effect on muscle due to the presence of a ferment-like substance.

Forchheimer (15) has given a most interesting account of how certain conditions render the system hyposensitive or hypersensitive to snake venoms. Syphilis is believed to render the individual hyposusceptible to cobra venom. In other

a severe sore throat. On examination, I found that the patient had a dryness of throat, soft palate, uvula, tonsils and pharynx intensely red and markedly inflamed. Swallowing was painful. Temperature was 90°, by mouth. Patient vomited once that day. Throat was painted with a ten per cent. silver nitrate solution and an astringent given to spray the throat. The following day I was called in again as the patient had difficult breathing on inspiration. Expiration was easily performed. On examination of the larynx, I found the aryepiglottic folds greatly swollen. I explained, to the mother, the seriousness of the case, and with a laryngeal knife scarified the area freely, and advised nurse to spray with an adrenalin solution quite often; also applied cold packs to neck and gave the patient pieces of ice to swallow. During scarification patient felt some relief. Advised mother to notify me of any change. During the night the patient's condition became worse and about three a. m. he died of suffocation due to edema of larynx.

FALSE CROUP, WITH NECESSARY INTUBATION.

Boy, seven years old, attacked with influenza. Four sisters sick at the time. This little patient is dumb, but not deaf. Father called hurriedly, saying the child was choking. Inspection showed child to be croupy and had a metallic cough; stridulous and noisy respiration. Examination showed the larynx to be slightly edematous. (Culture taken showed absence of Klebs-Löffler bacillus.) No exudation or membrane present. Instead of a remission of symptoms, the condition became worse, and in order to be on the safe side, I intubated and injected 15,000 units of antitoxin. I allowed the tube to remain in three days. On the fourth day I extubated because child was markedly improved. Rapid improvement and recovery followed.

I have also met cases during this epidemic involving, first, the nasopharynx and then involving the accessory sinuses. In the majority of cases the antrum was affected, but I have also encountered a few frontal involvements. In conclusion I may add, that this affection (Spanish influenza) started primarily in the nasopharynx and by spreading downward or upward, caused the aforesaid complications.

1425 MADISON AVENUE.

FOREIGN BODIES FROM THE TRACHEA AND BRONCHI.

BY RICHMOND MCKINNEY, M. D.,
Memphis, Tenn.

The specimens of foreign bodies removed from the trachea and bronchi, which I have here to show to the members of this society, are rather interesting.

The first of these is a wire paper fastener which had been in the larynx of a child, five years of age, some six weeks before I saw it. I found the fastener, hanging beneath the left vocal chord, with a Jackson speculum. Apparently it had been caught there by one of its exposed ends. The most interesting feature of this case, and one which Doctor Jackson emphasized in a personal letter to me, was

that if I had dislodged the foreign body in attempting to extract it, it probably would have been insufflated into one of the bronchi. It was removed, however, without difficulty.

Another specimen that I exhibit here is that of a copper brad from a cheap suitcase, which was removed from the extreme end of the left inferior lobe bronchus in a child five years of age. This case has been reported by me in the *Laryngoscope*, and several interesting features about the case caused me to exhibit the specimen on this occasion. The brad had been drawn to the end of the bronchus through negative pressure, and having an oval surface, it was impossible to grasp it with any forceps that I had. Under fluoroscopic observation, I kicked the brad over on its side by using Jackson's slender forceps; caught it by the edge as it turned and extracted it.

A type of foreign body very common in the portion of the South where I reside, and I am not sufficiently well acquainted with the flora of the North to know whether or not these are found in that section, is the cockle burr, and very frequently we have patients brought to us with one of these burrs lodged in the larynx, tightly held between the vocal chords. The numerous spines which cover the burr cause it to become imbedded firmly in the mucous membrane, which cover the chords, and also render it exceedingly painful. Most of the cases I have seen have been in children, of varying ages. Usually the burr flies into the open mouth, and is inhaled into the larynx while the child is running open mouthed through a field, engaged perhaps in chasing rabbits. For the removal of these bodies, in young children, I use a Jackson speculum, and general anesthesia. In older children and adults, indirect removal, with local anesthesia is generally employed.

BANK OF COMMERCE BUILDING.

MILITARY TRAINING AS A FACTOR IN PUBLIC HEALTH.

BY CHARLES O. LINDER, M. D.,
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Member of Health and Sanitation Committee, Spokane Chamber of Commerce.

II.

Now that the interest of the general public in this country has at last been aroused concerning a proper preparation for the military and naval defense of the United States in connection with the ending of the world's war, it seems timely to discuss, from the standpoint of public health, the individual advantages which might be derived from systematic military training in this country.

For the medical man, aside from an almost universal spirit of patriotism and service, which is so close to the ideals of our training, the chief question which arises is as to the effects, beneficial or otherwise, which such a system would produce on our young men, particularly from the physical and mental standpoints.

Under a system of military training, many of the physical defects mentioned in my former article

could be discovered and corrected, if this had not been done during the school age. It might be interesting at this time to discuss the causes of the various defects. It will be helpful, therefore, to consider the question of growth first. Growth is the most rapid during the first five years of life. Then it slows down for from three to seven years with occasional spurts; from twelve or fourteen years of age to the eighteenth year it is again rapid. Mental growth is in sympathy with physical development, there being periods of intellectual inactivity; and it would appear that frequently mental dullness accompanies unusual physical growth. Our great philosopher, Herbert Spencer, described this phenomena in his own case. It stands to reason that if an increased demand is made upon nutrition for the growth of the frame, there will be manifested a disinclination for mental work. If this is true of the well nourished schoolboy, how much more likely is it to occur in the case of the children of the poor, who are unwholesomely and insufficiently fed and who are living in unsanitary conditions.

Special defects which are structural have been the cause of 14.73 per cent. of the total rejections in the British army—and this percentage holds true in connection with percentage of rejection in the American army; and most of these were caused by want of care in early childhood when growth was most active and when the frame was unable to bear the strain of violent exercise, such as is involved in lifting and carrying heavy weights. The infant is allowed to stand and walk too soon, long before his limbs can support his body without risk, and a little later he has bow legs, his growth becomes stunted, and he loses the symmetry which gives grace to the human figure. It is a very sad picture.

The enormously high rate of mortality in the first five years of life is well known. It is associated with rapid constitutional changes which depend upon growth, and is due to the fact that those changes occur at a time of life when children are helpless. They also lead, under certain conditions, to impaired physique and to special defects of the frame and of the limbs of locomotion. Ignorance, carelessness, intemperance, and improvidence are the chief factors. The state interferes when the children are older, protects them from dangerous employments, and provides means for their education; and yet in infancy measures for the protection of health and for the improvement of the physique are infinitely more important, but neither the state nor local authority protects the young. This duty is left to volunteers, charitable associations, which can act only when neglect or cruelty has become generally known.

In all national, boarding and state aided schools girls should be instructed in domestic economy and in the duties of maternity. The ignorance which prevails among the poorer classes, both as to the rearing of children and house management, is appalling and leads to enormous waste. Woman medical instructors should be employed in poor districts to instruct mothers to examine the children for physical defects and to advise as to their feeding and sanitary environment. For young children a daily bath is conducive to health and lessens the

susceptibility to infectious diseases. In poor localities they should be provided at the public expense.

In early childhood it is the physical and moral education which requires first attention, the reasoning powers being allowed to develop by observation of surrounding objects and by sympathetic instruction. The moral wellbeing of the child depends upon its health, for the emotional side of human nature is strong in the young. Therefore, to guide it into healthy channels, the child should have physical education. It is also the best preparation for its mental development. All this may be very commonplace, but it is persistently neglected in the education of the child. As boys grow older, the range of mental work can be enlarged until it is possible to fix a time limit. Authorities on this subject have considered that during growing childhood, the twenty-four hours of the day should be divided up as follows: Work seven hours, meals and play seven hours, and sleep ten hours. This is a very admirable division of the hours of the day, and it would be very desirable if the press and the pulpit would take up the matter of enlightening the public on this subject. The children cannot be expected to parcel out the day in this way; they follow their own inclinations and momentary influences. If the parents are unable to undertake this duty, it devolves upon public authority to provide the means and to see that it is carried out, not alone in the interest of the individual, but of the state as well.

In any arrangement for the young, in any survey of their circumstances, in an effort to ameliorate their conditions, it is imperative that we remember that they are not finished products. Young people both boys and girls, are the coming generation in the process of making; they are not only growing, but developing. This is one of the sufficient explanations of the otherwise inexplicable disaster of prolonged illness and of the deprivation of the conditions of health. If the costly porcelain is marred in the moulding, in the firing, in the painting, in the glazing, the product is worthless. The imperfect human being is like a vase, a picture, or a cup, to which the maker will not put his name—it is a disgrace, an unfilled design. Adolescence is a time of increased growth and of functional activity, when regular and moderate exercise is conducive to health, provided that nutrition is sufficient and that the sanitary environment is corrected. Under these conditions the young soldier would become after a few years' training, robust and strong. But, alas! It is only a small portion of the new recruits who now can safely undergo this ordeal. During the period of adolescence, then, is the time for health preparation. I have shown how growth aggravates defects in the young and that with a different environment it is possible to eradicate them.

Professor Howard Marsh, in his Hunterian Lecture has a chapter entitled, *The Influence of Growth on Deformities*, in which he shows how growth under favorable conditions tends to correct deformities, especially deformities contracted in childhood; and how with proper care the injurious effects of malnutrition can be corrected. Fatigue and strain must be avoided; walking, swimming, and outdoor games give sufficient exercise and keep the mind

alert. With improved physical condition, the growing youth may be given moderate gymnastic exercise which includes all the muscles of the body and which, in this respect, differs from most trades, which generally work some muscles to the point of fatigue and leave the others unexercised and undeveloped.

The measures suggested to be taken in infancy and in childhood will necessarily be slow in their operation and will take some twenty years before their full effect can be produced. The question, therefore, is, what should be done now? We know that it is quite impossible to raise, by voluntary recruitment, an efficient army for home defense and for service abroad in time of war. That is one of the lessons learned at the beginning of this war. The duty of the nation is plain: It must deal with the raw material just as it is—and that without delay—in the interests of both national health and military efficiency, which can only be done by the removal of young men from their present surroundings and by placing them under improved sanitary condition, where they will receive careful physical and moral training.

III.

We have thus far discussed special defects; now let us turn our attention for a few moments to the subject of defective development. Under this topic we find underweight, underheight, underchest measurement which have been the cause of rejection in about thirty per cent. of the total rejections to the British Army, and which perhaps will be found to be the cause of about eighteen per cent. of the rejections to the American Army under the relaxed war standard. These defects are due to hereditary causes, defective nutrition, want of fresh air, and lack of personal cleanliness.

The diseases which cause rejection—and which I have grouped together as due to defective nutrition during growth—are referable to those organs whose functional activity is greatest. For instance, the heart is always functionally active whether the individual is awake or asleep, at work or at rest; the heart must beat and the blood must flow; consequently, this organ is the first which will break down when the supply of nourishment is insufficient. Like an imperfectly stoked engine, its power becomes less, and in this state it produces organic lesions. This has caused rejections to the British Army before the war to the extent of 16.45 per cent. of the total rejections, owing to the fact that a large portion of the recruits came from the poorer classes; while in the American Army the rejection due to this cause is approximately one half of this figure. Defective vision, which produced 12.27 per cent. of the total number of rejections in the British Army (in the American Army twenty per cent.), is another result of defective nutrition during growth. The eye never rests, except during sleep and its structures are delicate; the eye more than any other organ sympathizes with the constitutional state. In oriental countries the loss of sight is frequent, from poverty of blood which induces a low vitality and in which the eye wastes or its nerve power is lost.

With the effect of malnutrition so much in evidence, it might be considered that the digestive sys-

tem, which is primarily engaged, would afford some corroboration, but it is manifest that young men suffering from acute or subacute forms of diseases are not in a condition to present themselves for medical inspection. Still, much can be learned from the state of the teeth and by an examination of the mouth. The number of rejections in the British Army due to loss or decay of teeth was 9.14 per cent., while in the American Army, under the draft war standard, it is about sixteen per cent. of the total rejections. But these represent only a small moiety of the number affected, for the condition of the teeth must be very bad before an otherwise eligible recruit is rejected. In many mouths the gums are pale and bloodless; in others they are soft and spongy and bleed on slightest pressure. Daily we see young and old with mouths filled with decayed teeth. Bad teeth hinder digestion, and indigestion is the curse of many a man's and many a woman's life. Infected mouths will cause heart disease, and innumerable other diseased conditions are produced by bad mouth infection. Parents and teachers should see to it that children cleanse their throats daily with a throat bath, and should insist upon the daily use of the tooth brush before retiring, or still better, after each meal, if possible. Too much stress cannot be laid on this important matter of keeping the throat, tonsils, and teeth perfectly clean at all times. Many doctors' and dentists' bills will be saved by the regular use of the gargle and the tooth brush. It may be fitting to state here, that all the tooth brushes and brushing will not preserve the teeth, unless the necessary elements are present in the blood. The composition of the teeth is fifty-seven per cent. calcium phosphate (phosphate of lime) and the remaining forty-three per cent. is composed of the following: gelatin, an albuminous gluey substance, carbonate of soda, magnesium phosphate, sodium chloride, silica, and fluoride of lime. If these substances are absent or deficient, we can no more expect a child to have strong teeth than we can expect a hen to lay eggs with well formed shells when she has not been supplied with the lime in her food necessary for the forming of such shells. Since phosphate of lime is fifty-seven per cent. it follows that no teeth can be formed without the presence of this inorganic element in sufficient quantities. This same thing is true of the bones which constitute the framework of the whole body. The deficiency of this chemical element in the blood for a great length of time will produce a condition of general weak constitution and anemia, and in addition to this, will predispose the system to various forms of bone diseases.

The American habit of eating soft foods should be substituted more or less by the use of more hard food. Hardtack bread is an excellent article for this purpose, as it gives the necessary exercise to the teeth, and in connection with cleanliness and proper diet, will insure the longest life to the teeth. The removal of the outer part of wheat and of the mineral matter it contains from the starchy matter which goes to form white bread, is no doubt responsible to a great extent for softened teeth and softened bones. The unqualified assertion has been made that flat feet are caused primarily by the

prolonged deficiency of this important element—phosphate of lime—due to improper nutrition, or by the lack of the elements in sufficient quantities in the food we eat.

All the essential component parts of the human body are great remedies. All constituents of the human body act principally on that organ where they have a function, the well balanced food and drink taken into the stomach and the air breathed into the lungs furnishing all the materials of which the body is composed. Take milk, for instance, which has all the important food values; for milk, more than any other food, represents a combination of basic food elements. It contains all the organic and inorganic substances, as sugar, fat, mineral salts, protein, and another substance recently discovered, called vitamins. All these materials are present in milk in easily digestible form and ready always for immediate use. It possesses all the elements needed for building and renewing the body. All people should use milk as part of their diet, if possible. They would thereby get the best food value at the minimum expense. In the case of growing children milk is absolutely indispensable. The nutritive value of foods should be taught to the older children, especially to the girls, so that they may know how to get the maximum nutriment at the minimum expense. But here, again, it is not always the most nutritious food that is actually best, because if it is not appetizing it will not be properly assimilated. Cookery, therefore, should be part of the teaching of health. Knowledge of the danger which arises from decayed food and impure water should go hand in hand with knowledge of food value.

I have dwelt upon defects, and their causes, which could have been prevented if known or discovered in early youth; diseases contracted or acquired through wrong habits of living, exposure, infection, or otherwise, are not to be discussed here. While the writer served in the United States Army during the Spanish-American War, various diseases contracted by soldiers came under his personal observation during his four years of service in the field and hospitals. Nearly all such diseases could have been prevented, had proper precaution been taken. We have learned the lesson from previous experiences that prevention is better than cure. It is said that an individual will learn and profit from experiences through which he has lived, and if this is true of an individual, it holds true of a nation as a whole also. We have learned lessons from the Mexican War, the Civil War, the Spanish-American War, the Russian-Japanese War, and we have learned lessons from our allies in the present war; we have been benefited by them; we have advanced our knowledge in all lines of activities as well as in therapeutic field hygiene, and sanitation; and we have learned to protect our soldiers, as near as possible, from preventable diseases. This is shown in the report of the Committee on Public Information, issued during the month of August, 1918, which does not necessarily include the first period after America's entrance into this world war nor the present epidemic of Spanish influenza. It is as follows:

"The army's health record during the Mexican

War, the annual death rate from diseases among our troops was 100 men out of every thousand; during our Civil War the rate was as high as sixty per cent. out of every thousand; during the Spanish-American War it was twenty-five out of every thousand. Now the Surgeon General's Office reports that among our troops at home and abroad the annual death rate from disease fluctuate from less than two per thousand to slightly over three per thousand.

"This is an incredible record. The best of all previous performances was in the Russian-Japanese War, when the annual death rate from disease among the Japanese troops was twenty per thousand. Our present rate is about one tenth of that. The annual death rate from disease among American men of military age in civil life is 6.7 per thousand. Our army rate is about one third of that."

A system of campaign of prevention and of education against typhoid, malaria, and the so called "water diseases"—which caused eighty-five per cent. of all the deaths during the Spanish-American War—and venereal diseases has been successfully established by the Government and by the Surgeon General's department. It is stated by high authority that when the recruits were gathered at cantonments, at the time of America's entrance to the present conflict, the annual hospital admission rate for venereal diseases was as high as 400 out of every thousand men, and it is stated by the same authority that the rate among our Expeditionary Force in France is as low as forty-four per thousand men. The author, at the time of writing this article, has no data as to whether or not the figure given above in reference to reduction rate of venereal diseases in France holds true with reference to soldiers still in training at the military camps at home in America.

The death rate during infancy and childhood is not so great at present as it used to be, owing to more intelligent care of young children and to the greater knowledge of hygiene. At the age of forty, however, the mortality is greater now than it was thirty years ago. This is true of both men and women. The diseases of degeneration are increasing, especially those involving the kidneys, heart, and bloodvessels, particularly among persons not employed at manual labor. One reason for this is the lessened physical, and the increased mental work entailed by our complex industrial and commercial fabric. More people are engaged in sedentary occupations than formerly. More nervous energy is required of a man. Deprived of the natural assistance which physical exercise affords in eliminating the waste products of the body through skin and lungs, the kidneys become overloaded and fail. Lacking the normal assistance which working muscles give to circulation as they urge the blood and lymph onward in the natural channels, and overloaded with poisons which brain work cannot burn up as physical exercise will, the arteries become brittle and weak and the heart muscles flabby, like the biceps of its unfortunate possessor. The florid business man succumbs to apoplexy, perhaps; another big, pasty complexioned brain worker, to nephritis; another, to a fatty heart, or to chronically overtaxed digestion; all of which could have been

postponed, at least, for many years, by a moderate amount of daily exercise. And if proper habits of exercise and proper habits of living had been established in early youth, death by these conditions would have been prevented.

I believe that it is the almost universal testimony of men who have excelled in any branch of life in this country, that one of the most difficult lessons which the young American boy must learn before he can properly progress in any line of activity is discipline. Accidents on the railroad, in the factory, in the operating rooms, failure in positions of trust, whatever they may be, are in great part due to lack of schooling in simple obedience and in the spirit of true discipline. A thorough basing in this rudimental virtue is what we ask of ourselves and what many of us gain only by costly and sad experience. Discipline never truly subordinates the mind that has opinions of its own, nor does it humiliate or debase the body; but proper subordination and obedience inculcate pride and honor and prepare for authority and command. Promptness and dispatch are other military qualities of inestimable value to young men. Do we not daily see the need of such training, at the bedside, in the clinic, on the street, everywhere?

Let it be understood that children need physical training when they are young as well as older persons. This should include girls as well as boys and should begin between the ages of five and twelve years. If the boy and girl are started at that time we may depend upon their physical development coming along in splendid shape. What we shall do with the boy and girl when they come out of school will depend upon the conditions after this war. We have developed among our people much life outdoors, but, even so, something effective will have to be done if we want to obviate existing condition of physical inefficiency. Physical training should not cease with school days. There is an interval between school life and manhood which is of the utmost importance, because it is at that time the boy's life is directed for good or evil.

In summing up what has thus far been presented on this subject, it would seem that national service or universal physical training is the only agency by which the measures mentioned could be effectively carried out; there is no other schooling, to the knowledge of the writer, which will develop the physique and at the same time teach young men order and method, and obedience to authority. It is true that in a number of schools and colleges a certain semblance of military training is already provided; but, as yet, except in a few excellent private military schools, this part of the course is superficial and inadequate; and not much has thus far been achieved in regard to discipline and obedience to authority.

The advantages to the country from universal physical training would be: First, that it would be saved from panic in time of war and from the enormous waste of money that unpreparedness for war entails; second, that the present waste from death and from invaliding caused by low physical standard would cease; third, that with improved health and with higher moral tone the efficiency of

the American boy would be increased. He would be imbued with habits of order and selfrestraint and would be of inestimable value to the community and nation.

Whether the physical training of our youth is conducted in special branches of our universities and colleges or in special military schools, the same should be under strict supervision of the federal Government in order to produce uniform and proper training and so that a proper discipline and course of instruction may be enforced.

MEDICAL NOTES FROM THE FRONT.

BY CHARLES GREENE CUMSTON, B. S., M. D.,
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THE PATHOGENESIS AND TREATMENT OF GUNSHOT WOUNDS OF THE KNEE JOINT.

In the early months of the war, Dr. F. Le Moine published a very excellent little volume (1) on the lesions produced in the knee joint by shot wounds and he has, to my mind, illustrated the pathogenesis of these lesions in a clearer way than has ever been done by any other surgeon. For this reason I shall follow his descriptions and classifications of such wounds.

The first class of cases include those traumatic lesions primarily and completely extraarticular in nature. Here, the missile following a very oblique trajectory strikes one of the lateral surfaces of either one of the condyles; in other words, the result is a fracture limited to a single condyle. On account of the anatomical arrangement of the synovial membrane at this point, the traumatic focus remains extraarticular, and on general principles its evolution should be favorable. If the missile is a bullet it will probably be aseptic and will cause trouble; it is removed and the focus cleansed thoroughly (see Fig. 1).

In other cases the missile, depending upon its direction, penetrates transversally the juxta-epiphysary portion of the femur. The condyle bursts, but neither the subjacent diaphysis, nor the joint cartilages, nor the synovial membrane, undergo secondary changes. Here again, the case is a favorable one of an extraarticular fracture entirely outside of the joint (see Fig. 2). The callus will develop more slowly than that of a fracture of the diaphysis, but in the end it will be quite as satisfactory.

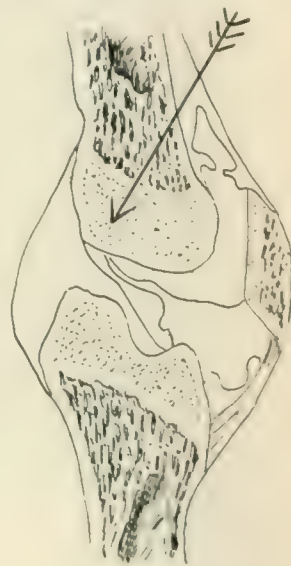


FIG. 1.

In a third type of case, the missile in its trajectory passes through the lower juxtaepiphysary portion of the femur. The condyle bursts, but secondarily; a long ascending line of fracture splits the lower diaphysis into two or three elongated frag-

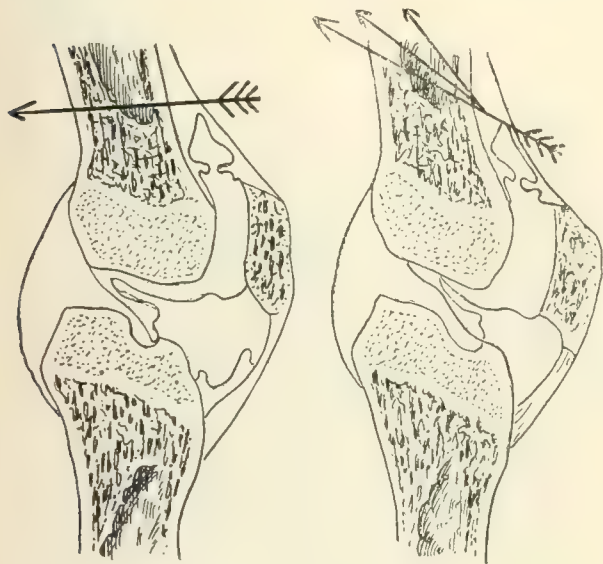


FIG. 2.

FIG. 3.

ments. Consequently, the result is a compound fracture of the diaphysis, the sharp dented edges of which are likely to undergo a secondary osteomyelitis (see Fig. 3). In this vidus of infection, a permanent callus will often be long in forming, or it may not form at all, and the infected traumatic focus, from the amyloid degeneration set up by it, causes the patient's death. Although in these circumstances the case is one of fracture of the diaphysis in which the limb should be preserved, an early radical operation is always required.

The second class of cases are those traumatic lesions of the knee which are primarily outside the joint, but become intraarticular, secondarily. Here we have one of two conditions. In the first, the missile in its trajectory passes through the lower juxtaepiphysary portion of the femur. The condyle bursts, but secondarily a fine crack of the fracture reaches the smooth cartilaginous surface and thus the traumatic focus, primarily extraarticular, becomes secondarily intraarticular. The probable result will clearly be a pyoarthrosis, if an early radical interference is not resorted to, namely, a free arthrotomy and excision of all damaged structures including the missile, and pieces of clothing. If this is done the subjacent fracture will probably consolidate, because the larger portion of the traumatic focus is in the diaphysis outside the joint (see Fig. 4).

The second type met with in this class is when the missile passes through the lower juxtaepiphysary part. The condyle bursts but the missile, instead of making its exit, becomes lodged in soft structures surrounding the joint (see Fig. 5). The missile will usually have bits of clothing and other foreign matter carried into the wound along with it, all of which are potent sources of severe infection, and it is not uncommon to see a secondary intra-

articular infection develop from this primary fracture, outside the joint, from inoculation of the synovial membrane. As in the preceding type, the secondary pyoarthrosis will be accompanied by extensive osteomyelitis or uncontrollable infectious hemorrhage, resulting from an arteritis or phlebitis of the popliteal vessels.

The third class of cases are intraarticular traumatic lesions, properly speaking. The characteristic feature of this third class, which represents the vast majority of wounds of the knee joint in warfare, is that there is always a lesion of the synovial membrane. In the first type of cases included in this class, the synovial alone may be injured. The serous membrane of the knee joint is vast in area and the missile may involve it in the subquadriceps bursa, for example. An aseptic bullet, traveling at a maximum velocity, will go through, leaving behind a tunnel wound which, when properly dressed, will heal without leaving a trace (see Fig. 6). Such instances are, unfortunately, not common, but when they do occur, recovery with a perfect joint is the rule, and the man is soon able to return to the front. As in the preceding case, the missile traverses the synovial cul de sac, but lesions to the ligaments are produced. An hemarthrosis develops, and if aspiration of the joint is not done at once, although the blood collection may ultimately undergo aseptic absorption, a flail joint will be the outcome, because of the too great laxity of the ligaments resulting from distention caused by the hemarthrosis (see Fig. 7). The missile goes through the synovial cavity and a hemarthrosis ensues, and this by the distention of the serous membrane brings about a

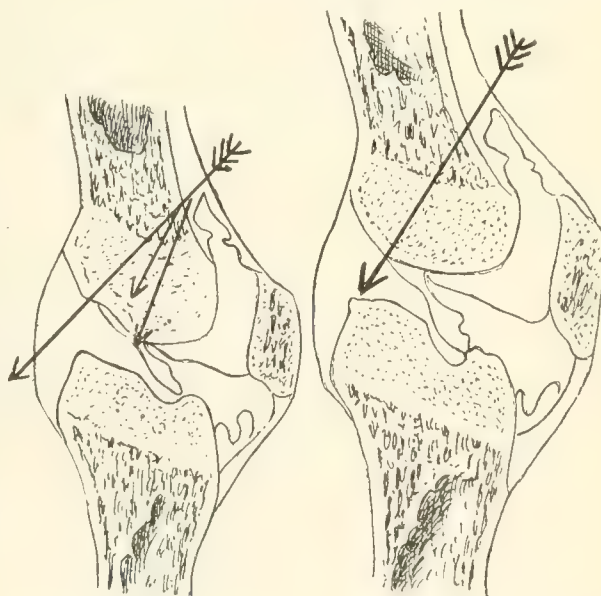


FIG. 4.

FIG. 5.

vicious position of the joint, the knee becoming angular. The blood after being absorbed—if it has not been removed by aspiration—leaves adhesions behind. In order to avoid this static deformity, continued extension should be applied at once and later on methodical mobilization resorted to, otherwise ankylosis in a vicious position ensues (see Fig. 8).

A hemarthrosis produced by a septic missile, of course, becomes infected at the time of the administration of the traumatism, and unless surgically treated within eight to ten hours afterwards, a pyoarthrosis develops with all its disastrous consequences, both vital and functional. It is, however,

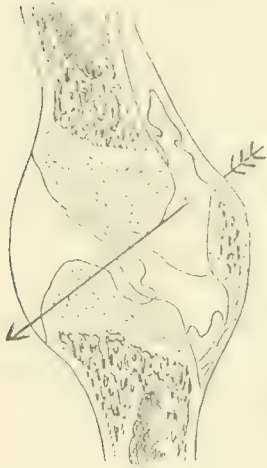


FIG. 6.



FIG. 7.

usually cured by subperiosteal resection (see Fig. 9). Here the infected missile has gone through the knee joint.

In a lecture delivered last year and subsequently published (2) I made the following remarks which I believe still hold good: "The clinical evolution of penetrating wounds of the knee joint when only treated by arthrotomy is somewhat as follows: During the first four or five days following the interference, there is an exclusively local reaction in the joint, the temperature ranging between 38° and 39° C. or even higher. The important fact to be noted, however, is that although there will probably be a decrease in the amount of suppuration, on the other hand you will discover that there is an increase in the size of the lower end of the femur and upper end of the tibia; the popliteal space becomes tumefied, an edema, which progressively extends upward to the thigh or downward to the leg, appears. The inguinal lymph nodes are greatly enlarged and the general condition of the patient becomes bad, assuming a typhoid state.

"Now, regardless of the absolute immobilization and complete rest of the joint, the patient will nevertheless complain of pain in the bones, spontaneous in character and which is characteristic of osteomyelitis. Such is the usual outcome of arthrotomy, pure and simple, in cases of penetrating wounds of the knee joint with bone lesions. Consequently, it is clear that arthrotomy (as usually done) is a useless operation in these circumstances, and, if the patient escapes with his life after amputation has been done, he does so with the loss of his limb."

In other cases where the bullet enters the synovial cavity but does not make its exit, remaining as a foreign body in the joint and giving rise to intolerable pain if not immediately removed and the lesions properly treated, a septic joint quickly results (see Fig. 10). Besides, injury limited to the serous membrane the bones composing the joint

may be, and commonly are, fractured. The patella may, exceptionally, be the only bone involved, and when such is the case it is providential for the patient (see Fig. 11). It may occur when the missile hits the joint laterally. I must insist upon the fact that intraarticular fracture of the patella alone is exceptional, and that of all the intraarticular fractures of the knee joint it is, perhaps, the most benign.

Cases where the missile strikes the knee from the side are not common, the projectile usually striking the patella from in front backwards, or from behind forward, with an ascending or descending trajectory. The result is very complex and extensive, causing intraarticular damage to the bones composing the joint. These multiple intraarticular fractures always seriously involve the patella, which is generally reduced to atoms and under it a shattering of the femur or tibia. If the missile is fired from below upward it first shatters the patella, then the femoral condyles and occasionally a considerable extent of the diaphysis of the femur as well (see Fig. 12). If the missile is fired from above downward, the patella is first shattered, then the tibial plateau and sometimes the diaphysis of the tibia (see Fig. 13). Consequently, when there is fracture of the patella from a missile, one should always suspect the occurrence of fracture of one of the large bones composing the knee joint and act accordingly, although the external appearances of the traumatism may appear on simple inspection to be mild. The fact should be borne in mind that in cases of fracture of the knee joint where there is little, if any, displacement of the fragments or fragment, infection will nevertheless travel by way of the anatomical communications uniting the spongy tissue of the epiphysis with that of the diaphysis and from here invade the medullary canal, the outcome being an acute osteomyelitis of a severe grade. When the epiphysis is broken



FIG. 8.



FIG. 9.

into numerous fragments these become infected almost from the time of the receipt of the injury, as they are mostly cut off from their blood supply, and represent just so many septic foreign bodies. Therefore, common sense dictates that these must

be removed and that subperiosteal resection is the only proper treatment.

When there is extensive damage to the bones, typical, occasionally atypical subperiosteal resection should be done without delay. "A comparison of

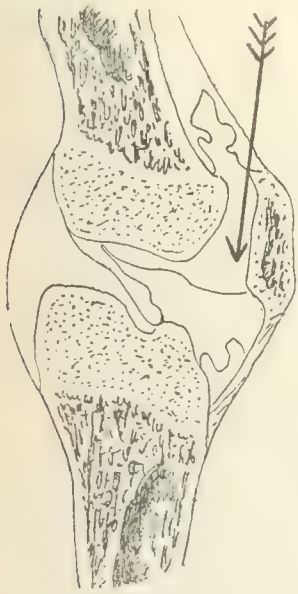


FIG. 10.



FIG. 11.

the results obtained by other methods, a correct knowledge of the pathology and clinical evolution of these lesions, clearly reveal the value of this operation. What any surgeon of experience should know of the structure of the femoral and tibial epiphyses is in itself a sufficient explanation of the teachings I maintain. We know that the femoral and tibial epiphyses, as well as the patella, as constructed, from the architectural viewpoint, by osseous layers which are dovetailed together in both the transversal and vertical directions in order to form a spongy, areolar tissue. This spongy tissue is highly receptive to infection of any sort and the occurrence of osteosarcoma and tuberculous osteitis developing in the epiphyses of the femur is frequent. Therefore, one can readily understand how bacteria brought into the bone on the missile itself, but above all on the bits of clothing carried into the wound, find a particularly favorable soil for their rapid development, and those who are familiar with the extreme virulence of the infective agents in the surgery of warfare are fully aware of the particularly distinctive evolution of these bacteria in a soil well disposed for their reception" (3).

Injuries of the knee joint from missiles of warfare and which are the most frequent of all joint traumata have received the especial attention of surgeons, not merely on account of the seriousness of their prognosis, both from the vital and functional points of view, but also from the interesting results derived from proper surgical treatment. What complicates the treatment of these wounds when once infection has set in and suppurating arthritis has developed is that besides the difficulties offered for proper drainage, on account of the extent and diverticula of the serosa, bone lesions also

exist and also that the wound not infrequently contains infected foreign bodies. Therefore, it is of prime importance to act while the infection is limited to the track of the missile and before a process of suppuration has gotten under way.

Let us now consider, in the first place, the treatment of wounds of the knee joint coming under observation before suppuration has become established. In cases where the cutaneous wound is punctiform, treatment is simple. The cutaneous apertures are disinfected and the limb put up in a plaster cast. If an hemarthrosis exists, it is to be aspirated or aseptically incised. This treatment is quite sufficient even when the direction of the track of the missile may lead one to suspect a bone lesion, which will be first confirmed by radiography. Other than this particular class of cases which heal readily, in all others, when the surgical outfit is complete, as is now generally the case at the front, operation is to be resorted to at once. The end to be attained is to transform an infected wound containing septic foreign bodies into a clean surgical wound. Where considerable damage exists, with shattering of the epiphyses, subperiosteal resection is unquestionably the operation of choice. A typical resection is to be preferred from the orthopedic viewpoint, and although it results in shortening of the limb there is no doubt but that a patient walks with greater ease with a shortened stiff leg than with a stiff lower limb possessing its full normal length and, as Leriche has very aptly pointed out, true economic surgery is not that which sacrifices the least amount of bone—as in atypical resections—but is that which gives in the minimum of time with the minimum of risk, the maximum result. Therefore, when the patella is shattered it should be totally excised by subperiosteal resection. When the femur or tibia is crushed resection is to be done, the section of the bone being carried out as far as possible in the epiphyses. Should extensive lesions



FIG. 12.



FIG. 13.

of the vessels or nerves exist, amputation may be indicated or when more than from twelve to fifteen centimetres of bone must be resected, because a deplorable orthopedic result will most certainly ensue. Generally speaking, however, it may be said

that the good cases for resection are those where the lesions are limited to the epiphyses, while in other cases one may be content with a limited interference, especially when the lesions of the soft structures are not too extensive.

During the first phase in the evolution of the wound, the infection is localized to the track of the missile, especially in the immediate neighborhood of the foreign bodies, so that a complete, I may say perfect, disinfection of the wound can be secured. For this purpose, some surgeons do an arthrotomy with the inverted u-shaped flap, dividing the ligamentum patellæ in the centre. After having cleaned out the joint the parts are sutured without drainage, after which the entrance and exit apertures are excised and sutured.

This technic has been particularly praised by Pierre Duval, who has obtained excellent results, even when the operation was not done until sixty hours after the injury, in one instance, but as Duval says, this successful outcome is explained by the fact that pullulation of the bacteria in the joint is of tardy occurrence. There is a cytological reaction before microbic pullulation takes place and bacteriological examinations show that the liquid is sterile anywhere from fifteen to twenty-seven hours later. It is evident that complete suture of the serosa, when it is not followed by complications, and usually it is not, gives very much better results than drainage of the joint, which in some cases have been deplorable.

Tauton, Fieux and others perform an arthrostomy after arthrotomy. The synovial sheath is sutured to the skin at the upper and external part of the subquadriceps cul de sac, with the object of securing drainage of the joint. These surgeons cut the sutures uniting the serosa to the skin on the fifth day and close it with sutures. By the twelfth day the wound is completely healed. The arthrostomy is indicated as a measure of safety in cases where the arthrotomy is done some time after the injury or when there is a cavity in the bone which may give rise to a certain amount of oozing of blood into the joint, but not many surgeons have followed this practice, although those who advise it seem well satisfied with their results, and they are surgeons of vast experience. Arthrotomy in penetrating wounds of the knee joint with bone lesions does not control the fatal evolution of the injury, whether done immediately or some time after the receipt of the lesion. That is to say, infection and osteomyelitis, and in cases where this operation has given good results the lesions were confined to the serous membrane of the joint and no damage was done to the articular surfaces. I, again repeat, that the only effective operation in penetrating wounds of the knee joint with lesions of the bones is typical resection, and in some infrequent and well selected cases an atypical resection may be proper. In order to derive the greatest amount of good from subperiosteal resection the time at which it is undertaken should be considered as an extremely important factor—the earlier the better. It can never be done too soon.

Amputation is unreservedly indicated when there

is crushing of the knee joint, when the large vessels of the popliteal space are injured, although ligature may be essayed if this is possible and an attempt made to save the limb, and although the result will most frequently end unsuccessfully; and lastly, when a purulent arthritis is complicated by secondary hemorrhage from the popliteal artery. To attempt to ligate under these circumstances means the patient's death.

FRACTURES OF THE INFERIOR MAXILLARY FROM WAR WOUNDS.

Fractures of the inferior maxillary during the war have been carefully studied by Herpin. They are rather uncommon in peace times but have been frequent during the war. Herpin has treated 1,076 cases, and after his great experience states that bridge prosthesis fulfils the essential requirements of successful treatment, and that surgical treatment should not be resorted to unless the prosthesis has been found ineffectual.

WAR INJURIES OF THE SPLEEN.

A short time ago J. Bergeret, of Paris, published a thesis on wounds of the spleen. He shows that the injury may be caused by an abdominal traumatism of a thoracoabdominal injury. The spleen alone may be injured or other abdominal viscera may be involved. In the forty-four cases recorded by Bergeret, there were twenty-five instances of abdominal wounds only; six in which the spleen alone was injured and eighteen in which the spleen and other viscera were injured. In the nineteen thoracoabdominal wounds, there were eleven cases in which the spleen only was injured, while the eight remaining cases offered multiple wounds.

Wounds of the spleen are usually serious, perhaps more so than any intraabdominal wounds and the mortality is surely over fifty per cent. Death is usually due to primary or secondary hemorrhage.

The viscera most commonly injured with the spleen are the left kidney, the stomach, the left lung, and the left portion of the transverse or descending colon.

When a wound of the spleen is suspected, the diagnosis usually being made from the hemorrhage, no time should be lost in performing either partial or total splenectomy. Suture or gauze packing gives no security whatsoever. Bergeret finds that when only the spleen is injured the mortality of splenectomy is 35.7 per cent., whereas if there are other accompanying lesions the removal of the gland causes a mortality of 70.8 per cent.

Injury to the spleen is comparatively frequent in peace times and the method of treatment found most satisfactory by the war surgeons is worthy of note. The diagnosis is often delayed and at times entirely overlooked.

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Editorial Notes and Comments

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THE DEATH OF THEODORE ROOSEVELT.

The sudden death of Theodore Roosevelt from an embolism at the age of sixty brings to a close one of the most interesting and brilliant careers in the history of American politics. As a youth his health was so delicate that he was compelled to seek its restoration by taking up an outdoor life on a Western ranch. So thoroughly successful was this that one of the striking attributes by which he will be remembered was his abundant vitality and vigorous health, which showed no sign of break until within the last year or so. Mr. Roosevelt had been an omnivorous reader, had a remarkably retentive memory, and was interested in every phase of human endeavor, whether in the field of science, of letters, of politics, of art, or of sport. He was a voluminous but forceful and effective writer on a wide variety of topics and won an enduring place in literature. He had a dominating and brilliant personality which won for him a wide and devoted personal following, in whose eyes he could do no wrong. He was a keen and vigorous debater,

unsparing in his denunciation of all who opposed him and his ideas. Probably his greatest service was in his inauguration of the campaign against the illegitimate exploitation of industry and commerce by monopolistic corporations. He was a naturalist of a high order. His interest in science was general and intelligent. He was particularly alive to the importance of medicine in the national life and gave his earnest and effective support to the leaders in their efforts to develop preventive medicine. In such appointments as were made during his presidency he showed his appreciation of the need for divorcing science and medicine from politics. Even his most bitter political opponents have always conceded his intellectual brilliancy, and the entire nation mourns his loss as one of the really great men of America.

PHYSICIANS MUST REGISTER UNDER THE NEW NARCOTIC LAW.

Under a law enacted May 13, 1918, a Department of Narcotic Drug Control was created in the State of New York which on February 1, 1919, supersedes the Bureau of Habit Forming Drugs under the State board of health. The new law which constitutes chapter 639 of the laws of 1918 is an amendment to the public health law. Under it every physician, druggist, dentist, veterinarian, hospital, sanatorium or other institution, wholesaler or manufacturer prescribing, administering, dispensing, selling or manufacturing cocaine, opium or its derivatives or preparations thereof, must, during the month of January, 1919, file an application for and receive from the Department of Narcotic Control at Albany a certificate of authority to deal in habit forming drugs. This registration is for the remainder of the State fiscal year and requires no fee.

Under the new law the physician is required to use official prescription blanks in triplicate when prescribing narcotic drugs for addicts. These official prescription blanks will be furnished by the commissioner. The physician is also required to use official blanks to record the administration of the drugs to addicts. Copies of these prescriptions are to be sent to the commissioner for record. In prescribing for other than addicts official prescription blanks are not to be used, but where more than certain stated quantities of these drugs are prescribed the prescriber is required to state on the blank that the prescription is not for an addict.

Explicit and minute directions are given as to the condition under which these drugs may be handled by hospitals and institutions, and provisions are also made for committing addicts either by process of law or by voluntary application. The possession of a hypodermic syringe is declared illegal except for physicians, dentists, veterinarians, nurses, hospital attendants and dealers, except when the possessor has a permit issued by a physician.

This law was enacted as the result of exhaustive hearings given by a joint committee of the Legislature and Senate of the State of New York in all the larger cities of the State. At these hearings every phase of the question of addiction was discussed and everyone who was interested or who had a theory regarding the proper method of handling drug addiction was given a hearing to present that theory and the arguments supporting it. Seldom has a more exhaustive hearing been given on this subject. It is to be hoped that the law which is based upon these hearings may have a beneficent influence.

Physicians will object to the numerous restrictions placed about the prescribing of narcotic drugs, but upon careful analysis it will be found that these restrictions are less onerous than they seem in so far as they apply to the ordinary practice of medicine. It remains to be seen whether the compilation of data made possible by the requirements regarding the use of official blanks for prescribing for drug addicts will enable the authorities to check the growth of the illegitimate use of drugs. As onerous as these restrictions may seem they are nothing like so objectionable as many of the plans which were proposed at the hearing.

The requirements of the law are so explicit and detailed that it is impracticable to make a satisfactory abstract, and every person who may be called upon to handle, prescribe or dispense narcotic drugs should obtain a copy of the law from the Secretary of the Department of Narcotic Drugs at Albany and study its provisions in so far as it relates to his own particular activities.

INSTINCTS AND THE REDEMPTION OF THE PIG.

If there is one thing in the world that recent physiological investigations have brought home to us, it is that the instinct of the natural man and of the natural animal are never trusted quite enough and can be depended upon completely to keep their possessor in a state of health better than all the rules of the schools. We have had to contradict absolutely, in recent years, the old teaching, that the ingestion of a considerable

amount of fluid at meals was probably a mistake. Most people like to drink rather freely at meals and do so very naturally if left to themselves, but any of them who exhibited symptoms of indigestion were warned that probably they were thus diluting their gastric juice, making it less efficient and predisposing themselves to dyspepsia. Experiments and observations have proved that this is not true, and that both for comfort and digestion, the free taking of fluids, in reasonable quantities, of course, is of great service, and as regards absorption, foods are much better employed in the system and less wasted when fluids are freely taken.

In the course of recent investigations, even the pig's instincts, in the matter of eating, have been amply vindicated. It is the ordinary custom to say that a man eats like a pig, meaning of course, that he gulps his food, and the greedy child has been compared to the pig until the comparison is a commonplace one in all languages. Recent experiments and observations not only fail to confirm this view but even to contradict it completely. Evvard allowed pigs to choose their own food, to eat as much as they liked, and to eat the things they cared for, absolutely trusting their instincts in the matter. Various foodstuffs, corn meal, meal, oil meal, and other articles of pig diet were placed where the pigs could get at them whenever they wished and eat as much as they chose. Ordinarily it might be expected that pigs would eat themselves to death, or at least be very sick because of their traditional piggishness. Exactly the opposite was true. There was never a set of healthier pigs than those raised in this way. The pigs grew faster than any previously recorded, even when their food had been specially selected for them by experts, who were supposed to know all about what the pig needed for its nutrition and above all, ever so much more about it than the pig did.

Experiments on laboratory animals of various kinds made since have shown that all of the animals can be depended on to choose their food and above all, when various kinds of foods are free of access for them, that they can be relied on to eat in proper proportions, and neither to eat too much, nor too little. Moreover, the young growing animal needs a very different dietary from the adult animal, and this necessary modification of diet can be left to their instincts with just as much assurance as regards its success as the question of amount and variety at any given time. The instincts of human beings have sometimes been perverted in the course of their rather un-

natural lives, sedentary occupations, and by the tempting foods and the allurements of cookery, but they are extremely valuable, in spite of all this, as a guide for humanity's needs. We are quite literally coming back to nature once more, and now that millions of men have lived in open ditches in open fields, winter and summer, often with wet feet, still oftener with irregular meals and with only the simplest and most nutritious material always provided for them, and have been healthier than they were at home, with all our advances in sanitary science, the shibboleth of "back to nature" is going to have more meaning than ever before.

TYPHOID FEVER IN VACCINATED SUBJECTS.

If the term typhoid fever is accepted in its purely clinical sense, including typhoid infection, and paratyphoid as well, then there are subjects who have been vaccinated who contract the disease during an epidemic.

It is important to distinguish at once typhoid fever in subjects when their vaccination dates back a sufficient length of time to have rendered them immune, from cases in which the fever develops shortly after a hasty vaccination. In the former, when typhoid appears in properly vaccinated subjects, it assumes a mild type but is frequently accompanied by relapses. These cases may be paratyphoids. The value of vaccination is manifest from the fact that these cases never prove fatal and that the disease never assumes a serious form.

In the second case, when a typhoid fever occurs shortly after a hasty vaccination, the clinical aspect of the disease resembles a typhoid fever in an unvaccinated subject. The injection appears to weaken the defense of the organism when it is given at a time when the dissemination of the virulent living bacilli has already taken place, while on the other hand, it fortifies the defense of the organism when given before the living bacilli have had time to undermine the economy.

Typhoid fever occurring after a single injection of 500,000,000 of dead bacilli is the form most commonly met in practice because the injection is rarely given to a subject incompletely attacked by the disease. The evolution of the fever does not appear to be modified.

Usually, the subjects have been vaccinated during the incubation period and the reaction following the injection is generally absent. Frequently these subjects are seriously ill.

In patients who have been vaccinated eight or ten days before the temperature begins to rise, the disease is usually mild, but in all of these cases there are two initial phases of the disease. Sometimes a period of perfect health separates the injection from the initial phase, at other times it is disturbed by a series of slight illnesses.

The existence of this clinically averred inoculation period in subjects who really become ill, more than a fortnight after the injection of the vaccine, would logically lead to the supposition that the injection was given to individuals who were carriers of the bacillus. After a lapse of four weeks following vaccination, typhoid becomes more infrequent, and when it does develop it is of a medium intensity and the patient reacts as if he had not been vaccinated.

After two successive injections the results observed are more uniform. A second injection given during the incubation period of a typhoid patient makes the prognosis less favorable, which is better when the second injection precedes the onset of the disease, by from one to three weeks.

The majority of the attacks begin about the fifteenth day after the second injection, but it would seem that some of these subjects were latent carriers of virulent, living bacilli. The longer the lapse of time from the date of the second injection, the greater the decrease in the number of cases and the intensity of the disease. These patients appear to have been insufficiently protected by the particular vaccine used and are perhaps affected with paratyphoid fever.

The results observed in several epidemics during the war would suggest the following interpretation: The introduction of dead bacilli into the organism tends, first of all, to weaken the defenses of the organism so that if living bacilli are present a large dose of vaccine is harmful to the individual. Later the vaccine develops protective properties, so that the living bacilli not only encounter the natural defenses, but the acquired ones as well.

Therefore, in practice, large doses of vaccine should not be injected during an epidemic and it is better to progressively inject repeated doses which will soon reinforce the natural defense without at first weakening it. Vaccination does not completely protect against typhoid fever, but it lessens the severity of the disease, and many cases of so called typhoid fever occurring after vaccination are unquestionably paratyphoid. The practical conclusion is that the vaccine employed should be polyvalent, that is to say, containing the typhoid bacillus and the organisms of paratyphoid A and B.

MENDEL'S LAW IN RELATION TO THE COLOR LINE.

There exists a tradition that a man or a woman of light color, or who passes for white, but who has inherited negro blood, may, on marriage with a white person, produce a black child. Like all opportunities for creating harrowing situations this notion has been dragged into recent magazine fiction. Without any embellishments from the pen, however, this tradition must have weighed heavily upon the minds of not a few wouldbe husbands and wives, and prospective fathers and mothers. The physician who has been consulted in the matter and who was fresh from the reading of Mendel's law, and of the experiments from which that obscure Austrian monk deduced the law which has given him posthumous fame, must have shaken his head gravely and uncertainly over the prospect.

Fortunately, a study was carried out through the Carnegie Institute on the transmission of negro traits, and light has been thrown on this color problem. No authentic instance of such a "reversion" to black color was found. In Jamaica the tradition is not generally believed. In Bermuda stories of two such cases were heard, but in both cases the parents of the black child had left the island and in neither case could the facts in the case be verified. The number of instances of such interbreeding are so numerous that if there was any foundation for such tales of outcropping of darker color, there ought to be many examples. These investigators state that "a person of one eighth colored blood is, so far as skin color goes, completely across the line." While the pigmentation of the skin is thus rapidly lost with blood dilution, other negro traits such as curly hair and thick lips are not so promptly and certainly lost, but follow more nearly the findings of Mendelian experiments.

The results of this investigation not only put at rest the fears of having colored offspring, on the part of light skinned persons with colored blood crossed with whites, but it helps to put a brake upon hasty generalizations in the line of heredity. While the results of the crossing of two peas may be quite certainly predicted, the product of the union of two human beings is as yet most unpredictable, and our overenthusiastic eugenists must go slowly until we know more about this subject. The notion that a white woman who has a child by a negro may subsequently have a black child by a white man, also seems to be without foundation, although this influence, produced by previous breeding, or "telegony," as it is called, is strongly believed by many breeders of stock.

A STUDY OF EMPYEMA.

One good result, for medicine, which has come out of the war has been the opportunity to make intensive studies of certain diseases, under conditions which could not be obtained in civil life. The patients are under the complete control of the surgeon, who is in a position to command implicit obedience on their part, and to keep them under observation to an extent which could not be done except under military discipline. A study of empyema cases at Camp Doniphan has been made by a surgeon, an internist, and a laboratory worker which throws some interesting light upon this particular complication. The results of this study, made by Major Ingraham, Captain Roddy, and Captain Aronson as published in *Surgery, Gynecology and Obstetrics* for December, bring out several interesting points. These show the presence of *Streptococcus hemolyticus* in the tonsils and nasopharynx of normal individuals in abnormal quantities during the prevalence of the streptococcus pneumonia and empyema. The organisms do not appear in the blood until late in the disease and their presence is a most unfavorable indication. Agglutination reactions are of no diagnostic value. Measles do not seem to be a predisposing factor. Prolonged illness, undue exposure to cold, and unusual fatigue, causing a marked reduction in the normal resistance, are the most conspicuous factors in the causation of the disease and there seems to be evidence of direct transmission of the infection from one person to another. The studies made offer no light as to the treatment, for the disease was not influenced by any form of medication, not even serum treatment. Rest is insisted upon in all cases of streptococcus infection and this, with a maximum nutrition, early recognition of empyema and speedy delivery of the patient to the surgeon is the most that the physician can do. A few cases tend to spontaneous recovery and a small group recover after repeated operations. The patient's chances of recovery are apparently aided by early operation. Resection of the seventh or eighth rib, is the operation of choice. Ether is preferred as an anesthetic, only a small quantity, about two ounces being required. The use of the Carrel-Dakin solution was not beneficial. Altogether, the results of this study are extremely interesting.

X RAY SERVICE IN THE UNITED STATES ARMY.

Experience in the French Army demonstrated that it was necessary to provide a minimum of 600 röntgenologists for each million of troops. Consequently, one of the most serious problems which confronted the medical department of our army on the declaration of war was the instruction of röntgenologists; for there were not sufficient experts in the entire United States to furnish the number required for the first million troops. It was also necessary for us to provide an immense amount of apparatus. Just how these requirements were met is told most interestingly in the *Review of War Surgery and Medicine* for December, issued by the Surgeon General of the Army.

DINNER TO DOCTOR JACOBI.

An association known as the American Friends of German Democracy gave a dinner in honor of the honorary president, Dr. Abraham Jacobi, and the president of the association, Mr. Franz Sigel, at the Liederkrantz Club, New York, on Sunday evening, January 5th. Mr. Walter Damrosch acted as toastmaster, speeches being made by the guests and by Dr. Frederick L. Hoffman, Mr. Jacob H. Schiff, Major George Putman, Dr. S. Adolphus Knopf, Miss Josephine Roche, and Mr. Julius Koettgen. Doctor Jacobi is one of the few Germans now living who took part in the Revolution of 1848.



DR. ABRAHAM JACOBI.

Among those present were: Dr. Lucien Achard, Dr. J. Lewis Amster, Dr. Thomas M. Balliet, Dr. Simon Baruch, Dr. S. Breitenfeld, Dr. H. J. Boldt, Dr. A. C. Bonaschi, Doctor Booth, Dr. W. Bopp, Dr. Titus Coan, Dr. Lewis A. Coffin, Mr. Walter Damrosch, Dr. O. Diem, Dr. Heinrich Dueringer, Dr. G. Fisch, Dr. G. A. Friedman, Dr. Virgil P. Gibney, Dr. A. L. Goodman, Dr. Maximilian Groszmann, Dr. H. A. Haubold, Dr. H. Heiman, Dr. F. L. Hoffman, Dr. F. Horn, Dr. J. Horn, Dr. C. Huber, Dr. Francis Huber, Dr. Abraham Jacobi, Dr. V. H. Jackson, Dr. Oswald Joerg, Dr. S. Adolphus Knopf, Dr. Joseph Lebenstein, Dr. J. Leopold, Dr. S. J. Meltzer, Dr. R. Moffett, Doctor Neumann, Dr. M. Rehling, Dr. Laura Riegelman, Dr. William Robinson, Dr. Reginald Sayre, Dr. Warren Schoonover, Dr. G. Seeligman, Dr. C. Theobald, Dr. Franz Torek, Dr. Charles Vetter, Dr. Jerome Walker, Dr. Charles L. Weiher, Dr. Robert F. Weir.

Doctor Knopf's address took the form of blank verse, which is given in full below:

Five and sixty years ago you came to these fair shores
Where, years before, the pilgrim fathers landed,

Like them to find the home of freedom you had come,
A place where men could think and act like men, not serfs.
Because you had rebelled against their rule,
Against their autocratic ways and unjust laws.
The rulers of those serfs imprisoned you for two long years.

They thought to break your spirit in this way,
But made instead a greater champion of the rights of men.
When free at last, you said farewell to all that was most dear

And sacred in the land where you had fought and suffered,
Where you had struggled hard that others might be free.
There long ago a Schiller spoke for freedom
And there the dying Goethe cried "More light, more light!"
How greatly then was such light needed
To make of German soil a worthy free man's home!
You wisely chose to come to free Columbia's shores,
Her doors are open wide for men like you;
She gladly welcomed you, a rising Aesculapius,
Eager to serve her well with heart and mind.

A life of service then began, so great, so useful, and so long,

That I feel loath to try to trace it here,
For fear I shall not give you half your due.
Long years before I saw the light of this good world
You were a master, teacher of my teachers;
Your fame as healer spread o'er all the world;
Your students number thousands, and still more
Are those who read your books on healing arts.
Thus everywhere are your disciples found,
And now you are the Nestor of us all.
You founded clinics where the poor could bring
Their children and receive free that care
For which the rich so gladly paid in gold.
The rich or poor were all alike to you,
Those little sufferers that you loved so well.
Often I have heard you called "The little children's savior."

A grateful mother first with tearful eyes
And choking voice, told me she loved to call you thus;
No greater honor, holier name could ever come to man.
And yet, with all the honors heaped upon you,
You have not changed in kindly simple ways.
The poor were always welcome to your home,
The struggling student found a listening ear.
And when the powers that drove you o'er the sea
Became aware of your great fame and skill,
Wished your return, an honor to their seat of learning,
To make you "Herr Geheimrat," "Excellenz,"
You simply answered them, "I thank you, no."
You had not lost your love for freedom's holy cause;
You love America with love more true
Than some who were unto her blessings born.
In this last, greatest war for freedom of the world,
Your heart beat faster, regretful that no longer
Were you young enough to join the army of crusaders
Who crossed the seas to help our brother nations
To free themselves and us from tyranny and shame.
The God of battles still was with us for we fought
For right and so our sacrifices shall not be in vain,
And you are blessed now to see the dawn.

Autocracy already in the dust, now freedom's holy might
Shall reign supreme in lands which suffered long
From tyranny, and now arises hope
That even your old home-land shall be free.
Columbia's and Britannia's boys, Italia's and fair France's
Sons are brothers all and freedom's champions,
Prepared to help all honest efforts for an honest peace.
This shall bring freedom to their one-time enemy,
If he will learn to rule himself,
Will learn to love instead of hate,
And realize the wrongs his monarch did the world.
Peace on this earth, good will to men, shall sound anew
Glad tidings of this greatest gift to man.
And now, oh! venerable patriot of freedom's holy band
Of well nigh four score years and ten, and yet so young
in spirit,

We give you hail and pray that Providence may keep you safe

To see your dream of seventy years ago come true—
A Germany redeemed at last and worthy to be free,
To be one in that glorious league of nations
For which we all have hoped and prayed so long.

News Items.

A Hospital for Negroes in St. Louis.—The municipal authorities of St. Louis, Mo., have established a city hospital for negroes. The staff of the hospital will be composed of negro physicians. Dr. Roscoe C. Haskell has been appointed superintendent.

Casualties in American Air Service in France.—A review of operations of American Air Service in France shows a total of 442 casualties in the commissioned personnel, 109 killed, 103 wounded, 200 missing, twenty-seven prisoners, and three interned. A total of 159 persons were said to have been killed in training.

Southern Minnesota Medical Association.—The annual meeting of this association will be held in Mankato on Monday and Tuesday, January 20th and 21st, under the presidency of Dr. M. S. Henderson, of Rochester. An excellent programme has been arranged and the meeting gives promise of being unusually interesting.

Deaths Caused by Lice in the War Zone.—According to an authoritative statement issued by the chief entomologist of Rhodesia, the louse is said to have accounted for the death of at least 1,000,000 persons. In Serbia alone typhus fever, a louse borne disease, infected nearly a 1,000,000 persons and killed 500 a day in the town of Jassy. The disease spread, over Russia, Austria, Germany, and the Balkans generally.

Deaths from Pneumonia and Influenza.—From September 14 to December 28, 1918, there were reported to the health authorities of forty-six of the largest cities in the United States 42,149 deaths from pneumonia and 69,439 from influenza, a total of 111,588 deaths from these two diseases. During this period there were reported in New York 12,020 deaths from influenza and 11,602 from pneumonia, a total of 23,622 deaths.

A Debarkation Hospital in Philadelphia.—Lieutenant Colonel Edward Martin, Medical Corps, U. S. Army, accompanied by Lieutenant Colonel L. B. Baldwin, of the Surgeon General's office; Lieutenant Colonel Robert L. Dickinson, Medical Corps, and Major L. H. Lewis, of the Construction Division of the War Department, visited Philadelphia recently to inspect the buildings of the Philadelphia General Hospital with a view of ascertaining whether they could be turned into a debarkation hospital. Byberry has been definitely rejected because of the inaccessibility of the new buildings being erected there.

Southern Surgical Association.—At the annual meeting of this society, held in Baltimore on December 18th and 19th, under the presidency of Dr. I. S. Stone, of Washington, D. C., the following officers were elected to serve for the ensuing year: Dr. J. E. Thompson, of Galveston, Texas, president; Dr. Charles R. Robins, of Richmond, Va., first vice-president; Dr. George A. Hendon, of Louisville, Ky., second vice-president; Dr. Hubert A. Royster, of Raleigh, N. C., secretary (reelected), Dr. Guy L. Hunner, of Baltimore, treasurer (reelected). New Orleans was selected as the meeting place for next year.

Medical Organizations Assigned to Early Convoy.—According to bulletins issued by the Chief of staff, among the organizations assigned to early convoy from France are Base Hospital No. 2; Mobile Surgical Units Nos. 101, 102, and 103; Mobile Hospital Companies Nos. 39, 100, 101, 102, 103, 104, and 105; and the 164th Field Hospital.

Sick and Wounded Soldiers from the American Expeditionary Forces.—During the week ending December 27, 1918, the total number of sick and wounded landed in the United States from the American Expeditionary Forces was 7,447. Of these 6,572 were received at Hoboken and 875 at Newport News. During the preceding week a total of 7,468 sick and wounded soldiers were landed, the largest number received in any one week. Of these this total 5,828 were landed in New York and 1,640 at Newport News. The men are being sent to various army hospitals and convalescent camps.

New York Physicians' Association.—At the recent annual meeting of this organization Dr. Israel Grushlaw was elected president, succeeding Dr. Irving D. Steinhardt, and other officers were elected as follows: Dr. John Morley Hitzrot, first vice-president; Dr. Samuel Kleinberg, second vice-president; Dr. Alfred Hellman, treasurer; Dr. Morris Grossman, secretary. The next meeting will be held at the Chemists' Club, 52 East Forty-first Street, on the evening of January 23d. The paper of the evening will be read by Dr. Solomon Solis-Cohen, of Philadelphia, on Lessons from the Two Grippe Pandemics.

Mortality Statistics of the United States.—A summary of the weekly mortality reports from forty-six of the largest cities of the United States, prepared by the Bureau of the Census, shows the total number of deaths from all causes during the year 1918 to be 442,372, corresponding to an annual death rate in a thousand of population of 19.6. Baltimore had the highest recorded rate for the year, 26.8, and St. Paul, Minn., the lowest, 13.9. New York's rate was 16.8, as compared with a rate of 15.2 for the year 1917. In each of the forty-six cities a higher death rate was reported last year than for 1917, the increased rate being due to the influenza epidemic.

Personal.—Dr. Harold M. Hays, of New York, after serving for fifteen months with the American Expeditionary Forces in France, has returned to New York and resumed practice at 2178 Broadway.

Major General William C. Gorgas, Medical Corps, United States Army, retired, has been awarded the Distinguished Service Medal for "especially meritorious and conspicuous service as surgeon general of the army in organizing and administering the medical department during the war."

Brigadier General Francis A. Winter, Medical Corps, United States Army, has been assigned to duty in command of the Army Medical School, Washington, D. C., vice Colonel W. P. Chamberlain assigned to duty in the Surgeon General's Office.

Major Victor Cox Pedersen, Medical Corps, United States Army, wishes to announce that he has received honorable discharge from the service and will resume private practice at 45 West Ninth Street, on or about January 18th.

Philadelphia Medical Societies.—The following medical societies will meet in Philadelphia during the coming week:

MONDAY, January 13th.—County Medical Society (Board of Directors); Samaritan Hospital Medical Society.

TUESDAY, January 14th.—Pediatric Society.

WEDNESDAY, January 15th.—County Medical Society (business meeting); Section in Otolaryngology, College of Physicians.

THURSDAY, January 16th.—Academy of Stomatology, Northeast Branch of the County Medical Society; Section in Ophthalmology, College of Physicians.

American Congress of Internal Medicine.—At the annual meeting of the American Congress on Internal Medicine, held in New York on Monday, December 30th, the following officers were elected to serve for the ensuing year: President, Dr. Glentworth R. Butler, of Brooklyn; first vice-president, Dr. Frederick Tice, of Chicago; second vice-president, Dr. Clement R. Jones, of Pittsburgh; treasurer, Dr. Augustus Caille, of New Orleans; secretary general, Dr. Frank Smithies, of Chicago; associate secretary general, Dr. Joseph H. Byrne, of New York.

Plans for Expansion of American Medical Service in France.—According to press despatches from General Headquarters of the American Expeditionary Forces, a vast expansion of the American Army in France was projected before the armistice was signed, but plans were suspended when hostilities were stopped. In addition to the 283,240 beds then ready for use in camps and hospitals, 423,722 normal beds and 541,239 expansion beds were in process of construction or procurement in preparation for expected campaigns. Twenty-one American hospital trains and twenty borrowed French hospital trains were in operation, while twenty-three more hospital trains and twenty so called "sitting trains" were under construction.

The Naval Hospital Service in Europe.—In his annual report for the fiscal year 1918, Rear Admiral William C. Braisted, Surgeon General of the United States Navy, stated that the navy hospital service in Europe included two 500 bed hospitals in Brest; one 600 bed hospital each at Strathpeffer and Leith, Scotland; and one 300 bed hospital at Queenstown, Ireland. A naval hospital of seventy beds is in operation in London, under the general surveillance of Commander F. Thompson, Medical Corps, United States Navy, the bureau's representative at the American Embassy. Minor establishments with less elaborate facilities are available for the care of our sick at Plymouth (twenty-five beds), Cardiff (100 beds), Killingholme (seventy-five beds), Eastleigh (fifty beds), Gibraltar (fifty beds), Lorient (seventy-five beds), Paulliac (125 beds), Genoa (100 beds), Corfu (100 beds). To this should be added the available quarters for fifteen sick at each of twenty naval air stations, and suitable provisions for 100 sick in connection with the Northern Bombing Station. There are ashore and abroad, directly connected with the war service, 280 medical officers, forty-two dental surgeons, and 1,000 members of the Hospital Corps. Serving with the marines at the front are forty-seven medical officers and seven dental officers, assisted by a suitable number of hospital corpsmen.

Dead in World War Number Nearly Six Million.—Official figures give the total number of the dead in the great war as 5,936,504. The individual national losses in dead thus far announced are: Russian, 1,700,000; German, 1,600,000; French, 1,071,000; Austrian, 800,000; British, 706,726; American, 58,478. The total German casualties are given as 6,330,000 and the Austrian total has been placed at 4,000,000. Serbia lost 320,000 men in killed, wounded and prisoners.

Meetings of Medical Societies to Be Held in New York.—The following medical societies will meet in New York during the coming week:

MONDAY, January 13th.—Society of Medical Jurisprudence; New York Ophthalmological Society (annual); Yorkville Medical Society; Association of Alumni of St. Mary's Hospital, Brooklyn; Williamsburg Medical Society.

TUESDAY, January 14th.—New York Academy of Medicine (Section in Neurology and Psychiatry); Manhattan Dermatological Society; New York Obstetrical Society.

WEDNESDAY, January 15th.—New York Academy of Medicine (Section in Genitourinary Diseases); Medico-legal Society; Northwestern Medical and Surgical Society of New York; Women's Medical Association of New York City; Alumni Association of City Hospital.

THURSDAY, January 16th.—New York Academy of Medicine (stated meeting); New York Celtic Medical Society.

FRIDAY, January 17th.—New York Academy of Medicine (Section in Orthopedic Surgery); Clinical Society of the New York Postgraduate Medical School and Hospital; New York Microscopical Society; Alumni Association of Roosevelt Hospital; Brooklyn Medical Society (annual).

Activities of the Medical Department of the Navy.—According to the annual report of the Surgeon General of the Navy, just issued, 1,200 medical officers were added to the Medical Department of the Navy since the last annual report was issued, the result being a total of 3,000 in service. Several naval base and twenty-five station hospital units have been organized; five of the former are on duty overseas and twelve of the latter on shore or at sea. Oversea activities have called for some 400 medical officers for duty with base hospitals, the Marine Brigade, aviation stations, naval bases and cruising vessels, other than those in the Transport Service. There are approximately 1,600 medical officers in the Naval Reserve Force. During the past fiscal year the total number of nurses assigned to duty in the Naval Nurse Corps (female) has been 1,128. Of this number eighty-three have been separated from the service for various causes and two members of the Nurse Corps died of illness contracted in the line of duty. The Hospital Corps numbered 14,718 on July 1, 1918, its strength on July 1, 1916, having been 1,585. There are 273 chief pharmacists and pharmacists on the active list while before the war there were only twenty-three on the active list.

Special investigations conducted during the year included aviation, gas defense, submarine ventilation, and psychiatric research, a special report having been made by each training camp or station on this last named subject. Emergency hospital construction brought the total of 3,000 beds at the disposal of the naval hospital facilities before our entry into the war up to an aggregate bed capacity of 12,000. In addition the Department has sent overseas 190 portable buildings for hospital use and has completed hospital groups at several foreign stations.

Modern Treatment and Preventive Medicine

A Compendium of Therapeutics and Prophylaxis, Original and Adapted

The Biological Treatment of Cancer.—G. Fichera (*Journal of Cancer Research*, July, 1918) presents a critical review of some of the methods and results of the past two decades in cancer research. The list of the various materials hailed as "cancer cures" includes such means of treating neoplasms as the use of the cancroin of Schmidt, anti-meristem, heated cultures of nectria ditissima, anti-cancerous vaccines, different sera, etc. It appears that no one has so far succeeded in obtaining reliable methods of treatment based upon a specific causative agent. Passive and active immunization with tumors has been attempted by many investigators, and the results have not been favorable. Fichera considers that chemotherapy should be especially practised by means of autolysates, in developing the biological treatment of tumors. A few fundamental principles of treatment must always be borne in mind: the immense importance of suitable dose, and the need for careful consideration of the proportion between the mass to be destroyed and the curative agent, and of the alternation of oncolytic stimulation with various histogenic products.

Effects of Mustard Gas on the Eyes.—George S. Derby (*American Journal of the Medical Sciences*, November, 1918) says that mustard gas burns of the eye, although tending toward spontaneous recovery, require careful supervision and treatment. This will shorten convalescence, make the patients much more comfortable, and ensure a complete recovery, except perhaps in the rarest instances. The eyes should be protected from light, but not bandaged. The patient should be kept in a moderately shaded ward. Satisfactory eye shades can be made out of three or four thicknesses of blue paper. The eyes should be gently irrigated in severe cases every three or four hours with some bland solution. Normal saline, soda bicarbonate one per cent., or boric acid are all good, best heated to about 100° F. before using. Following this a drop of liquid paraffine may be instilled, and in the later stages a twenty-five per cent. solution of argyrol is found to be soothing. Castor oil, theoretically, is good, as mustard gas is dissolved by animal and vegetable, but not by mineral oils, yet in practice it is found to be more irritating than liquid paraffine. Atropine should be used in all cases in which the cornea is involved, and a one per cent. solution instilled twice a day will usually keep the pupil well dilated. As a rule, atropine may be discontinued in two or three days, but not when there is marked corneal involvement. Cocaine should not be used as a routine, but is valuable for the first examination of the eyes to relax the spasm of the lids. When a hyperemia of the conjunctiva exists for a long time a mild astringent collyrium may be used. As the irritation subsides the corneal condition clears and the injection begins to disappear. Then, it is very important to get these patients up and to accustom them to a greater degree of illumination gradually.

Focal Infections in Childhood.—Sanford Blum (*American Journal of the Medical Sciences*, November, 1918) says that focal infections imply the presence of a primary focus of pathogenic bacteria, the invasion of the circulation by bacteria or toxins, and the sequential effects. They comprise an important class of morbid conditions in children. Various bacteria may operate in focal infections, in general all pathogenic bacteria, which are the common agents. All of the tissues in the body may be involved in focal infections: the serous and synovial membranes are specially susceptible to secondary involvement. The frequency of involvement of the joints and endocardium in focal infective processes is not due to a selective action of the microorganisms, but to a greater susceptibility of these structures to bacterial invasion. Rheumatism is a name used to designate some types of arthritis of the bacterial etiology of which we are ignorant; its use will probably become more restricted and eventually be discarded as the various types of arthritic infection are discovered. The effects of focal infection are twofold, septic and toxemic. Diagnosis requires recognition of a morbid process as secondary and the tracing of it to its source. Treatment should be systemic and local, directed to the secondary state and to the primary lesion, and may be employed either to cure the infected area, or to eradicate the focus. Focal infections may be created by operative procedures, such as tonsillectomy and orthodontia.

Rodent Ulcer.—Wallace Beatty (*Boston Medical and Surgical Journal*, October 24, 1918) speaks of the various methods of treating rodent ulcer. The plan of excising the ulcer can be adopted only when the lesion is small, for they occur on the face, and can be removed completely without leaving a disfiguring cicatrix. Recurrence after excision, even of small tumors, is frequent. Ionization by zinc ions is a good treatment, but it is painful and has to be repeated frequently. X rays are often successful; even one Sabouraud pastille dose may be sufficient, but often a much greater number may be needed. Sabouraud recommends one pastille dose every eighteen days for six times, but if the rodent ulcer is not cured by these six applications it will be advisable to space further administrations of the rays over a longer interval, of from five to six weeks. Some authors recommend one single massive dose of the x rays, three full Sabouraud pastille doses at once, but he has had no personal experience with this method. Carbon dioxide snow at a temperature 79° F. below zero, is often extremely useful. The snow is applied under firm pressure for twenty or thirty seconds. A vesicle or bulla forms in a few hours and dries into a crust in the course of some days, which may remain adherent for a fortnight. One application may cure, but a repetition may be necessary and is always safe. The writer has no personal knowledge of the value of radium in the treatment of rodent ulcer.

Diagnosis and Treatment of Oral Infections.—Thomas P. Hinman (*Southern Medical Journal*, July, 1918) says that there are three means of eradicating apical dental foci, which are in the order of their efficiency, extraction and curettage; excision of the root end and curettage; electromedication through the canal. There is a widespread idea that simple extraction of the teeth is a cure all for the eradication of dental foci, but nothing is further from the truth. Unless, after extraction, the diseased tissue is thoroughly curetted out of the bottom of the socket, and swabbed out with compound tincture of iodine, then packed with a ten per cent. iodoform gauze for several days, being sure that the socket heals from the bottom, there is no certainty that the granulomata will not remain in the bone and keep up its dangerous work. In radiographing a mouth every area and tooth should be taken, and each picture should be carefully examined, as many innocent looking teeth have apical foci with not the slightest external evidence. In cases where there is a condensing osteitis the dense bone should be thoroughly curetted so as to break down the hardened wall, allowing a pouring out of fresh bone cells to fill in the area destroyed by the disease. In resection of the root end, the apex and all that portion of the root which extends into the diseased area should be removed, a thorough curettage of the diseased area made, and, after swabbing out the field of operation with compound tincture of iodine, the cavity lightly packed with ten per cent. iodoform gauze. This packing is removed every second day for a week or ten days, the packing being made smaller each time, until the wound heals. Too much dependence should not be placed on this operation, and every case should be checked up at frequent intervals to see that the bone is filling in and that the foci have disappeared. Some good results may be secured by electromedication, but when the foci are large and there is a bad secondary infection, the writer does not believe it should be used.

Treatment of Influenza.—Bernard Fantus (*Journal A. M. A.*, November 23, 1918) remarks that face masks are useless in protecting the wearer from infection in the presence of an epidemic such as we have just had, for the infection is everywhere and the masks do not prevent its entrance through the conjunctiva and lachrymal ducts. They are of some value in preventing the patient from disseminating the infection. The most serious and important complication—bronchopneumonia—seems to be due in practically every case seen in private practice, to the fact that the patient did not or would not stay in bed long enough or completely enough during the acute stage of the influenza and for the next three to four days. Or, it is due to the presence in the patient of some physiological handicap such as pregnancy, organic heart disease, chronic bronchitis, etc. In the absence of all specific treatment attention has to be directed to the no less important symptomatic treatment, which the author prefers to call "functional therapy." Fever rarely needs treatment, but when it does become too high it can be reduced promptly by hydrotherapy or antipyretics. The pains and aches are particularly troublesome and demand relief. It makes little dif-

ference whether acetylsalicylic acid, pyramidon, acetphenetidin, antipyrin, or other member of the group be selected, the important thing to observe is that the one chosen should always be given in the smallest dose which will produce the relief desired. As little as 0.12 gram (two grains) of acetphenetidin may give relief when given hourly for a few doses. Codeine may be required when there is great pain and can be given in doses of 0.03 grams (one half grain) when its depressant effect on cough does not contraindicate its use. Where the cough is associated with retention of the secretion its expulsion should be promoted by the administration of large quantities of liquids, the iodides, and 0.3 gram doses of ammonium chloride. Sleep must be secured for the patient and it may necessitate the administration of small doses of codeine if the repeated use of the bromides, barbitol, or hydrated chloral have not been sufficient. Care should be taken not to provoke vomiting in those who have a tendency to it, and in such cases the administration of ammonium chloride and of the iodides or bromides should be undertaken with care, small initial doses should be given, and the drugs should be well diluted. In cases with obstinate vomiting it may be necessary to interdict all food and fluid by mouth for twenty-four hours and to prevent dehydration and acidosis one should be given rectal saline injections containing two teaspoonfuls of sodium bicarbonate to the quart.

Epidemic Influenza.—Martin J. Synnott and Elbert Clark (*Journal A. M. A.*, November 30, 1918) describe the clinical features and their pathological and bacteriological investigations of epidemic influenza as seen in over 6,000 cases at Camp Dix. The treatment employed in these cases was symptomatic to a very great extent. Distressing cough was relieved by codeine or heroin, and medicated steam inhalations were helpful in cases with laryngeal irritation. Digitalis was started early in the pneumonia cases, given in full doses for forty-eight hours, and then discontinued or reduced in dose when the heart was well digitalized. Every effort was made to guard against abdominal distention, but when this developed it was relieved by enemas or pituitary solution administered hypodermically. Water was given by rectum, subcutaneously or intravenously when the patient was toxic or unable to take fluid freely by mouth. The Trendelenburg position proved helpful in a few cases with pulmonary edema, but atropin was of no value. The diet should be nourishing, provide more than 3,000 calories daily, and should be made up of gruels, broths, purées, eggs, and milk fortified with cream and lactose. All patients were kept in bed until the temperature had been normal for more than forty-eight hours, to prevent relapses. Serum was given in cases of pneumonia due to Type I pneumococcus, preliminary desensitization being practised in every case. It was given intravenously in doses of sixty to 100 mls every twelve hours until the temperature remained below 101° F. Spinal puncture was made in all cases showing symptoms of meningeal irritation, the precipitin test for pneumococcus type was made on the fluid, and serum in a twenty mil dose was given at once if Type I was proved to be pres-

ent. At the same time a desensitizing dose of serum was given and five hours later a dose administered intravenously. Since the pneumonias were due to pneumococci of the first three types, a vaccine of 10,000 million each of these three types, suspended in cottonseed oil, was given to volunteers and yielded very successful immunization against all three strains of pneumococci, apparently as well as against the streptococcus.

Treatment of Whooping Cough.—M. I. Brilari (*Revista del Instituto Bacteriologico*, Buenos Aires, August, 1918) report that their extract of the patient's whooping cough sputum given subcutaneously is effective in pertussis. This extract, which they call antitosine, is best prepared from the sputum of cases which have been previously treated with the remedy. Massive doses are given (two or three c. c. or even more) daily or every other day until the number of spasms diminishes. Complications such as measles, convulsions, tuberculosis and pneumonia do not contraindicate the use of the extract, and the number of attacks per day is reduced and vomiting ceases.

Autoserotherapy in Tuberculous Pleurisy with Effusion.—J. Curtis Lyter (*American Journal of the Medical Sciences*, November, 1918) has treated twenty-three cases of tuberculous pleural effusion by Gilbert's method. Five c. c. of the effusion were drawn into an aspirating syringe, the needle then withdrawn until the point was immediately beneath the skin, when it was introduced deeply into the subcutaneous tissue and the patient received the entire five c. c. subcutaneously. In eight cases there was complete absorption within two weeks, while the treatment failed in fifteen. The absorption in the eight was more probably due to the natural physical phenomena than to the stimulating effect of the treatment. His results indicate not only that the treatment does not cause absorption accompanied by diuresis, rise of temperature and leucocytosis, but that in some cases it is not entirely devoid of deleterious effects upon the tuberculous process in the lung.

Treatment of Tropical Abscess of the Liver.—John S. Helms (*Southern Medical Journal*, August, 1918) emphasizes these points: First, that it is an unnecessary and bad practice to make exploratory punctures for diagnostic purposes. The diagnosis can be as readily and certainly made by other means. It is a dangerous practice because the exploring needle will nearly always have to be passed through a part of the pleural cavity, or through the peritoneum, and in this way these cavities are liable to be contaminated with infectious bacteria. Second, these cases should always be treated by the open method unless there is some contraindication to operation. Third, the peritoneal or abdominal route is the safest and best avenue of approach, gives as good an opportunity for reaching and draining the abscess as any other, and does away with the danger of infecting the pleural cavity or the lung. Fourth, the local application of amœbicidal remedies through the operative wound is an important part of the treatment.

Palliative Trephining in Cases of Tumor of the Infundibular Region.—S. P. Kramer (*Journal of Nervous and Mental Disease*, November, 1918) advocates the turning back of a large osteoplastic flap of the frontal bone, freely incising the dura, then folding the bone flap back and suturing the skin. He has done this operation in four cases and says that in this way a very considerable enlargement of the cubic content of the skull cavity is produced, particularly in the anterior fossa, without unsightly deformity. He believes the idea to be erroneous that in order to relieve intracranial pressure by decompression the location of the opening is immaterial, as this depends on the conception that the compressing lines of force in intracranial pressure are distributed equally in all directions; a conception which is not borne out by clinical observations in regard to the incidence of papilloedema complicating cases of brain tumor. In other words he does not believe that intracranial tension is of a hydrodynamic character. He ascribes the relief obtained to a displacement of a considerable portion of the brain itself.

Some Irregularities of the Heart and Their Treatment.—John L. Heffron (*New York State Journal of Medicine*, December, 1918) briefly outlines the symptomatology and mechanism of a few of the more common cardiac irregularities and discusses their treatment in some detail. He calls attention to the fact that premature contractions are often the forerunners of more serious disturbances and that they must always be investigated with reference to the possibility of discovering some evidence of more serious trouble. By themselves they call for no treatment, but when they are associated with other conditions these latter must be treated according to indications. Paroxysmal tachycardia is another arrhythmia for which there is no specific treatment and which is often the forerunner of more serious manifestations. A host of remedies have been advocated, but none is of any certain definite value. The assumption of a position "on all fours" will sometimes give relief. When the attack is very prolonged it can usually be borne better if the bromides or small doses of morphine are given, and small doses of tincture of nuxvomica, a drop of the tincture every hour for several doses often relieve the exhaustion and promote sleep. Reassurance after careful examination, a resting stomach, and an empty colon seem to be the most valuable therapeutic measures. In auricular fibrillation, beside adequate digitalis therapy, the most important part of treatment is to teach the patient the language of his heart and to encourage him to learn to live a useful life within the limits of his cardiac capacity. The prognosis is very variable, but is often quite good if the patient learns and carefully heeds the warnings from his heart and so keeps within the bounds of its capacity. The reestablishment of a cheerful mental attitude and of nerve poise goes a long way toward restoring the heart and prolonging life. The dose of digitalis which is required after the acute attack to keep the heart below eighty beats per minute is a good index of the extent of the degenerative changes which are present in the myocardium.

Miscellany from Home and Foreign Journals

Rôle of Instinct, Emotion, and Personality in Disorders of the Heart.—C. Macfie Campbell (*Journal A. M. A.*, November 16, 1918) points out that in internal medicine intensive study is usually devoted to the individual organ or system, with only occasional study of the integration of several organs through the central nervous system or the endocrine glands. Further integration than this is seldom attempted and the actual personality of the patient is seldom reconstructed. In so far as this reconstruction is omitted the study of the functions of individual organs and systems is incomplete. Every human being reacts to an external situation of biologic importance by virtue of his innate instinctive equipment, each instinctive reaction making its special demand on the several organs. The outward manifestations of reaction to any situation may be modified by the patient's will, but the organic responses still take place, and, in fear, for example, his heart beats fast, his mouth becomes dry, and his knees may scarcely support him. A very important factor modifying the reaction is the "sensitization" of the patient by reason of previous experiences, a state of affairs closely similar to the "conditioned" reflexes of the Russian school. In the examination of a number of cases of heart disorders encountered in soldiers, a considerable group was found in which the men revealed some degree of constitutional inferiority. This inferiority was found to be of three general types: That manifested by prolonged physical invalidism; that in which defective intelligence was prominent; and that in which the instinctive and emotional life was poor with a fair degree of intelligence. It is often very difficult to decide, in a case showing prolonged invalidism and disordered heart, which is the primary condition. The proper investigation of these cases is a matter of no small importance and is also one of considerable difficulty. An outline is presented of the factors to be considered in history taking and investigation, and several illustrative cases are given to point the way to further and more complete investigations of the problems thus opened up. No conclusions are drawn, the paper being intended to suggest a field of study.

Rôle of Expired Air in the Propagation of Epidemics.—A. Trillat (*Bulletin de l'Académie de médecine*, October 22, 1918) points out that, in conjunction with the direct transmission of infection by projection from the mouth during speech or coughing, external conditions such as humidity, barometric pressure, and temperature are all of great importance. Daily observation, moreover, frequently brings to light instances of transmission of disease at a distance without the intervention of infected individuals or objects. Trillat explains such instances by considering the atmosphere as not only a transporting but also, under certain conditions, a nutrient and reproductive medium for microorganisms. Bacteria in the air induce condensation of water about themselves and remain for

a time in suspension as droplets, deriving food material from the gases of expired air. Multiplication of the bacteria and division of the droplets result in the formation of invisible bacterial clouds which may be moved about by air currents and tend to condense and become localized on cold surfaces or through the influence of whirling motions of the air. These conditions account for the transmission of contagion to all parts of a room. The suspended droplets in the sickroom, which is often warmer than surrounding rooms, tend to become precipitated in neighboring colder apartments. Propagation of contagion at a distance may also take place through inanimate objects, especially clothing; the latter may actually serve as a culture medium for germs. The capacity of different sorts of clothing for holding moisture in its meshes, as well as the gaseous emanations of the sweat glands, which act as food to bacteria, governs the degree of contagion in the particular type of clothing concerned. Precipitation of bacterial clouds on clothing occurs especially when one passes from a cold room to one which is warm and the air of which is laden with respiratory clouds. As a practical deduction from these views, attention should be given to the evacuation of respiratory clouds from sickrooms and rooms or halls where people congregate. This should be effected either by means of appropriate currents of air, by the use of cold condensing surfaces, or by aspirating apparatus. Complete removal of dampness from clothing by exposure to direct sunlight or by heating is advisable. In the absence of a complete disinfection, the time honored procedures of fumigation and deodorization are not to be discarded, as they are capable of saturating the nutrient gases in the atmosphere and of hindering by their more or less antiseptic emanations the development of bacteria.

War Nephritis.—H. B. Day (*Lancet*, November 16, 1918) limits his discussion to war nephritis proper, or to those types of nephritis which seem peculiar to active service, eliminating both recurrent nephritis and infective nephritis. The onset of war nephritis is almost invariably attended by fever, but this is very often not noticed by the patient. The first symptoms are increasing breathlessness, edema, more or less cough, headache, and pains in the back and legs. Urinary symptoms, including hematuria, frequent and painful micturition, and incontinence are usually limited to the lower tract type which is relatively uncommon. The most striking clinical feature, which is only discovered by careful daily examinations, is a decided periodicity of the manifestations of the disease. The daily output of urine increases at regular intervals, or shows periodical falls with a temporary increase in the albuminuria, or the occurrence of hematuria. These changes often are accompanied by rises in the temperature of two to three days' duration. Alternate enlargement and recession of the spleen is also discoverable by careful examination, the cycles covering five or six days. The only other

disease which is prevalent in the war and exhibits a similar periodicity is trench fever and the similarity of features of these two conditions is very striking, especially the enlargement of the spleen. Trench fever is also accompanied by evidences of some renal damage. Certain facts connected with these two diseases, however, seem to point against the idea of their identity, especially the seasonal variations. It is suggested, from close study of both conditions, that trench fever infection is one of the basic causes of war nephritis. Many of the milder cases of trench fever do not report sick, but continue at the front under the hardships of severe exposure and chilling, especially in the winter, and under such circumstances they do not overcome the trench fever effects upon their kidneys and consequently develop war nephritis, with the typical periodicity of the trench fever.

Electromyographic Studies of Clonus.—Stanley Cobb (*Bulletin of Johns Hopkins Hospital*, November, 1918) carefully studied five patients, using a string galvanometer. The results obtained by this method must necessarily be more accurate for the study of muscular phenomena than those formerly applied to clinical observation. Clonus apparently gives a typical electromyogram. Usually the first few periods of clonic contractions are longer than the succeeding ones, but after a short time the clonus falls into a steady rhythm. In different people the average length of the periods varies by only a few hundredths of a second; the shortest was twelve-one hundredth second and the longest seventeen-one hundredth second. Of the five cases studied two had patellar clonus alone, two had ankle clonus alone, and one had both patellar and ankle clonus. Fatigue did not affect the rate of clonus in these cases. However, variation in the strength of stimulus used to excite the clonus affected the rate. An increased stimulus increases the rate of clonus and the size of the electromyographic waves, but does not change the rate of the action currents.

The Bacillus Influenzæ in Sinusitis and Meningitis.—G. R. Lacy (*Journal of Laboratory and Clinical Medicine*, November, 1918) recovered *Bacillus influenzae* from the spinal fluid of two infants who finally died with influenzal meningitis, and the organism was also found in cultures from two cases of frontal sinusitis. The clinical histories and bacteriological studies are reported in full. Two types or forms of the *Bacillus influenzae* were present—the small, short type and the long filamentous or streptothrixlike forms (involution forms). Lacy emphasizes the importance in cases of meningitis, of indefinite etiology, of centrifuging the spinal fluid and culturing it on various media, always using blood agar. At least forty-eight hours' observation should be made before submitting a negative report. Sinus infections with *Bacillus influenzae* should have early and adequate drainage to prevent the danger of a complicating meningitis. In one of the cases of frontal sinusitis a vaccine was prepared and given at four day intervals. There was a decided improvement in the patient's general condition. Vaccine therapy was not so successful in the second case.

Phagocytic Experiments in Influenza.—Ruth Tunnicliff (*Journal A. M. A.*, November 23, 1918) studied the development and variations in the specific opsonins for several organisms in influenza in order to throw some light on their relation to the disease. The organism especially considered was a green producing streptococcus which had been isolated by the late Captain Mathers from the sputum in eighty-seven per cent. of 110 cases of influenza and pneumonia. She found that during the course of their disease influenza patients developed specific opsonins for this peculiar coccus; that there was a decrease in these opsonins with the development of a pneumonia, and that they again rose to or above normal with recovery. These changes were found to be specific for this coccus and no opsonic fluctuations were observed for the influenza bacillus, the *Micrococcus catarrhalis*, or the *Streptococcus hemolyticus*, indicating that the green producing organism was of some significance in the disease. As in measles, so in influenza there was a non-specific fall in opsonins with the development of the leucopenia. These two factors probably accounted to some extent for the severity and frequency of complications. Immune serum or horse serum might be of value by promoting leucocytosis.

The Microorganismal Cause of Influenza.—G. Vitoux (*Presse médicale*, October 17, 1918) presents an account of the researches recently conducted by C. Nicolle and C. Lebailly, in which bronchial sputum from a subject on the fourth day of an attack of influenza was inoculated into human subjects and monkeys. The sputum contained many organisms of various sorts and was injected subconjunctivally and instilled into the nose of a monkey, without preliminary filtration. After filtration it was injected under the conjunctivæ in one human subject and intravenously in the other. The monkey, on the sixth day, developed a temperature of 40° C., which was maintained for three days and accompanied by marked loss of weight and depression. The first human subject was seized with headache, diffuse pains, and a temperature of 38° to 39° C.; the affection ran the usual course of influenza and recovery occurred after twelve days. The second subject, inoculated intravenously, developed no symptoms. A negative result was also noted in a subject inoculated subcutaneously with three mils of blood, obtained from the monkey on the first day of fever. In another experiment, three mils of blood from a patient on the third day of typical influenza were injected intravenously in a healthy subject without result. Sputum from a patient on the third day of influenza, inoculated subconjunctivally and on the nasal mucosa of a second monkey, caused in five days a fever of 40° C. which lasted three days and even rose at the last to 41° C. A man injected simultaneously with the filtered virus developed mild influenza on the sixth day. The authors' conclusion is that the bronchial sputum of influenza patients, collected during the acute period, is virulent. The virus appears to be a filterable one, subcutaneous inoculation of the filtrate in two subjects having brought on the disease. The influenza virus apparently does not occur in the blood of patients.

Study of Blood Pressure in Insane Patients Aged Sixty and Over.—E. T. Gibson and A. M. Kimberly (*Boston Medical and Surgical Journal*, December 5, 1918) find that the diastolic pressures in both sexes vary little after the age of sixty. In men, systolic pressures increase about ten millimetres of mercury for each five years up to the age of seventy-five. In women they increase abruptly from the age of sixty-five to sixty-nine, while in older women the pressure is less and does not vary with age. Both diastolic and systolic pressure are distinctly higher in women. About half of the men and the women had evidence of cardiorenal disease. Blood pressures averaged the same in men with positive, or a negative Wassermann reaction. The blood pressure is not affected, significantly, by the psychiatric diagnosis, except in senile dementia, in which the averages for both sexes were higher. Apparently the development of high arterial pressure after sixty is augmented by factors which do not operate in the sheltered life of an institution, and these factors appear to be effective as early as the thirty-second year in men, but not until the forty-sixth year in women. One third of the women and one fifth of the men had systolic blood pressures over 180 mm. Evidence of heart and kidney disease was found in all but one of these men, but in only two thirds of the women.

Experimental Carcinomata of Animals and Their Relation to True Malignant Tumors.—F. D. Bullock and G. L. Rohdenburg (*Journal of Cancer Research*, July, 1918) review the papers of Fibiger, Stahr, and Yamagiwa and Ichikawa, all of whom claimed to have produced artificially malignant tumors in animals. The fact that the lesions reported by various investigators could be produced as readily in young as in old animals, contrary to the current view concerning the "cancer age," is only one of the points which made Bullock and Rohdenburg doubt their true malignancy. Again, these reported tumors apparently do not possess the power of continuous growth upon transplantation into animals of the same species. The present investigation was undertaken to discover if lesions produced by chronic irritation might not be interpreted as hyperregenerative processes rather than as true carcinoma. A number of experiments were made on rats and rabbits, in some of which the stomach was irritated, and in others the tongue and skin of the buttocks were the sites of irritation. Chemical, mechanical, and mechanicochemical irritants were employed, in the form of spine balls introduced into the stomach, injections of Scharlach R and pine tar, either in their original state or dissolved in oil or ether, into the stomach after gastrotomy, etc. By simple mechanical injury papillary and polypoid tumors, papillary ulcers of the squamous portion of the stomach, and lesions of the glandular portion suggesting cystadenomata, were easily produced. Localized papillary tumors suggesting the canceroid growths produced by nematode worms were the result of chemical or mechanicochemical irritation of the squamous epithelium of the rats' stomach. In the experiments where Scharlach R was injected into the region of the papilla vallata a metaplasia of the serous and

mucous glands of this region was observed, and the lesions produced resembled benign epithelial growths. Similar changes were produced in the parotid and submaxillary glands of rats by the same means. Repeated injections of Scharlach R into the skin of the buttocks caused lesions indistinguishable morphologically from human epithelioma. A consideration of the results of this work shows that great care should be exercised before reports of the production of cancer by artificial means are accepted. It is emphasized by Bullock and Rohdenburg that a typical proliferation and invasive growth in irritation tumors are doubtful criteria on which to base a claim of malignancy, and if growth does not continue after the action of the irritant has ceased the tumors should not be considered malignant, no matter how close the morphological resemblance. This investigation points to the conclusion deduced from clinical experience that age, organ specificity, and congenital defects play an important part in the determination of the origin of the tumor, and that irritation alone is an insufficient factor.

Quantitative Estimation of Albumin in the Urine.—L. Bauzil (*Paris médical*, October 5, 1918) refers to the inaccuracy of the Esbach method, the laborious technic of the desiccation and weighing method, and the disadvantages of various other procedures hitherto widely recommended. They advocate, after extensive clinical experience, a diaphanometric method. In preparing the necessary standard solution, the albumin content of a given albuminous urine is first accurately measured by the weighing method. Some of the urine, previously filtered, is then diluted with a solution consisting of sodium chloride, 7.5 grams, and mercury cyanide, one gram, in distilled water, enough to make one litre, until it contains one gram of albumin per litre. In successive test tubes of equal diameter are now placed respectively, 0.5, 0.7, 0.8, 0.9, 1.0, 1.2, 1.4, 1.6, 1.8, and two mls of the resulting mixture, and the fluid in each tube made up to ten mls with the chloride cyanide solution. The various tubes thus correspond to samples of urine containing from 0.05 to 0.8 gram of albumin per litre. To each tube is added two mls of a twenty per cent. solution of trichloroacetic acid. A turbidity of increasing intensity in the successive tubes is thus produced. After being shaken, the tubes are carefully stoppered or sealed and labelled. File marks at ten and twelve mls are now made on an additional tube of the same diameter as the standard series. In testing urine, a test for gross albumin content is first made by the qualitative method and the urine, if necessary, diluted with saline solution so as to contain from 0.05 to 0.2 gram of albumin per litre. The urine is then placed in the empty tube up to the ten ml mark, trichloroacetic acid solution added up to twelve mls, and the mixture shaken. The standard tubes are now all shaken and the urine mixture under test compared with the standards until an equal degree of turbidity is found. Large numbers of urines can be quickly and with amply sufficient accuracy tested by this method, which proved entirely satisfactory when checked up by means of the desiccation and weighing method.

Proceedings of National and Local Societies

NEW YORK NEUROLOGICAL SOCIETY.

The Three Hundred and Sixty-fourth Regular Meeting Held at the Academy of Medicine, New York, Tuesday, April 2, 1918.

The President, Dr. FREDERICK TILNEY, in the Chair.

Cerebellar Problems.—Dr. T. H. WEISENBURG, of Philadelphia, delivered this address in which he presented the results of his observations in the study of this subject, both in clinical cases and in operative and postmortem findings during the four years following his first presentation of a tentative localization of cerebellar impulses, illustrating by a chart the position of various centres for different clinical manifestations of asynergia. So far as was known this had been the first attempt to solve the problem, but cerebellar localization was now an accomplished fact, whether accurate or not remained to be proved. The conception was that the cerebellum was a motor organ, its function being to synergize all movements of the body, the centres for the direction of movement being located in the cortex. The direction of the movements of the lateral limbs was controlled in the lateral lobes of the cerebellum; these were subdivided, the superior portion controlling the upper limb and the inferior portion the lower limb. The centre was further subdivided for the direction of the limbs upward, inward, outward, and downward, and still other subdivisions could be made. The centres for the movements of the trunk and the head were in the vermis. In the superior vermis were the centres for the movements of the upper trunk or shoulder girdle, and in the inferior vermis those for the lower trunk or pelvic girdle.

The problem of cerebellar location was of so much importance that this tentative selection of centres, as charted, was accepted and the study carried on in the attempt to prove or disprove the assertions, chiefly by the observation of individual cases of cerebellar disease with the aid of moving pictures. The attempt was made by selecting cases, studying them very carefully, localizing as much as possible the limit of the asynergy in the limbs and identifying what was found clinically with pathological operative material. If there was any advance to be made in this direction this course was probably the only one to follow. So far no other advance had been made in cerebellar localization. Up to six years ago the speaker had shared the usual conception of cerebellar disease and cerebellar symptomatology. He assumed that every patient with cerebellar disease had so called cerebellar ataxia, took it for granted that a certain number had vertigo, a certain number had not, that nystagmus might or might not be present, that the gait was of the drunken type, and, later on, after Babinski's researches, that a certain number of cases had asynergy, all had adiadochokinesis and certain others had hypermetry. This conception was still held by most individuals. The moving picture was the best method of observing the cases, for in this way massive exhibition of the gait, station and

movements could be studied seriatim, enabling one to form more adequate conclusions as to the actual and individual picture presented.

Another important adjunct to the study of cerebellar disease was furnished by the Barany method. In this country the work of Major Isaac H. Jones and his associates had led to an increased interest in cerebellar localization. One of the greatest advantages of this had been in the standardization of aviation tests, through which many physicians throughout the country had become more acutely aware of the fact that there was a vestibular apparatus and of its connection with cerebellum and brain. The interest thus aroused promised well for further fields of investigation and was also valuable in that it cemented the interest, being a common one, of two branches of medicine, neurology and otology.

As far as the cerebellum was concerned and the symptomatology, the speaker believed it the business of the cerebellum to synergize all movements; it was a local organ and its function was that of coordinating the impulses from the cortex. In discussing cerebellar symptoms one was referring to lack of synergy, everything else being dependent on this one primary symptom. Therefore, disturbances in station, gait, or movements were only types of asynergy and these depended upon what particular part of the cerebellum or its connections was affected. It was an error to state that in cerebellar disease the patient always staggered backward; some staggered forward and some to the side, dependent on the way the trunk inclined. Another erroneous statement was that which claimed that adiadochokinesis was not always present in these cases; in any cerebellar involvement of the limbs it was always present. The whole group of symptoms, on analysis, could also be revised. For instance, the term cerebellar ataxia was not a good one. The word ataxia should be used only where there was disturbance of sensation; it should be limited to sensory disturbance. All disturbances of gait or movement of limbs should be termed cerebellar asynergia, and study of the case would show in each individual what limb or what part of the limb or in what direction the limb was asynergic. The cerebellar gait was a trunk gait which was entirely different from the drunken gait which it was so commonly termed. Comparison of the two with the aid of moving pictures would make this very clear.

In different types of cerebellar patients there was a distinct difference in the behavior of the trunk, in the matter of station, and in the involvement of the limbs. In some the trunk was involved in all but the shoulder and pelvic girdles; in others vice versa. In those in which the pelvic girdle only was involved the patients had the greatest difficulty in standing. In many patients, however, the station was not altered a great deal; this applied to those in whom the shoulder girdle only was involved. Then there were patients in whom there was no involvement of the trunk to speak of, with only

one arm or leg affected; here the station was not affected at all. In a great many patients it was found that the arms moved nearly always inward and not outward, or outward and not inward. This tendency could also be observed in the lower limbs. There was a definite reason for all this and that was why this cerebellar localization had been charted as it had. Success in proving this chart accurate by study of cases and cooperation at operation or postmortem had only been partial. It was not intended that the chart should be accepted as being exact, but it was a beginning at solving the problem and remained to be proved or disproved. By means of certain freezing experiments Barany found out that certain movements of shoulders, arms, etc., came from certain parts of the cerebellum. The cerebellar patients should be carefully observed and studied in the minutest detail, remembering that the cerebrum compensated for the cerebellum. It was very easy for the cerebellar patients to be taught to make almost normal movements. The Barany tests, the moving pictures and such other means as presented themselves should be availed of, for the importance of correctly localizing the cerebellar centres was one that opened a field of fascinating interest in addition to the possibilities of its usefulness.

Aviation Problems, with Special Reference to the Internal Ear and the Cerebellum.—Major ISAAC H. JONES, Medical Corps, U. S. Army, of Washington, D. C., addressed this subject both from the point of view of the physician and of an officer in the aviation service. The relation of the internal ear to aviation was beautifully illustrated by the experimental work of Doctor Pike, of Columbia University, who found that dogs, after their internal ears had been destroyed, were still able to be "infantrymen," but were unfit to be "aviators." They could walk and run satisfactorily, but if they were called upon to jump into the air over a stick they came down in a heap on landing. Doctor Weisenburg had stated in his address that the neurologist would do well to secure the help of the otologist in the diagnosis of cerebellar cases; on the other hand, it seemed to the speaker that the otologist would be very unwise if he attempted in the short span of a lifetime to make a neurologist of himself. It was the close cooperation between the neurologist and the otologist that made the work possible. The controlling influence that the ear had over every portion of the body musculature was apparent when one realized that douching the right ear with cold water caused a pastpointing of even the left foot to the right. The Barany tests had made possible the realization that in testing the internal ear one was at the same time testing an infinite number of nerve pathways in the central nervous system and in the nerve distribution to all portions of the body. The internal ear, as the sense organ of motion perception, had, therefore, a much broader significance than the ear as the sense organ of hearing. In order to appreciate the part the ear mechanism plays in aviation, all that any physician needed to do was to take a flight in an aeroplane. As he guided it in a straight flight his incessant effort was to correct minute deviations from the

level position; the countless and continuous changes of movement in all directions were counteracted by tiny movements of the joystick. In his first flights, when an instructor was guiding the plane, he watched the joystick in front of him and he noticed that it was moving, ever so little, this way and that, in response to stimuli in the detection of changes of position. This sense of the "detection of movement" was what the experienced aviator called "the feel of the ship"; it was that sense which distinguished between the born flier and the mechanical flier who was forced to rely upon his sight in the guiding of the plane. The Almighty gave certain sense organs to man; if there was any individual who preeminently needed a normal sensing of movement it was obviously the aviator.

The turning chair and douching tests enabled the determination whether the internal ears and all the intracranial pathways from the internal ears were functioning normally. Recently, in Italy, Colonel Gradenigo stated that he considered it was sufficient to test only for nystagmus and not for pastpointing and falling, because a normal nystagmus alone showed that the internal ears were normal. The reason the other tests were made in America, however, was due to the realization that it was not an end organ alone that was being dealt with, but with a test of a large portion of the central nervous system, most particularly the cerebellum.

DR. J. RAMSAY HUNT, of New York, expressed himself as being in sympathy with the attempt to group many cerebellar symptoms under the general heading of *asynergia*. This point of view had been adopted by Babinski some years before and had received endorsement from many sources. It seemed to the speaker, however, that if the term *asynergia* was to be used it should be indicated that it was a cerebellar *asynergia*, because the cerebellum was surely not the sole controller of the synergies of movements. Isolated movements of cortical origin had their special synergies which were not lost in cerebellar disease; automatic and associated movements of striatal origin had their special synergies which were not lost in cerebellar disease, so that the term cerebellar *asynergia* should be used to distinguish it from other forms of synergic disturbances. It seemed that too little attention had been given to intention tremor as a cerebellar symptom. Babinski recognized and indicated the cerebellar characteristics of intention tremor a number of years ago, and in 1914 the speaker reported a chronic progressive disorder of the nervous system characterized by generalized intention tremors beginning in one extremity, gradually extending, and eventually involving the entire voluntary musculature. The intention tremors of this disorder (*dys-synergia cerebellaris progressiva*) might be divided into definite cerebellar components, such as *dysmetria*, *dyssynergia*, *hypotonia*, and *asthenia*, the intention tremor being simply the most extreme manifestation of this curious disease, regarded by the speaker as a system disease and referable to some disturbance of the cerebellar mechanism. The organic basis of intention tremor had never been satisfactorily explained; that it was closely related to the cerebellar mechanism would appear probable,

as organic disease of the cerebellum might produce a tremor having all the characteristics of tremor of the intention type. Doctor Hunt said he had had for some time under his observation a case of tumor in the right cerebellar hemisphere with a typical hemiintention tremor, associated with dysmetria, hypotonia, and asthenia, and other examples had been reported in the literature, so that the close relation of typical intention tremor to a cerebellar disturbance could scarcely be denied. The chart of cerebellar localization shown by Doctor Weisenburg was suggestive and very interesting, but, as Doctor Weisenburg himself admitted, it was only provisional and was to be regarded merely as a basis for further investigation.

MAJOR EUGENE R. LEWIS, Medical Corps, U. S. Army, of Washington, D. C., expressed his inability to participate in the neurological discussion, but as an otologist welcomed the suggestion by Doctor Weisenburg of greater intimacy between the two specialties because of the fact that it held forth such great promise of increase of usefulness. He did not consider himself at all capable of discussing the subject of cerebellar localization, but might be able to give some information culled from experiences in the application of the Barany tests in many thousands of normal individuals. As Major Jones had mentioned, asynergia had occasionally been encountered unexpectedly in apparently normal individuals. It was not unusual for a normal individual after being turned to the right, instead of pastpointing to the right, to pastpoint to the left. Inasmuch as one was dealing with young, active, alert individuals it was not surprising to learn that they quickly sensed the fact that they were not pointing in the way they intended to point, that they were pastpointing against their will, and that they then did the obvious thing of attempting to correct what they had sensed as an error. That correction, the overpointing, was tremendously important to detect and take steps to avoid. In testing the balance mechanism it was important to recognize the necessity of insulating the persons being tested as entirely as possible from all other afferent impulses, for they would orient themselves by any means at hand, by visual, auditory, tactile, deep sensibility or olfactory information. It was therefore important to conduct these tests according to a certain standard technic.

In the test of the duration of nystagmus opinions among observers as to when the nystagmus had stopped varied considerably. In order to get away from this variation the following standard had been adopted: The observer first located some very definite pin point light reflex at or near the inner corneoscleral junction, or in the triangle between the inner corneoscleral junction and the lid openings going down to the inner canthus, prior to the turning. The observer's line of vision in locating such definite pin point light reflex should cross the bridge of the nose from the opposite side. Thus, if the applicant's right eye was selected to be observed, the observer, standing near the applicant's left arm, should look across the applicant's bridge of nose and select a light reflex such as was found at the apex of a small pinguella or any other similar un-

evenness in the triangular area of conjunctiva between the inner corneoscleral junction and the inner canthus. Having definitely located this light reflex in each individual prior to the turning it was very easy to catch upon it the last definite jerk of a disappearing nystagmus with great accuracy. Dependence upon the observation of striæ in the iris or small vessels of the surface of the eyeball, or corneal reflexes, did not give nearly as accurate results in timing nystagmus. This point was of great importance and it should be an absolute standard of technic.

In taking the spontaneous pointing test before turning a very important element in the test could be injected by implanting in the mind of the applicant the definite idea that he was to attempt to determine the location in space of the observer's finger solely by registering in his memory the location of it according to his tactile sense. This could be augmented by having him touch the observer's finger in more than one position; as, for instance, directly in front of his right hand, come back and touch; then locate again thirty degrees outward and come back and touch; the same procedure in front of the left hand. This implanted in his psychic cortex and subcortex the fundamental idea of being able to orientate himself solely by means of afferent impulses from his tactile endorgans. The insulation of the applicant during this test should be as perfect as possible and he should be left as solely as possible dependent upon the information brought to him along the vestibular tract alone. The applicant should be definitely instructed before turning that he should not expect a verbal order to touch the observer's finger, raise his hand and come back, and attempt to find it after the turning; he should be practised before turning in executing his touch, raising his hand and coming back to find the finger upon receipt of the signal from the observer's finger as it comes into the position which it maintains during the test, the observer bringing up his finger into position so as to tap the applicant's finger as a signal for him to execute his pastpointing without verbal command. It was very important for the applicant's finger to find a finger of the observer when he came down in search of the finger which was testing him. Otherwise, there was injected into his psychic centres a disconcerting element of dissatisfaction in having failed to find the finger for which he was searching.

Many cases compensated after evincing a normal tendency, say, to pastpoint outward with the right hand when they should do so, and subsequently executed a compensatory touch or inward pointing at the bottom of the return. In such cases the pastpointing should be registered as that executed at the top of the swing, which was the primary and clean response before it had been altered by the subconscious or conscious compensation affected by other mental processes. Visual attention on the part of the observer to the applicant's hand at the beginning of his downward pointing was of enormous importance and it should be very carefully observed as part of the standard technic.

Dr. I. STRAUSS, of New York, expressed considerable interest in Doctor Weisenburg's presenta-

tion of this subject. Not everyone, however, was able to have moving pictures taken of their cases and had to depend on ocular observation. He asked Doctor Weisenberg whether in his postmortem examination of cases the peduncles had been found to be affected; whether there was disturbed synergia of the right arm and of the trunk found in cases where the lesion was definitely one of the pons affecting the peduncle. The speaker had presented such a case at the last meeting of this Society. Of course he could not say that there was in addition no lesion of the cerebellum through extension of the growth up into the lobe. In experimental work which Dr. Isidore Friesner and he were doing at present they had injured the vermis in one animal and its resulting behavior demonstrated asynergia of the head and neck. In another animal where they injured the peduncle there followed involvement of limb and the animal acted as it would if the lobe itself were injured. So he thought there should be a distinction made between the lobe itself and the peduncle.

Another point was this: Even without the aids available at present he thought every neurologist would have diagnosed the lesion in Doctor Weisenburg's case of the child as being in the right half of the hemisphere. They might not have located it in the posterior part, but all would have put it in the lateral lobe. From a practical viewpoint, whether it was the semilunar or quadrangular lobe did not make much difference.

In regard to the work being done in testing for aviation. There was a British aviator here giving lectures who was asked what tests he had undergone for the air service and he replied that he himself had merely been given a reading test for myopia. Suppose one had a case of suppurative labyrinth from which recovery had been made of the symptoms present at the beginning; or possibly a case where the vestibular nerve function was impaired or lost on account of disease. Such a man would know where he was and could maintain his equilibrium on the ground, for it had been found that the cerebrum compensated and had been able to overcome a great deal of the asynergia of the cerebellum. Would such a man be ruled out for that, provided no other symptoms of disease of the cerebellum could be found? Would not a man through muscle and visual senses be able to maintain his equilibrium? Of course, it had been said that all might be well until he got into a cloud or a fog where he could not see, whereupon he would not know if he were flying up or down; but it was doubtful if this were true. In Italy they were satisfied with testing for nystagmus, and everyone knew that their aviation service had set the world an example. Did not that show that the fineness of the tests in this country might not be altogether necessary and if the lecturer from the British aviation service was correct and that up to a few months ago Great Britain did not test for equilibrium, the question came up, how much of this elaboration was necessary in the actual work of aviation?

Dr. CHARLES E. ATWOOD, of New York, secretary of the society, asked Doctor Weisenburg if he could throw any light on the diagnosis of double

cerebellar lesions, such as those occasionally seen in tubercle of each lobe. He also asked Major Jones if it was known what the Germans were doing in the way of aviation tests.

Dr. I. ABRAHAMSON, of New York, called attention to the necessity for establishing the physiological mechanism of asynergia. Personally he believed that in cerebellar disease the asynergia was due to a fault of tonus. The patient showed disturbance of tonus in extending the hands, in moving the trunk and in other ways. The variety of asynergy that the cerebellar patient showed was that which was mainly due to a fault of tonus and he believed careful study in each case would establish which special variety of asynergia the patient presented.

Doctor Weisenburg agreed that Doctor Hunt's point as to the distinction between cerebral and cerebellar asynergy was well taken, but he could not agree with his views of intention tremor, nor with his paper of some years ago. The speaker had been interested in the study of intention tremor and had made extensive observations by means of moving pictures, but had failed to find it in cerebellar disease. He did not consider tremor of much diagnostic value, nor a symptom of cerebellar disease. He did not agree with Doctor Hunt's view that asthenia and atonia resulted from cerebellar disease. To him all cerebellar symptoms were the result of asynergy, and whatever else was manifested was a secondary symptom. He did not agree with Doctor Abrahamson that tone was a cerebellar attribute, but considered it a cerebellar phenomenon. Regarding Doctor Strauss's question, that could be answered at once by saying that as yet no diagnosis of peduncular disease had been made by the character of the cerebellar symptoms alone; dependence instead was placed upon the neighboring symptoms. Regarding Doctor Strauss's remark that any neurologist would have been able to make the diagnosis in the case mentioned he agreed with that, but decidedly disagreed with him in the point of view that it did not make any difference to the surgeon or to the neurologist whether a lesion occurred in the semilunar or the quadrangular lobes, just so long as the gross diagnosis was made. He wished to emphasize that this was the point of his whole discussion and that it was the one thing which he had tried to lay particular stress upon in his presentations this evening. It did make a great deal of difference that accurate diagnosis should be made, for it was only thereby that progress could be made in cerebellar localization. It should be the aim of every clinician not only to localize the cerebellar symptoms in his patient but to similarly localize as accurately as possible the location of the lesion in the cerebellum.

Major Jones replied first to Doctor Atwood's question regarding the German tests: Considerable information regarding the tests used by the Germans was at hand, the salient feature of which was that they had used the ear tests in aviation for many years. In reply to Doctor Strauss, an interesting case would serve to illustrate. It had been observed by many fliers that one instructor flew in a peculiar way; he would allow either one wing or

the other to be tilted sideways to a dangerous degree without making any effort to correct it. This was true when he was at a high altitude and also at a low altitude; but on nearing the ground, when he could orient himself by the sense of sight, he would straighten out and land satisfactorily. On one occasion he was flying over Philadelphia and entered a cloud; his passenger was an experienced aviator who became alarmed at the manner in which the plane was being guided. This passenger could detect deviations in position which apparently meant nothing to the pilot and which resulted in a dangerous sideslip. Examination in the turning chair on the following day showed that the pilot had practically no responses in nystagmus, vertigo, pastpointing, and falling (probably due to mumps in childhood), whereas the passenger showed entirely normal responses.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Special Meeting Held Tuesday, November 5, 1918.

Dr. THOMAS R. NELSON, Acting President, in the Chair.

(Concluded from p. 1135, vol. cviii.)

Treatment of Chest Wounds by Artificial Pneumothorax. — Professor RAFAELE BASTIANELLI, of Italy, said that in the Italian army the treatment of chest wounds had followed almost the same steps as in the other armies. Early in the summer of 1916 the necessity of an active intervention became apparent, and it was concluded that, except for a few puncturelike wounds, it was necessary to excise the soft parts and to remove the bone fragments, treating the chest wall in the same way as they had learned to treat wounds in any other part of the body, because it was thought that much of the pleural infection causing empyema, septicemia, and death was due to an infection coming from the outside. The chest wall was closed airtight and without drainage, and generally this operation was performed under local anesthesia. It was through the untiring interest of one of his associates, Major Morelli, a pupil of Forlanini, of Pavia, that the artificial pneumothorax had been introduced into the Italian army, leaving the complete chest operation for the treatment of exceptional cases. Some lung wounds were such that air was not admitted to the pleural cavity from the outside, neither could it escape, so that the hemothorax and the pneumothorax were in a closed thorax, and when there were no adhesions generally the hemorrhage was either fatal, profuse, or moderate; or it was not apparent at the beginning, but appeared and was prolonged. This prolonged hemorrhage was due to the fact that inside the closed thorax there was the negative pressure of the lung, which worked like a suction cup on the lung wound. There were then two very bad conditions—a movement of the wounded organ and a suction on the wound itself. In many such cases of closed thorax wound Nature might effect a perfect or an imperfect cure. The mechanism of the cure by Nature was through the pressure exercised on the lung wound by the blood in the pleural cavity, by

the air, or by both together. With 1,500 or 2,000 c.c. of blood inside the pleural cavity the lung might still expand. The lung, collapsed and immovable, presented a favorable condition for healing.

They had learned also that blood in the pleural cavity was dangerous not only as a medium for microorganisms, but also in the formation of fibrous deposits, which obliterated the sinuses of the pleura and produced adhesions; also its presence did not favor expansion of the other side of the chest. Instead, if the pleural cavity was filled with air, the lung was compressed, hemorrhage, infection, and adhesions were prevented more easily, and even the big missile inside the lung sometimes remained without complication if immobility was maintained. With blood in the pleural cavity the lung was usually only partially retracted and there were bad functional consequences. If the lung was surrounded completely by air, adhesions did not occur, and when the lung began to expand the pleura would not contract adhesions so quickly that expansion was prevented. Adhesions might occur later, but then the lung had already expanded and the function was good. For these reasons it was thought that it was advantageous to remove the blood as completely as possible from the pleural cavity and to substitute air. Secondary hemorrhage was never seen. The current opinion that blood in the pleural cavity was efficient in checking hemorrhage was not true, if in removing the blood air was substituted, inducing a positive pressure sufficient to cause collapse of the lung. They believed that in every case in which a lung wound was demonstrated pneumothorax should be performed. They performed it also in cases of contusions of the lung, which were apt to be followed by complications. Contraindications were evidenced when adhesions prevented the introduction of air or when the air escaped through a gap of the chest wall, which could not be completely closed, or through the lung wound itself. But such contraindications were exceptional. The indications for complete operation in practice were very limited, and when the chest was a closed one it was thought it should be performed exceptionally, while if the chest was open, and especially if the opening was large, inspection and treatment of the lung wound naturally were more often indicated. There had been no case in which they were obliged to resort to a complete operation for hemorrhage. They believed the operation should be performed when a foreign body in the pleural cavity could be demonstrated. They also believed that closure of the open chest should be made as promptly as possible, and they found the introduction in the chest wound of a small rubber bag useful, which, when inflated, sealed the opening completely. These bags and the apparatus for performing the pneumothorax, devised by Major Morelli, were to be shown later by lantern slides. In 206 cases of lung wounds with closed chest treated by pneumothorax alone or by thoracentesis and pneumothorax there were seven deaths. Among the cured cases only twenty-two complications were found. Of the open chest there were eighty-four cases, with a mortality of nineteen cases—twenty-two per cent. Of these nineteen, eight

died in the first fourteen hours. Of the seventy-six treated by pneumothorax after removal of the blood there was a mortality of eleven cases—fourteen and one half per cent. There had been great improvement in this series of open chest since Professor Bastianelli's plan had been systematically adopted. The plan consisted of suturing the chest wall airtight instead of permanently plugging the gap with the rubber bag. In thirty-five cases so treated there had been two deaths. It seemed to him that these results compared favorably with any result in any other army by any other means of treatment.

Later Stages of Gunshot Wounds of the Lungs.

—Major G. GRAY TURNER, of Newcastle-on-Tyne, said that in the early stages of the war it had not been the custom to carry out any active surgical intervention, and the practice of the surgeons at the front reflected on the practice of those in the stations behind the battle line. As a consequence, quite a number of cases suffering from penetrating wounds of the chest and with retained foreign bodies came to the base hospitals. About the middle of 1915 it was determined to see if the men could not be relieved by active surgical methods. It was found that many were suffering from incompletely absorbed hemothorax, some from neurasthenic symptoms, some from injury to the underlying lung. In a limited number of cases the foreign body in the lung gave rise to cough, hemoptysis, and symptoms suggestive of suppurative processes. They found, upon operation, bandlike adhesions in the track of the bullet, the site of persistent infection, due possibly to the movement of the lung. The best results in gunshot wounds were obtained in those cases in which there had been a through and through wound. These men made good recovery up to a certain point but broke down under the stress of military training. Upon opening the chest, in some of these cases, it was found that the blood was an organized clot. The lung was perfectly smooth, as though encased in a sac. By splitting up the fibrous coating the lung was enabled to distend. A similar condition in the diaphragm was dealt with in the same way. The worst feature found upon opening the chest was that of adhesion of the base of the lung to the diaphragm. Major Turner was inclined to think that a certain amount of the disability here found was due to the hemorrhage and want of expansion of the lung. The lung became retracted, and this position was not overcome by the respiratory exercises. Recovery depended upon the amount of damage done to the lung tissue at the time when the operation was undertaken. Sufficient time had not elapsed to say what the ultimate history of these cases would be. It was not enough to say that the patient could be returned to duty. His condition months or years hence must be known before we might speak with certainty. This was a branch of war surgery not yet sufficiently practised but for which the time for development was ripe. The nearer the first line of surgical defense could be brought to the battle front the better would be the results. The success of thoracic surgery in this war had been a splendid demonstration of the fact that the general principles of surgery were true wherever applied.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Orthopedic Treatment of Gunshot Injuries. By LEO MAYER, A. M., M. D., Instructor in Orthopedic Surgery, New York Postgraduate Medical School and Hospital. With an Introduction by COLONEL E. G. BRACKETT, M. C. N. A., Director of Military Orthopedic Surgery. Illustrated. Philadelphia and London: W. B. Saunders Company, 1918. Pp. 250. (Price, \$2.50.)

The writer intends this small volume not as a treatise on orthopedic surgery, but to emphasize certain principles and rules of guidance in the treatment of war injuries. The volume is divided into two main groups; treatment of war injuries in the field where the essential orthopedic problem is the proper fixation, and in the base hospital where motion is restored. The section on fractures and injuries to joints is unusually practical and is thoroughly illustrated. Practical and simple appliances are carefully described for the various injuries to bones and joints. The chapter on artificial limbs is timely and practical. In every respect the book is commendably written and arranged. It forms a valuable supplement to the works on orthopedics written before the war.

Gymnastic Treatment for Joint and Muscle Disabilities. By Brevet COLONEL H. E. DEANE, R. A. M. C., in charge of the War Hospital at Croydon. With Preface by Temporary COLONEL A. CARLESS, Army Medical Service, Consulting Surgeon, Eastern Command, and by Brevet LIEUTENANT COLONEL F. W. MOTT, F. R. S., R. A. M. C. (T.), Maudsley Hospital, Denmark Hill. Illustrated. London: Henry Frowde (Oxford University Press) and Hodder & Stoughton, 1918. Pp. 142.

This small volume, one of the Oxford Medical Publications, is an interesting report intrinsically and contains much valuable material especially apropos today with transports of our own brave wounded arriving daily. It emphasizes the great usefulness and importance of gymnastic treatment of joint and muscle disability as its author observed and practised it chiefly among the war wounded at the War Hospital at Croydon. As many observers have already reported, a very important factor in the treatment of this class of patient is the psychic element. The patient must "will to do," and, in many cases, must establish kinesthetic and voluntary motor associations. Colonel Deane believes, and his belief is justified by experience, that massage and other passive means do not require the attention and mental concentration so valuable in these conditions that voluntary movement on apparatus and simple appliances necessitates, and, further, that competition and emulation stimulated by group effort is a very considerable factor in restoration of function. Colonel Deane's account of his intimate first hand experience in this field is convincing of the value of this procedure. After a short introductory exposition upon sound and practical principles, he goes directly into the consideration of each of the apparatus which he has used so successfully, and includes case reports and photographs of patients using the appliances in question. The book is short,

but every page and illustration presents a striking confirmation of the great importance of judicious and intelligent application of this treatment. He introduces some ingenious special free exercises for use in selected cases.

War Surgery of the Abdomen. By CUTHBERT WALLACE, C. M. G., F. R. C. S. (Eng.), M. B., B. S. (Lond.), Surgeon, St. Thomas's Hospital; Lecturer on Surgery in the Medical School; Consulting Surgeon, British Armies in France. Illustrated. Philadelphia: P. Blakiston's Son & Co., 1918. Pp. viii-150. (Price, \$3.)

This book contains experiences in abdominal surgery of a sector of the battleline over a period of thirty months, and is founded on the practice of many surgeons working under different conditions and in different hospitals. The writer reviews most interesting and valuable statistics regarding abdominal wounds, comparing frequency of wounds in the different viscera. The clinical observations as to where to operate, when to operate, the diagnosis and treatment, are most valuable. The small volume is replete with valuable observations and thoroughly illustrated with pathological specimens. The chapter relating to the causes of failure is unusually pithy and gives evidence of considerable thought. This is one of the best small volumes that has appeared on this subject since the war.

Publicacions de L'Institut de Ciències, Treballs de La Societat de Biologia. Any Cinque, 1917.

Though even those reading Spanish easily will find some embarrassment in following the Catalan dialect in which some of the papers printed in these transactions of the Biological Society of Barcelona are written, many of them will well repay the trouble of the biologist who has Spanish and French at his disposal. They are all well written, whether in Spanish, French, or Catalan; well printed and magnificently illustrated despite the troubles of war times as to paper and binding. The attention of the reviewer is especially attracted by several valuable articles on histological technique. Signor A. Gallego, writing from the *Laboratorio de Histologia y Anatomia Patologica de Veterinario de Santiago*, has reported some new methods of staining elastic fibres in tissues and in sputum. Whoever has worked with the older stain of Weigert or the modifications by Hart, Münter and Brägelmann remembers well the exasperating and exacting nature of the work and the unsatisfactory results even when supplemented by the use of the later admirable connective tissue stains of Mallory. These stains of Gallego, whose formulæ must be consulted in the original, have to do with acetic fuchsin fixed by acetic formol or acetoalumnine or ferric formol, or, best of all, by nitric formol, counterstained by eosin, picric acid, light green, aurantia, or other reagents, especially the Van Gieson formula.

If we are to judge the results from the pictures presented in the striking multicolored plates which accompany the paper they are a vast improvement on the results obtainable by the older technique of ten to twenty years ago. It is a very creditable performance even coming from a countryman of Cajal. Dargallo also describes a similar technique for the staining of elastic fibres in the sputum, by means of the Ziehl solution, ferric perchloride and muriatic acid. Other articles on histology deal with

the minute anatomy of the heart of mammals, including man, but especially concerned with the delicate fibres of the connective tissue of the heart of the snail by Galliano working with the method of Cajal in the *Laboratorio de Histologia de la Facultad de Barcelona*. The work of Guilerà in the *laboratorios de Ginecologia i Obstetrica de la Facultat de Medicina de Barcelona* is also published in Catalan. They are *Notes sobre Tecnica Histologica*, observations on the technic of the examinations of tissues for the fats and lipoids. He worked with human ovaries, and though he refers to the methods of Ciaccio and Schmorl, he appears to have used chiefly modifications and a technic of his own; but if we are to judge from the colored plates he has not entirely escaped the difficulty of preventing the "running" of the droplets, though the tinctorial reaction, at least for the fat, seems to have been successful.

Nubiola has a short note and photographic illustrations on the evolution of the Gräafian follicles, as has also P. Domingo; but these interesting and important works on histology and histological technic, though forming a large part of the volume by no means exclusively occupy it. It contains also articles on the biochemistry of uremia and accounts of experiments on the innervation of the kidney, on the arterial tension by irritation of the fourth ventricle, on observations on the internal secretions, on serological reactions, and physiological experiments, on the biology of the bacillus anthracis and the operative phenomena of the hypophysis.

Births, Marriages, and Deaths.

Died.

ANDERSEN.—In Red Wing, Minn., on Saturday, December 28, Dr. Clarence W. Andersen, of the Mayo Clinic at Rochester, aged thirty-two years.

BUCKLAND.—In Fleming, N. Y., on Tuesday, December 24th, Dr. Benjamin I. C. Buckland, aged sixty-one years.

DEARING.—In Braintree, Mass., on Monday, December 30th, Dr. Henry Lincoln Dearing, aged fifty-six years.

ELLIOTT.—In Placerville, Cal., on Sunday, December 22d, Dr. Stephen A. Elliott, aged eighty-two years.

HAND.—In France, on Sunday, November 24th, Dr. Jesse B. Hand, Lieutenant, Medical Corps, U. S. Army, of New York, aged thirty-two years.

HERLIHY.—In San Diego, Cal., on Saturday, December 21st, Dr. John S. Herlihy, aged thirty-five years.

JACKSON.—In Boston, Mass., on Friday, December 27th, Dr. James Marsh Jackson, aged fifty-five years.

JONES.—In North Stratford, N. H., on Sunday, December 29th, Dr. Edwin E. Jones, of Colebrook, N. H., aged forty-eight years.

MACOMBER.—At Mineola, L. I., on Friday, December 20th, Dr. Clarence Alden Macomber, Lieutenant, Medical Corps, U. S. Army, of Pittsfield, Me., aged thirty-three years.

PHELAN.—In Brooklyn N. Y., on Thursday, January 2d, Dr. Jeremiah Phelan, aged sixty years.

RAYMOND.—In Brooklyn, N. Y., on Tuesday, December 31st, Dr. Rossiter Worthington Raymond, aged seventy-eight years.

REED.—In France, on Thursday, October 3d, Dr. Stephen J. H. Reed, Captain, Medical Corps, U. S. Army, of Fultonville, N. Y., aged thirty-eight years.

TANNER.—In San Diego, Cal., on Saturday, December 28th, Dr. Henry S. Tanner, aged ninety-one years.

THOMPSON.—In Norwich, N. Y., on Saturday, December 1st, Dr. Rufus Allen Thompson, aged sixty-six years.

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Original Communications

MOUTH INFECTION.*

The Responsibilities of the Dental and Medical Professions.

BY OLIVER T. OSBORNE, M. A., M. D.,

New Haven, Conn.,

Professor of Therapeutics, Yale University School of Medicine.

It has been proven that mouth infection can cause rheumatism, neuritis, endocarditis, of the most fatal type, boils, carbuncles, various skin diseases, and thyroid gland disturbances. Mouth infection is thought at times to be a direct or indirect cause of ulcer of the stomach, ulcer of the duodenum, appendicitis, pyelitis, acute infection of a kidney, chronic nephritis, chronic endarteritis, and of some mental disturbances. It is logical to presume that if such an infection can cause thyroid disturbance, it could disturb other glands furnishing internal secretions, especially the suprarenals, the pancreas, and the pituitary; and also the bloodforming organs. It seems quite probable that it may cause pernicious anemia, leukemia, and other blood diseases. Therefore, should not every physician and every dentist consider mouth infection serious, and is he not bound to use every means at his power to first prevent, and, if the infection is present, to eradicate it?

Whoever discovers the infection first, the physician or the dentist, the discoverer is bound, by all laws of honesty and humanity, to see that the patient is properly treated. An infection apparently harmless today may cause serious infection of other parts of the body tomorrow.

What possible excuse for such dire neglect can we have for a physician who does not look into the mouth of a patient, or for a dentist who repairs or treats a tooth and does not note or warn the patient of other infected parts of the teeth or gums?

Whether or not mouth infection found by the physician can be immediately eradicated must, of course, depend on the patient's condition. If the illness is thought to be due to such infection, naturally, the only cure is eradication of the source of trouble. If the illness is thought not to be caused

by the local infection nevertheless, on account of the menace to health, the infection should be eradicated as soon as possible; and the physician's duty does not cease until the elimination of such source of infection has been accomplished, or at least the patient has been strenuously warned of his danger.

Whether the infection was first discovered by the patient's physician or by the patient's dentist, the dentist, accepting the care and responsibility for the patient's mouth, must rapidly eradicate at the earliest possible appointment all points or sources of infection. It is little less than criminal negligence to remove one source today, more in one or two weeks, and the final sources in one or two months. If the whole work cannot be done at one sitting, on account of the patient's condition or strength, not on the dentist's account for any reason whatsoever, another very early sitting must be given. The patient may not know, but the dentist should know and does know that the result may be life or the early death of the patient from the prolongation of this mouth infection.

Dental appointments should be entirely revised. A dab at this patient and a dab at that, and so on all day, is bad business for the patients. After the first observation to decide the amount of work required, the dentist should give that patient as early an appointment as possible, and for a period long enough to finish all of the urgent work—and any and all infection is urgent.

After the decision has been made as to what parts of the mouth are infected, the dentist should no longer procrastinate, or commiserate with the patient as to the loss of teeth (if teeth must be removed for an infection) on account of the future difficulty in causing efficient dental repair, than should a surgeon delay a necessary operation to save life even if the body is mutilated. Also, a dentist should refuse to be a party with the patient to the dangerous harboring of infection, simply because the patient wishes to take a chance. The dentist should either decline to treat a patient who does not take his advice much as a physician often declines to treat such obstinate patients; or he should warn the family of the stubbornness of the patient. The dentist may lose a few clients, but he is quickly the gainer by disseminating a name for honesty; and he has that fine inner feeling of having done his duty.

The dentist should urge dental consultations, so

*Read at the meeting of the New Haven Medical Association, held at New Haven, December 18, 1918.

This paper, on December 12, 1918, was refused by the National Dental Association Journal by the following letter:

"We are returning enclosed your paper, as it will not pass our Board of Censors.

"Fraternally yours,

OTTO U. KING, Secretary."

as to share responsibility and to do his best for the patient. A dentist is no more infallible than is a physician, and the latter often seeks counsel.

It should not be necessary to state that, infection having been removed, repair work that tends to reinfection should not be placed in that patient's mouth. His mouth is more susceptible to recurrent infection than is a mouth that has never been infected. Both the physician and the dentist should tell the patient very emphatically that eradication of the mouth infection will not immediately cure the distal trouble, even if that trouble was caused by the infection; and it may never cure a distal lesion. Damage done to any part of the body by infection or the products of infection may be irreparable. Also the evidence of trouble at some distant part may be due to the effect of the infection on some gland or organ of the body, and therefore the infection is only the indirect cause. No honest dentist should declare to a patient, "Your doctor was wrong; I knew extraction of teeth would not cure you."

The platform on which every physician and dentist must stand is that, no matter what the disease may be, and no matter what the cause of the disease, and no matter how negligible the part that infected teeth and gums play in the disease or disturbed condition, it is dangerous and a menace to the patient and to his family to allow him to be a carrier of germs of infection, and these germs are frequently the *Streptococcus viridans*, pneumococci, pus germs, and that not well understood Connellan-King diplococcus. Hence, it is the physician's duty to order the surgical removal of mouth infection, and it is the dentist's duty to make an infected mouth clean. The diagnosis of the general disturbance and the cause of the general disturbance has absolutely nothing to do with the case. If such infection is discovered by a physician or a dentist before the impairment of health has occurred, the duty of both is even plainer and is just as positive. Prevention is better than cure, and should be the aim of both professions.

Recently, Duke (1), after a study of the relation of one infection to another, came to the following conclusions: "1. When a person has several infections, each may increase the severity of the others whether due to the same or different infecting microorganisms. 2. Acute exacerbation of one chronic infection may stir up other apparently latent infections into activity. 3. The removal of one infection may, under favorable conditions, be followed by spontaneous healing or improvement in others. 4. If minor infections are properly taken care of, those that appear serious may yield more easily to treatment."

Infection in the mouth can be determined by observation, by probing, by x ray films, and by the laboratory study of smears and cultures. If the infection is obvious, that settles it; there can be no discussion. But when there is artificial work in the mouth and it has been there for more than a few months, it is always under suspicion. In other words, it is guilty until proved innocent. If there is pain, tenderness, or a history of long dental treatment before crowns or bridges were placed, the suspicion of trouble is accentuated. In cases where

the x ray films or plates show pus sacs, or bone disease, softening or granuloma, the teeth at fault must be extracted. They can very, very rarely be safely drained through their canals or treated through the gums. When the canals of devitalized teeth are not well filled, the pulp sooner or later is likely to become putrescent. An x ray picture of a tooth cannot show infected pulp; hence a negative picture may not show the presence of a tooth infection. Where a tooth, innocent as to x ray demonstration of infection, is tender, or its gum sore, or there is pain in the face, eye, ear, neck, shoulder regions, or back, that tooth should be investigated and probably should be removed.

It is hardly necessary to state that x ray pictures must be taken by an expert and read by an expert, and final decision of operative work in a patient's mouth should be decided upon by consultation of his dentist and physician. Or, if the individual is not ill and is not under a physician's care, if his dentist is in the least doubt as to what the procedure should be, he should have consultation with another dentist whose opinion he trusts. The extraction of teeth is no joke for the patient, and unless the indication is positive, he should be allowed to retain them; but there must be no dabbling with infection, and a decision to preserve a tooth or teeth must not be arrived at by the rule of whether or not reconstruction can be well done. We are now suffering from the wonderful preservative work of modern dentistry; but we have passed the age when indiscriminate killing of sound teeth for crowns and bridge work is excusable. I leave it for the dental profession to decide the relative danger of devitalizing teeth and properly filling the canals, or of leaving the teeth alive for crowns and bridge work. Some members of the dental profession frankly state that to devitalize a tooth, except in rare instances, is a crime, and others state that the abutment teeth of bridges can last only a few years at most, on account of the strain which they must endure.

Pivoted teeth, crowns to the gums, and bridges to the gums are a menace to health; infection sooner or later almost always occurring at these regions of the gums. Therefore, the dentist must refuse to put such artificial work into even healthy mouths, on account of the future of the individual so adorned. Such work may be beautiful today, but pitiful in a few years. We must also recognize that overfilled teeth often die from some trophic disturbance due to the metal, and they may become a menace. Hence the necessity of the determination that such teeth are alive, or, if dead, of whether or not they are infected. Finally, the dental profession has problems today that it never expected to have. These problems are not only those of aseptic reconstruction, but they are vital problems, life and death problems. In other words, the dental decision may mean a long life or an early grave for the individual. The dental profession has been exalted to the highest rank in preventive medicine, and it is for each member of that profession to decide whether or not he will live up to the standard set.

REFERENCE.

1. *Journal A. M. A.*, November 23, 1918, p. 1793.

INFLUENZA.

BY ADAM H. WRIGHT, B. A., M. D.,
Toronto.

Chairman Provincial Board of Health, Ontario, Canada.

Mortality rates in the influenza epidemic of 1918 have been excessive, and we must all sympathize with the efforts now being put forth to materially reduce these rates in the future. We have observed that our able bodied soldiers have suffered greatly while in many of our schools for boys and girls, the pupils have encountered the disease and escaped with a very low mortality rate. After observing and studying various epidemics in the past, especially of 1889-90, and of the present year, I am of the definite and decided opinion that the death rate in the future should be greatly diminished. But how can we accomplish this when we consider the extreme toxemia with the serious heart and lung complications which confront us? The answer appears to me to be quite simple; by preventing these complications, or by treating them before they become serious. Fortunately, the public at present appreciate the vast importance of prevention more than they did in the past.

Let us consider briefly two well known complications—those of the heart and lungs. I shall refer especially to the report of a certain advisory British committee which worked in France (1). One report of thirty necropsis showed there was a constant occurrence of dilatation of the heart, with nearly as constant myocardial changes, showing, in the majority of cases, myocarditis, demonstrable to the naked eye; also some form of pneumonia, the predominating lesion being bronchopneumonia. It is to be feared that some of our pathologists have not paid sufficient attention to the heart lesions.

From a clinical point of view one often wonders why, in many cases, the patients die more rapidly than one would expect from the symptoms and physical signs. Many observers believe it is correct to say in such cases that the extreme toxemia has caused death. This happens frequently because of its effect on the heart. I do not know the nature of this toxemia, but I feel certain it acts quite differently from other forms of toxemia, such, for example, as we find in virulent streptococcic septicemia. Rest in bed for this condition has little or no effect on that form which kills in less than forty-eight hours after infection, while rest in bed, if commenced sufficiently early, prevents such disastrous results in influenza toxemia. I mean rest in bed commencing on the first day, not the third day of the disease.

In a certain boys' school, in which I am interested, no preventive vaccines were used. The boys were put to bed when the first symptoms appeared, whether they were sneezing, coughing or had pains or aches of anykind. Over eighty were attacked and all recovered. It was quite difficult to keep many of the boys in bed for days when they "felt quite well," and thought they ought to be out playing football. I have had good results in private practice, but I have always found it exceedingly difficult to induce patients to go to bed sufficiently early, and remain at rest long enough after partial

recovery. By explaining the situation, however, and especially relating the effects of the poison on their hearts with the danger of death from "heart failure," I have generally accomplished what I wished.

From such simple facts, it would appear that we should instruct the public regarding the terrible dangers of delay. In military circles both officers and men are inclined to "carry on" too long after "catching a common cold" as it is termed. Malingering is not popular, and the majority dislike to be suspected of such weakness; but let us adopt one rule for both soldiers and civilians. Neglect during the early days is extremely hazardous. Let each person, in the case of soldiers, school boys and girls, who are under discipline, be placed at the first signs of the disease under the care of a physician, be he an army or a school doctor. Let mothers call in their doctor when the first symptoms appear instead of wasting a precious day or two in treating their "little colds" with castor oil and flaxseed tea. Let the child who sneezes or coughs in our public schools be sent home at once with instructions not to return without a doctor's certificate announcing complete recovery. Let civilians also call in a doctor for the most trifling ailments, including a "bilious," "common," or any other kind of cold. Let the physician consider each case carefully, and treat it effectively, watching all the complications which may arise. These complications are many, and I have no desire to minimize the serious dangers which arise. I firmly believe that by carrying out these simple rules, we can reduce the mortality rate to less than one per cent. The rules, of course, are not new; but they are neglected, to a large extent, in that portion of North America which I happen to know anything about.

Since the above was written I have made some inquiries and find from the records of four general practitioners, including myself, and those of three boarding schools, that in about 1,500 cases, the deaths were five, or four, which means the mortality rate of one third of one per cent., or less. I have also read the *Influenza Bulletin* of the American Public Health Association with considerable interest. It is a valuable document, containing much useful information. I think, however, that something shorter, simpler, and more practical was expected.

REFERENCE.

1. *British Medical Journal*, November 9, 1918.

Labial Saccharomycosis.—Ramon E. Ribeyro (*Annales de la Facultad de Medicina de Lima*, September-October, 1918) describes a case of infection of the lower lip in a young woman of twenty-two which had persisted for six months in spite of energetic treatment. Microscopic examination showed a typical yeast or saccharomyces infection, which was further proved by cultural and fermentation tests. Bicarbonate of soda in five per cent solution applied continuously externally and given internally in doses of ten grams per day produced a rapid cure.

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BY SMITH ÉLY JELLIFFE, M.D., Ph.D.,
New York,

AND LOUISE BRINK, A. B.,
New York.

There are two things which mark the complete success of man; his capacity for adapting himself to the demands of external life and that for living out satisfactorily his own inner self. In these is to be found the measure of health within himself, individually, and without himself, that is in his full moral relationship to society.

Whether he is aware of this or not, he is continually expressing his ability or disability to live out healthily his own personal relationships, such as those of love and friendship, and in expressing himself in the social ways of activity, which are equally, but more broadly, creative. These are the advance posts which he must reach as he attains the high tide of success and health, or they only mark the degree of his failure and sickness. He naturally presses these boundaries forward with his growth and prepares for himself in this way a fuller exercise of his powers, thus providing for the increasing demands which alone can express his enlarging capacities and his ever increasing need for this self-expansion and self-expression. This must be so in his more personal relationships, and then as his individual relationships stimulate him toward a more complete socialized creative life, in which his individual capacities find this wider exercise.

More briefly stated, each individual in order to be satisfied and well must be adult, that is full grown up to each fresh point of departure into experience and continually passing on through full use of the capacities he has into wider ones. Anything less than this is temptation to idleness and ease. It is failure to gather all the force to each point of development and use it there and it results only in deterioration and continuous loss rather than gain and satisfaction. Yet at the same time such is the pleasure reward which acts as a premium upon every effort toward attainment, and upon every forward step in progress and use, that each one of these pleasures forms too easily a satisfaction in itself and the individual is tempted to remain at any stage in the path of progress, sexual or social. Then the phantasied enjoyment easily weaves its spell around him and reality recedes and fails in its stimulating attractiveness, while the unreal, the phantasy surrounded, partial attainment appears sufficient in itself and for the time altogether entrancing. Because it is unreal, therefore not enduring, it must frequently show its unreliability and finally end in bitter dissatisfaction. But phantasy in defense multiplies itself and also resorts more and more hectically to artificial means to stimulate itself and cover over more and more thickly and completely its empty nothingness. It has itself magnified the difficulties of reality by distorting them through a wrongful interpretation of itself no less than of the reality it opposes and so it makes the way out of dangerous phantasy continually harder, and the way deeper into its meshes con-

tinually easier. It luxuriously paves the broad road to destruction.

It is not, however, a wilful and depraved determination which starts one upon this road. Weakness and failure are not so abruptly nor so simply conditioned. Rather such a course discovered as it is by the world, even by the physician, only when already far along, has its determinants more or less all along the way where phantasy has succeeded in wresting the attention from reality and building up its own power instead. It is a lifelong story beginning regularly in childhood, when the way of progress and complete mental health has not been found, but instead these deviations from that road have been discovered and one by one their attractions have been allowed subtly to multiply and fasten themselves upon the victim.

It must still be remembered that these bypaths are not however through foreign country into which some exceptionally unfortunate persons wander. They are those in which all linger for a time in the process of growth, but some also soon pass beyond in development toward the full and healthy adult life. It is here in such natural territory that phantasy does its work, distorting the prospective look and preventing the free stepping forth on the forward path.

Phantasy magnifies beyond bounds the pleasure which nature and use have set along the path of growth at every step. It is a pleasure that has its distinctive value which we experience as we pass on, learning with each step its true value through this premium of the affective life. It is the same into which for periods of temporary refreshment and reinspiration we may withdraw from time to time. Thus it is rightfully and safely used. But it is also wrongfully used, and this abuse of it works the wreckage which it is the physician's task to stem and save. Since to do this requires understanding of this working of phantasy, we especially welcome the privilege of withdrawing objectively into it at times to watch its full play and follow something of its power and of the intricacy of its mechanisms.

Here again arises the debt of gratitude to the theatre and its artists who can so present its phases in varying forms to our study and by the esthetic appeal present the underlying psychical truths to our attention.

"Redemption," the dramatization of Tolstoi's story, has its own peculiar fitness for drawing the veil gently from this darker side of the losing inner conflict. It leads the spectators on from a merely legitimate return to the inner life of phantasy to its abuse and exaggeration of influence upon the individual. It enables them to enter at first sympathetically into the fairer glow of the phantasy which forms too effectual a bar to the hero's return to the world of real deeds and achievement, and holds him there until the roseate mirage has proved itself sordid, unsatisfying, deathly. Meanwhile by a keen penetration it has laid bare some of the falsifying mechanism of the phantasy and revealed the deeper causes of the failure and psychic sickness and degradation.

After the first scene, in which the hero's defection

from the paths of rectitude has been briefly stated for the audience, the real play opens upon this phantasy world. Even before this second rise of the curtain the simple beauty and charm of phantasy makes its appeal. This is first to the sense of hearing, that sense through which, as Wagner has said, the artist goes deepest and most truly into the inner nature of things. The simple strains of the orchestra with the subdued voices of the singers upon the stage prepare us for the added fascination of the low gypsy room with its strange dark figures, their wild spontaneous yet suppressed breaking forth into song or dance or whatever is suited to please the mood of the hour. The red glow of the fire upon the picturesque figures with the occasional brightness of garment or ornament upon the women fill in the enchantment of the picture. The central figure of the play reclines in the more mellowed glow of the spot light under the full spell of pleasure and indolent enjoyment of all this sensuous and phantastic setting. It is he in whom is to be witnessed the effect upon a human soul of such a complete weaving and thralldom of the spell of unreality as he descends into its power more completely.

The music grows more abandoned but plaintively appealing as it takes possession of the entire scene which seems to have attracted and lured him from his home. It is not however strictly that. It is not the spell of this gypsy room sunken below the street, the cold blue light from which shines against the window panes at the top of the room. It is not the warm sensuous brightness, which contrasts even more humanly with the outside coldness, in the warmer radiance of the fond creature hovering passionately near him, her bright colors and cheap flashing ornament more in evidence in the brighter light where Fedya, the sunken man lies drinking and smoking and dreaming. It is here that his friend, the devoted messenger from his wife, seeks him and implores him for her sake to return to her and the realities of life. The appeal is vain. It is met only by mocking indifference with a certain insolent disdain which is partly bravado, partly drunken helplessness to break the chains of fascination which hold him in this other, this unreal world.

For this is what he, this drunkard, has chosen. Rather this is what it is to be a drunkard. For some reason he has drifted from the path which would have proved him a man with a man's power to win and enjoy life in all the fullness with which earlier opportunities presented themselves to him. For some strange and hidden reason he has been caught in this outer fringe of pleasure which looks so fair if not gazed upon too long or too closely, but which even here ends only in the luxury of dream and selfish phantasy with no access to anything lasting and substantial.

This is the drunkard's paradise, the refuge which alcohol gives from something in reality which fails for some reason to maintain its better and higher claims upon him. He has chosen the route of alcohol, not because of its taste, not by the craving for the thing in itself, the basis on which the world has blindly sought to explain and counteract its influence, but as a means of easy entry into the world of phantasy, and has allowed it to release the

higher conscious control of reason and grant admittance to the easier retrogressive paths. Fedya later explains this to the wise and thoughtful prince, who alone holds out a hand of understanding sympathy, of comprehension of the fact that to the drunkard's life there is an inner history of conflict, who perceives that there is a reason for his conduct and the state into which he has fallen which deserves attention and consideration as an actual psychical fact. "I've led this sort of life for ten years and you're the first real person to show me sympathy. . . . Ah, yes, my ruin. Well, first drink, not because it tasted well, but because everything I did disappointed me so, made me so ashamed of myself. I feel ashamed now, while I talk to you. Whenever I drank, shame was drowned in the first glass, and sadness. Then music, not opera or Beethoven, but gypsy music; the passion of it poured energy into me, while those dark bewitching eyes looked into the bottom of my soul. And the more alluring it all was, the more shame I felt afterwards."

So far however this is still looking upon the more external revelation of his conflict. This is no deeper than a superficial realization of its existence as a psychic struggle. Its inner meaning and the elements which have first initiated it and have given it its peculiar trend, the dark things beneath it, from which temporary refuge is found in these particular paths of self-indulgence, are yet matters of deeper study. At first the authors and the actors allow to play upon their audience the same spell of attraction which proves the phantasy world a delight to all, and not at first an unnatural evil in itself. Then by artistic gradations those who witness the drama are introduced into the exaggeration of its hold upon the human psyche, its wrongful use to pull away from the paths of salvation in reality to the ultimate ruin, which is its regressive goal.

It is indeed soon to be seen even through the first glamour of the play that already there is at work an unreality substituting itself for ability wholesomely to receive and enjoy. There is something thus unnatural and incomplete even in the response which Fedya makes or fails to make to the advances of the gypsy girl, who as time goes on reveals herself sincere and genuine in her devotion to him. He is unable to return her love in kind. Here once more it is not the moral aversion he admits to sullying the purity of this girl's love for him which makes him so half responsive to her love. This is no doubt a factor in his behavior to her, particularly later, as he explains in the last scene when he is describing their happy hours together after she has saved him from the suicide he had planned.

At that time, as the play proceeds, he had planned to take his life in order to release his wife, so that she might be free to marry a man more worthy of her, the same friend who appeared in the gypsy resort to lead him home. He had chosen this course rather than that of a divorce because of the sordid and filthy lying details of the ordinary legal course of procedure. There was too much good, too much real nobility of character striving against weakness to permit that. Yet characteristically too

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his courage had failed him. Then when he was in despair the gypsy girl had appeared and in the strength of her love and power to control affairs she had proposed a feigned death that he might free his wife and friend from the barrier of their moral scruples, leaving them to their happiness as he would be free too to follow his own course. This he rehearses in the last act, when, some years later and many stages lower in his degradation, he relates his strange life to a sympathetic companion at a drinking den in the city slums.

Even then he admits that not alone was it a moral ideality and unselfishness that had kept him from debasing the gypsy girl sexually, this girl who had so pleaded for his love and thrown herself upon him. He had in fact revived his original sense of honor and highmindedness, that higher standard of character which is so at variance with the weaknesses and selfish tendencies which are revealed in the search into unconscious motives and causes for sickness and failure. It is this double character that is in one sense the cause of any neurotic compromise. The strife between the two attitudes and trends causes the conflict and suffering which are felt as illness and mental distress and weakness with its attendant shame. On the one hand it reveals that the better nature will not fall easily into the paths of sheer selfindulgence and base gratification, on the other that the better nature has not obtained sufficient control of the unconscious with its buried impulses to direct them to ways of health and strength. Such evidences of conflict, of the presence and force of two sets of desire and tendency, are evident all along the way in the character of Fedya. It is this which excites interest and sympathy. Through this there is here such a true representation of the average human life that the spectator is compelled to a fellow feeling, whether he acknowledges it or not. The special pathological form therefore in which it appears in the character of Fedya is only an exaggeration of such a struggle in degrees which make it pathological and which also drive the sufferer to the aid of alcohol to make the conflict easier, to efface it for the time by inhibiting the higher control which sets one side of the struggle.

Fedya knows something of these two sides of his nature. His friends are not unacquainted with the higher cultural side with its ideals and semblances of restraint. They have seen it in the better days and when he first slipped along his regressive path. The other side, in which lie the reasons for weakness and failure, they do not know, but he himself feels them and can in part lay them bare. We hear this as he tells the story first of his treatment of the gypsy girl. "I felt it wasn't right to go on taking, taking where I couldn't give. I told her we'd have to say goodbye. My heart was so wrung all the time that I could hardly help crying."

"The single good act of my soul was not ruining that girl. Was it from pity? "I sorry for her? Oh, never. And I've been attracted often, you know. Once I was in love with a grande dame, bestially in love, doglike. Well, she gave me a rendezvous, and I didn't, couldn't keep it, because suddenly I thought of her husband and it made me

feel sick. And you know, it's queer, that now when I look back, instead of being glad that I was decent I am as sorry as if I had sinned. But with Masha (the gypsy girl) it's so different; I'm filled up with joy that I've never soiled the brightness of my feeling for her."

Something plays beneath the surface of these revelations. There are elements underlying these experiences which suggest a deeper flood of unrest, of strange doubts and phantasies and fears, which must belong only to the inner life of the man himself rather than to any outward circumstance, which prevent normal definite reactions either in such situations or in the way of escape from them. The adult form of reaction is direct, decisive either directly toward a certain goal or determinately away from it, while the infantile, uncertain form is wavering, vacillating, inefficient and inadequate toward the event and uncertain in its attempt to flee from it. Such very plainly is the nature of the baser affair, such was the inability either to give or to respond to the fulness of the gypsy's love for him or to find in it more than a dream of autoerotic phantasy satisfaction. Only there was the saving strength to make one final effort of separation even from this, and then the plunge into deeper autoerotic drinking.

But already in the early scene in the gypsy resort and in the reminiscence of it a little later in Fedya's own poor room, there is the ecstasy of the unreal dream, made up of music, mysterious semidarkness and wine, the appeal of a simple almost primitive sensuousness but which, like Masha herself, "unlocks the gates of heaven," that is the gates of the region of sheer selfindulgent phantasy. To watch his indolent, unresponsive attitude as he lies in the gypsy room steeped in alcohol, drunk even with the excess of phantasy, is to realize the depth of sheer autoerotic ecstasy of dreaming into which the alcohol permits him to enter. It is a complete substitution of the unreality of phantasy for the tortures which arise from the reality toward which he is able to offer only an unsatisfying inadequacy and inefficiency. It is doubtless something of the nobleness which he still retains which leads him to refuse to return to his wife at the request of the messenger she sends. It is furthermore, as can be judged by the weakness later displayed, the inherent inability to arise and master reality by seizing it as it offers itself.

But why this weakness which besets him at every hand and which has first driven him upon the path of dangerous selfindulgence? Why are such things so in the psychic world? If the choice of a course of action lay only in outside circumstances most of us would have reason enough to choose at one turn and another the useful and safe and prosperous way of action. We are, however, governed by stronger impulses, the force of which and even the existence of which is hidden from conscious recognition. Only, as Bergson says, through a few messengers from the unconscious, which succeed in smuggling themselves through the half open door, do we have any inkling of the past of desire and the feeling associated with it which we are dragging behind us at all times. To some these recollections and the af-

fects attached to them are scarcely perceptible or troublesome. They form some of the slight distractions, peculiarities, negligible superstitions, half admitted fears, unguarded slips of the tongue, any one of the trivial factors which barely disturb the even tenor of the conscious course of action. With many others these smugglers are of greater power to disturb. They indicate less serenity and satisfaction in the unconscious sphere and they appear perhaps in horrid form or they serve to drive the individual to some such artificial and harmful relief as that which Fedya sought.

Fedya too confesses to certain of these unbidden messengers, and they point to some nucleus in his past life, probably as in most individuals belonging first to the remote period of childish desire. For here at that early time desire rules supreme, there is not yet the later correction through both reason and experience with an external world. The child's desires are intense and selfish and can in themselves at first brook no interference. Yet the interference of reality with phantasy cannot be avoided and certain children, less easily able in their natures to adjust to such outside influence, repress into the unconscious these desires in all their intensity. These desires by their very overstrong repression tend to lose contact with reality and thus to develop into an exaggeration of phantasy, both the unreal substitute pleasures which phantasy, even in the unconscious, may offer, and the opposite feelings of revenge, anger, and jealousy. Then only later when life offers perhaps some special difficulty and even adult interest recedes from the real world to join such phantasies, do they attain strength enough to appear in some covert or disguised form to disturb the external life. Or it may be that a conscious adult joy can be after all only looked upon by the individual through the eyes of such infantile phantasy, selfcentred unsocialized pleasures and angry injured feelings, and the conscious adult joy which presents itself turns to dust and ashes. The child situation is brought up against the adult circumstances and fails to fit; instead the whole adult situation is distorted and spoiled.

Something of this sort seems to have been the case with Fedya. At least he admits that his life has failed in the face of all that was fair and prosperous in outlook. Before he began to drink "everything I did," he says, "disappointed me so, made me so ashamed of myself." He had education, financial position, a charming and loving wife, but peace he had not. Something within himself beyond outward circumstances disturbed all this. It had come, as we hear in that confession of his later life in the drinking slum, to poison all the love and happiness of his married life. The other relation, the bestial relation with the grande dame, seems to have been interfered with not so much by a moral scruple but by the same sort of feeling applied in a different direction. It was the thought of the husband which had made him sick and determined him suddenly to flee the rendezvous. The same thing working in another direction drives him from his wife to find forgetfulness in degradation and chiefly in drink.

We have not here the details of an analysis but

we may perhaps draw by analogy from the many such instances that have passed before the review of the psychoanalyst. These have discovered such psychic difficulty arising in infancy in the reaction of the child in its strong wishes directed positively, primarily, toward the parent of the opposite sex and negatively, that is fearsomely and hostilely, toward the one of the same sex as the rival. The long dormancy of these wishes as they lie waiting in the unconscious for a suitable occasion for discharge explains their seeming unreasonableness and their abrupt compulsive as well as hallucinatory character when they finally gain access to consciousness, but even then only in a somewhat changed and redirected form. In fact it is one frequent manner of defense to throw them in conscious accusation upon some one else or upon outward circumstances.

In this manner Fedya had come to doubt the sincerity and wholeheartedness of his wife, Lisa's love. To her he attributes the unconscious division of the affections which probably exists in his own heart. The faithful friend, Victor, who had loved her earlier unsuccessfully stands to his mind as a ready and natural vehicle for this disloyalty on her part. Yet consciously he can not justly accuse either of them, so it is only in the hallucinatory phantasy of the night when she lies innocently asleep by his side that these thoughts rise within him and force him from his bed and finally drive him permanently from his home. The old child phantasy regarding the father and the mother is apparently at work. The doubt is there of the mother's purity and loyalty because his own wish, unexpressed, is in conflict with the knowledge, however indefinite, of her relation to the father. Because the child is excluded from this he reacts also with consequent hatred and hostility to the father.

Fedya had felt from the first that he had to share the love that he wanted with some other man. That at least was his rationalizing conscious way of putting the deeply unconscious gnawing, yet forbidden desire from the childhood. It was the outward expression of the jealousy, the craving for the love that belonged to another before it belonged to him. He attributes to the wife then the unconscious love which he does not know how to admit in himself. "Yes, I think she's always loved him, far, far down beneath what she could admit to herself, and this feeling of mine has been a black shadow across our married life." "Yes, no brightness could suck up that shadow. And so I suppose I never was satisfied with what my wife gave me, and I looked for every kind of distraction, sick at heart because I did so." These words are an admission rather of inner conflict than of disappointment and grief from merely the possible external factor of his wife's lack of love to him. The psychopathologist knows that such sickness of heart is not a reaction to outside difficulties and losses even of the most serious kind. Reality calls for a more healthy, healing reaction. Inner conflicts, one's own selfinvolvement through unconscious impulses and distraught phantasies, are rather the source of such distress.

Then out of these inner phantasies, the strange hidden content of them, which has its coloring from the unreasoning jealousy of infancy, arises his mad-

dening hallucination. "Do you know when she lay there asleep beside me," he says with a shrill laugh, as he lays bare his heart to the sympathetic companion in the drinking den, "I would hear him, pushing open the door, crawling into the room, coming to me on his hands and knees, grovelling, whining, begging me"—and by this time Fedya is almost shouting in a suppressed way—"for her, for her; imagine it! And I, I had to get up and give my place to him. Phew! then I'd come to myself."

There is a conflict in such a soul deeper than any outer circumstance is able to occasion. It expresses horrible contortions of phantasy built out of the exaggerated occupation with the thoughts first innocently conceived in infancy, very vaguely conscious or entirely unconscious even then. But lacking thorough healthy reaction with reality they have nowhere to go but back upon the inner self. They have prevented a wholesome joyous attitude toward the love object who had willingly chosen him in preference to the other man, and who held her love to him long after he had cast aside all semblance of a forced outward devotion to her. He was true in his intention and wish toward her and yet the fiercer grip of the unconscious drove him upon his way of equally forced disloyalty and unfaithfulness toward her. Other features of the inner conflict, other forms of phantasy and struggle, which it develops or through which it passes in the unconscious in order to drive into the particular form which leads down the road of alcoholic indulgence, have not been indicated or suggested as these have. It is simply shown that alcohol dulled the pain of conflict and of defeat. It also marked the path of defeat, for it proved a quick and unhindered way into the phantasy which appeared so hideous so long as conscious struggle against the unknown force had to be maintained. For it and the surroundings in which it was first indulged opened wide the gates of sheer indulgent phantasy where the conscious monitor was stilled. One can easily believe also, in the face of the high ideals which Fedya yet preserved within himself and in his relations to these other characters, that the better, higher nature, the unquenchable yet losing side in the struggle was demanding as a sort of compromise a penance of degradation and selfabasement for the darker nature of the phantasies which were being striven against. In such strange compromises, half yieldings, half indulgences, losses and sufferings there is after all an egotistic satisfaction and pleasure in selfabasement and selfinfections.

What after all is the purpose of such a play, even though an unspoken, an unconsciously presented one? Is there real value in thus portraying human weakness and downfall? What, it may be asked, is it that so claims the attention and sympathy in the representation of this losing conflict? It is not alone that the physician may find in it some definite object lesson with which to arm himself for his work of understanding and help. The appeal is a far more universal one. It is necessary, and each spectator's undefined reception of such a play testifies to this, that we should look more deeply into the conflicts with which each life is beset, which solves itself for each in his own best way or which transforms itself

into something which is no solution but only a distortion, a failure, a defeat which in one form or another has arisen out of it. It is necessary furthermore that our objective attitude toward failure, defeat, degradation, as seen in the world all about, should be more definitely and more profoundly understood. This means that they should be known in their causation and in the mechanism of transformation. This entails knowledge of the causation by which they arise from deeply laid unconscious impulses and of the struggle which these necessarily have with the higher conscious and social impulses and desires. It necessitates understanding the mechanism whereby they appear in such indirect and little comprehended manifestations as alcoholic indulgence and precipitate or seemingly deliberate choice of degradation and ruin.

That they are not in real fact such, Fedya's own heartbroken explanations testify. So also do the ringing words with which he makes his vain appeal to the befogged understanding of the magistrate in the court of so-called justice. This man's understanding is under the control of formal conventions. These are too rigid defences against the admittance into conscious thought of the force and power of the inner impulses, a fear and indolence under which society hides itself from the arduous task of really understanding and wisely, helpfully dealing with men's mistakes and crimes, which are impelled from within by these forces. The material with which they have to do is real and vital, it is human life itself in all its possibility of good or evil. This they forget because they want to defend themselves from the further implication of this fact, that this material, because it is human, vital, is the great explosive force of the world, just as it is the great creative force, and so can work utter destruction. Therefore the latter possibility creates the fear that formally hides both itself and the creative and re-creative possibility under the hard and selfprotective formalism, which is perhaps more conspicuous in the legal circles than in any other branch of society.

Fedya is brought at last into court, a wretched, shambling figure. He is physically repulsive, he is mentally abject. There is however still in him enough of the divine spark of the better endeavor to be roused once more into hot protest and burning pronouncement of the truth. He is not here for his own misdemeanors. The irony of misnamed justice is bitterly in evidence. His act of self-effacement for the happiness of others and the ridding of them of his presence, the one disturbing factor to their happy usefulness together, has been vilely dragged into the light for material gain. Some blackmailer who had overheard his life's confession to the drinking companion has made capital of it by hauling the one time wife and her present husband into court on a charge of bigamy. The righteousness of the law would reunite her to the base counterpart of a man which is all that is left of her former husband, and exile the man whom she has come to love and honor most sincerely and with whom she was living a life of upright sincerity and peace.

The selfrighteous zeal of the law would simply

hurl the whole psychic conflict in all its lurid impurity and untruth back upon their heads. Fedya, however, in the final clear nobility of thought and appreciation flashing through his abjectness, catches at last also the clear pathway of courage, as clear a one perhaps as can be left for one so long straying from definite mental purpose and direction. At last he has the courage to do that which he could not do years before and he solves the impenetrable problem by taking his own life. This is not, however, before he has uttered a last ringing arraignment of the falseness of the conventions under which the law and society hide all attempt to comprehend the profound psychic truths of which he has had the full measure of experience. His plea is that which the play must make to every one. It must also stand with peculiar force to those special guardians and manipulators of the welfare of society and of the individuals which compose it, as represented in our legal bodies, or our medical workers, or any other profession or group which presumes to hold the reins of social government and individual regulation.

"The truth, O God, what do you know about the truth? Your business is crawling up into a little power, that you may use it by tantalizing, morally not physically, people a thousand times better than you. . . . I'll speak as I feel and you write it down. So for once some human words will get into a deposition. . . ." And the besotted voice goes on, once more convincing and manly in the truth it speaks: "We were all in a spiritual struggle beyond your comprehension; the struggle between anguish and peace; between falsehood and truth. You, the defender of public justice, the appointed guardian of morality . . . receive on the 20th of each month a few kopeks' gratuity for your wretched business, you get into your uniform, and in good spirits proceed to torture—bully people who wouldn't admit you across their doorstep. Then when you've had your fill of showing off your wretched power, oh then you are satisfied, and sit and smile there in your damned complacent dignity. How can you punish me," he asks, beating his breast, "who am suffering the worst there is. . . . How absurd you would be if you weren't so vile." And then, when his plea falls fruitless, as of course it could not alter the rigidly determined events of the law, he takes the one remaining way to circumvent the artificiality of the law and ends his life. By overcoming his fear at the end he grants freedom to those whom his impotence and self-indulgence, or the complexes which had lain behind these, had bound with himself. His own freedom is won, too, but with loss as he ends the useless life and sinks at last into the complete unreality, which with his last breath he calls "Happiness."

It is a drama that attempts to draw no solution out of its presented features of character and action. It is Ibsenian rather in that it teaches or convicts in its representation of life as it is, as it exists deep in the mental life beneath the external conflicts and failures in which it is clothed. It seeks to elaborate no explanation, to point no moral. It does, however, lay human psychic life before its audience, first appealingly, that it may rouse our

sympathetic appreciation, introduce us as it were into the reality of the psychic problems. Then in a faithful manner it pictures and develops these to their inevitable outcome, with many a sidelight also on the petty complications of emotion and feeling which blind judgment and distort reality while they separate thus the selfrighteous from those who make the more signal failures. Its impressive lesson is that those who witness the drama should not be among the selfrighteous in the appraisal and condemnation of such weaknesses, but should rather understand them as conditioned by psychic occurrences. They should be regarded as attitudes of deepest and remotest origin revealing themselves in real life in these unsuccessful forms. Thus there is given greater insight into these as disease conditions to be psychically and socially met and understood and helped as such.

64 WEST FIFTY-SIXTH STREET.

THE DEVELOPMENT OF CONSCIOUSNESS.

By HENRY JONES MULFORD, M. D.,

Buffalo, N. Y.

(Concluded from page 54.)

Environment has been everything to man. Its changes, slow moving, irresistible, have carried the man forward in spite of himself, for the action has occurred outside of his consciousness. Man has not perceived the meaning of his environment; he has not understood its relationship to himself. The child of today remains in the same position. He is being developed by his environment, but, lacking understanding, he fails to grasp the full significance of environment. Our endeavor is to awaken his understanding, to make him control his environment, to make him use his environment to his own best advantage. To this end, following the method of Nature, we proceed to develop his cerebral centres, bringing them into function slowly and in regular sequence. This development must proceed through the activities of the individual; the cerebral centres of the child must be brought into function as the centres of primitive man were brought into function. This is a long process, beginning at birth and extending through childhood to adult life. During this period the physical activities of the individual are greatest. Action is the first requisite in brain development, for the development of thought depends upon that. In fact, action and thought are interdependent, as we have seen; but action does not mean simple muscle activity, merely contraction of the muscle fibres. What is meant is coordinated action, the associated action of brain and muscle; muscle action directed by the cerebral centres.

Wordsworth gave expression to more than a poetic fancy when he exclaimed, "The child is father of the man"; he uttered a profound truth. The child is the man in embryo, and the manner of the development of the embryo determines the character of the man, and, following this to its ultimate conclusion, as the man, so the nation to which the man owes allegiance. In very fact the fate of a nation lies with its children: in how its children under-

stand their environment. We need only to examine the nations of today to see this illustrated.

Look at China. Why has this nation, with its great antiquity and its tremendous population, become stagnant? The answer to this question is not difficult; examination of the children of China will reveal it almost at once, and by children I mean all those who have not yet come to adult life, for truly, the human brain remains a child brain until well along in its development. The Chinese child is the slave of custom, his environment encompasses him as an unyielding wall, a wall as inflexible as the Great Wall extending about the empire itself. We see him closely surrounded by his parents and his teachers, with the shades of his ancestors in close attendance, and the shadow of Confucius over all.

We shall not find fault with the Chinese because they use these instruments in the training of their children, for, what better instruments are there for that purpose? The parent, the teacher, and the holy man. No, we shall not find fault because these are used; we shall find fault only because of the manner in which they are used. The parent and the teacher fall short because they are products of the very system with which they work, and are, therefore, incapable of seeing beyond it; Confucius loses his value as an example because of the manner in which the example is presented. The Chinese child is merely a memory machine, an automaton. His behavior is a prescribed behavior, with a set formula for every occasion; his actions are regulated by a formal precision. There is no freedom of action, no initiative, no spontaneity; the child is rule bound. He does not learn how to do, he learns, merely how to remember. There is one formula for his behavior toward his parents, another for his behavior toward his friends, another for his behavior toward strangers, and another for his behavior toward those in authority. When the child enters school he becomes the slave of rigid formality. His going in, his attitude toward his teacher, his method of study, all are according to formal rule. He learns to read and to write, and he commits to memory the wisdom of Confucius. But, before he can read, he has to learn, not an alphabet of twenty-six simple letters, but a gallery of several thousand complicated ideographs; and, before he can write, he has to practise with his brush pen, over and over and over, the component strokes of these ideographs; and with these tasks comes the greater task of learning the sayings of Confucius. It is eminently good that children should become familiar with the life and sayings of some holy man; but the child obtains little good from these things when they become a matter of routine drilling. He learns them by heart, but his heart is not in the task, and the child soon begins to look upon the man, even though he is holy, as a prig, and his sayings as tiresome drivel.

Memory is a wonderful faculty; we cannot explain it, we cannot understand it, but we can abuse it. It is a faculty inherent in every cell of the cortex of the human cerebrum, and is there for the service of man. Rightly used it advances the man through giving flexibility, that is, selfadjustment, to these cells; wrongly used it stultifies the cell, setting it in the way of a merely reflex habit. Animals pos-

sess this reflex memory, and because that is the limit of their memory they get nowhere. Man, with unbound memory, with conscious memory, has an unrestricted field. The Chinese child, crowding his cerebral cells with bare memory images, reduces himself to the level of the animal.

The next nation to which we turn our attention is Germany, a nation that has stood before the eyes of the world as an example of high efficiency. And Germany has been efficient; but, as we have seen, consciousness is the world goal, not efficiency. Germany is efficient, but that is her limit. In the ultimate analysis efficiency is merely reflex action, merely automatism. It would seem, then, that Germany is in the same class as China; and she is, so far as automatism is concerned; but Germany has used automatism to good purpose. Through it she has raised herself to the level of efficiency; China failed to attain even to that level. The difference here is the difference between discipline and custom. In Germany a certain course is pursued because it is considered good; in China, because it is the custom; in Germany, there is some thought in evidence; in China there is none. Professor Münsterberg says, in *American Patriotism, and Other Social Studies*: "In Germany a systematic education with sharp training and hard discipline early inculcates into every mind a habit of hard work. This energy for doing one's duty in spite of all selfish temptations is, moreover, greatly strengthened by the years of military service, the great national high school of labor and disciplined effort."

Hard work and discipline are, indeed, excellent, when properly used; but, used as Germany uses them, they become nothing but promulgators of routine. The habit of hard work is formed early. The German child, entering school at five years of age, is confined to the school room during six days of the week from eight in the morning until twelve noon, in the winter, and an hour earlier in the summer, and from two until four in the afternoon, with the exception of one afternoon in the middle of the week, which he has free. The German school system offers to the individual opportunity to obtain, not only a general education, but also a special education; not only is he educated, but he is also given the means of earning a livelihood. The German child is carried from one school to another right into his life work, his social position determining the direction of his education. The child of one level learns a trade; the child of another enters a profession; another becomes an officer in the army; but whatever the course, it is one of constant labor. The individual has little diversion; there are no active games, no baseball, no cricket, no tennis. There are singing societies, student societies, and beer halls. Student life seems to be a composite of song, beer and the duello. There is no outdoor, thought productive life; there is only a narrow, indoor routine, a routine thoughtless in itself and incapable of producing thought. And, on top of it all, come the demands of the army. Professor Münsterberg says, again: "As a training time for energetic regulated activity the German army life is of unsurpassed value to the nation." Regulated activity! That is the bane of German life. All that the German in-

dividual has to do between the ages of five and twenty is to follow regulations. He does not have to think for himself, he has no opportunity to think; all his thinking is done for him. During these years he becomes an automaton, and then the army puts on the finishing touches. The army is the finishing school, as it were, for the German proletariat. Truly it finishes the man so far as thought is concerned, for it makes of him nothing more than a machine. In this machine the response to external stimuli is prompt and exact; it is a reflex response, the response to orders. In this there is no capacity beyond the response called forth. No thought is necessary, and no thought is called forth. An order calls for no response other than that prescribed by the manual. Initiative is suppressed, and destroyed. Again Professor Münsterberg: "The whole German life is controlled by the belief in the real existence of the general mind as against the individual mind."

How false a philosophy! Mind is not to be developed *en masse*; mind develops through individual effort. In truth, unless there is individual effort there is suppression of mind. Mind that does not think for itself is not mind; it is only reflex action, only automatism. Automatism is fine in drills and marches, but, of itself, it gets nowhere; to make it effective there must be a directing force behind it. The automaton proceeds as far as his machinery takes him, he goes as far as his orders; if the machinery runs down, if there are no further orders, he stops. He cannot go on for he hasn't the power, he hasn't the initiative: his mind not having come into consciousness cannot direct itself. The falsity of the German philosophy has become startlingly apparent during the past four years. Germany has been following a will o' the wisp and now she finds herself up to her very soul in a slough of despond.

The third, and last, nation to be considered here is the United States of America; and we include this nation, not because it is similar to the two preceding, because it is not, but because of its contrast to them. Among the nations of the earth the United States is in a class by itself, and an example. The cardinal virtue of the national life here lies in freedom of action. Life is not bound by silly custom or by inflexible rule: mind is not stultified. Individual mind is given room for expansion. The child is put to school early, and from that time until he is ready to enter a trade or a profession his studies keep him busy. But while he studies, he is not cramming his brain with redundant verbiage, or fatiguing it with the effort of too long hours. In the primary school the hours are from nine until noon, and from one until three; in the high schools, from eight-thirty until one-thirty; and this for only five days of the week. After school hours and for all day on Saturday the individual is free to do as he pleases, this, of course, within the limits of reason. He may have some school work to do at home, or he may be taking extra studies, such as music, or a foreign language, or he may take up some light employment; but the greater portion of his time out of school is spent out of doors. The very young children spend their time in play, while the older persons turn to sports. Both of these are important in their place, each has a place, as a develop-

ment exercise, in the developmental scheme; but there is a great difference between them. Play is exercise designed for the development of the muscular system; sport for the development of mind. Play is an aimless running about; sport is the coordination of muscle, eye, ear and brain. One is thought; one is nought.

And so, in the United States we find a rational system of work, the basis of that system being outdoor life. The individual, from his youth up, plays in the open. He hunts, boats, hikes, rides horseback, or plays tennis, golf, or baseball. None of these is automatic. Each demands the thought of the individual participating: the mind of the individual controls the reaction. The individual learns to think for himself, for, in these things, he has to think in order to participate. He cultivates here the habit of thought, not the habit of hard work.

Thought has been the dominant force at work in America; thought has converted a great wilderness into a great nation. From the very beginning thought has been associated with action. The American pioneer cultivated his own fields, built his own house, defended himself from his enemies. Surrounded by a threatening environment he overcame the threat and made it subservient to his own ends. But he did not win out without a fight. The contest between the man and his environment was a long one, at times sharp, and the pioneer needed all his wits to hold his own, but he had the wits. He had the brain, to begin with, and, as the contest proceeded, his brain came into a broader development. The reaction between brain and environment was of such a nature as to develop the cerebral centres. In preparing a habitation in a new land the man was confronted by conditions entirely new to him. There was the climate, there was the land itself, and there were the living things upon that land inimical to him, savages and wild beasts. He went about with the implements of toil in one hand and a weapon in the other. Problems beset him at every turn. While he toiled he thought, and while he thought he toiled. Muscle and mind worked together for the common good. In the beginning muscle bore the greater portion of the burden; but, after a time, mind took the lead. Mind took control of the man's muscles. When he used his hoe to cultivate, his hammer to build or his gun to shoot, he was using his eyes, his muscles, his brain, and his mind. His mind was directing the process. And that is why he won. That is why the American always has won. It was the "embattled farmer" that wrested this country first from the savage, and then from a king; it is our free men of today, our farmers, our woodsmen, our sportsmen, our open air men, who are overwhelming a Kaiser "over there." It is the man with the free mind that wins, the mind that can orient itself in any environment, the mind that has learned to think for itself. No mere automaton can win against such a man; nought cannot win against thought; automatic force cannot win against conscious mind.

The quest of consciousness has been a tedious one; but that has been because the quest of consciousness has been an unconscious quest. It has followed the development of the human brain, but

without the cooperation of the individual. Consciousness has developed out of nonconsciousness through devious and toilsome effort; consciousness has been built up bit by bit through the reflex machinery of the brain. That has been the phylogenetic course; that is the course of the process today when left to itself. That is why the development of consciousness in the individual of today is generally so disappointing. The individual does not cooperate: the mind does not cooperate with the brain. This lengthens the process interminably. In very fact, the individual does not live long enough to complete it. Before his mind awakens to a realization of itself it is time for him to die, and the time and the effort put into the rearing of his structure has been time and effort wasted. It is the duty of today to stop this wastage; and it can be stopped, however difficult it may seem. In fact, it already is being stopped; intelligence is abroad in the land, mind is asserting itself.

But this awakening of consciousness is mainly individual and sporadic although in America, as we have seen, the circle of consciousness is a wide one. The awakening has come through individual effort. Certain individuals have sensed the need, and, without exactly knowing the underlying reason, have hit upon procedures that have proved to be true aids in the development of consciousness. Two prominent examples of these are: one, the Perse School at Cambridge, England; and the other, the "Eurythmics" of Jaques-Dalcroze. A glance at these will be instructive and will illuminate our understanding of this subject.

At the Perse School learning proceeds through the making and the acting of plays. In the play-books issued by the school we find these statements: "It is not generally realized," says the headmaster, "that no one can make another learn anything, if he does not wish to learn it. We can make things disagreeable for an idler, so that he appears to learn, does learn perhaps in one sense, but only so as to throw it all off as soon as the oppression is removed. There are in all schools many pupils who are in such a mood that they learn nothing except thus under compulsion; they owe it in every case to bad training, for which their parents in the first place are responsible, and sometimes their teachers too. Acting is one of the most potent means of learning. Thought, word, and act linked together make an impression such as nothing else can. In this direction lies the salvation of our schools. We all know how dull a textbook is. But, if the teacher uses his book as a suggestion, makes his history a story, sets his pupils to act it in make believe, before they know what they are doing, they are practising English composition and English grammar and learning English history. The plays in this volume are specimens of the result. I think it shows a natural and unforced spirit which will convince the intelligent reader that the pupils have been taught not crammed; they have learned to do, to express themselves, not to reproduce some one else's opinions in worse language than they were originally put in."

The master of the players adds this: "It is not acting we teach the boys, but the value of action.

If it is said that boys are born play actors we do not agree, but, to use the words in a wider and more natural sense, everyone knows that boys love 'to play and live to be active.' This is no mere toying with words, but a summing up of our position; for the starting point of our movement lies in these three propositions:

"1. Proficiency and learning come not from reading and listening, but from action, from doing and from experience. 2. Good work is more often the result of spontaneous effort and free interest than of compulsion and forced application. 3. The natural means of study in youth is play."

And again, some one else: "Boys in school should not always be crowded into classrooms and set in attentive rows like so many malefactors in the stocks; and books written by other people should not be the only means of bringing them in contact with all they must know. There must be room for some spontaneity of study, real experience, initiative—and above all, action."

At the beginning of the world war Jaques-Dalcroze and his school of "Eurythmics" was at Hellerau, a suburb of Dresden. The aim there was the same as the aim of the Perse School: the development of the individual through action; but the method was different. It proceeded through a combination of music and rhythmic exercises. In his book, *The Eurythmics of Jaques-Dalcroze*, the author says:

"The object of the method is, in the first instance, to create by the help of rhythm a rapid and regular current of communication between brain and body; and what differentiates my physical exercises from those of present day methods of muscular development is that each of them is conceived in the form which can most quickly establish in the brain the image of the movement studied. . . . It is a question of eliminating in every muscular movement, by the help of will, the untimely intervention of muscles useless for the movement in question, and thus developing attention, consciousness, and will power, . . . The creation in the organism of a rapid and easy means of communication between thought and its means of expression by movements allows the personality free play, giving it character, strength, and life to an extraordinary degree. . . . Training the nerve centres, establishing order in the organism, is the only remedy for intellectual perversion produced by lack of will power and by the incomplete subjection of body to mind. . . . The first result of a thorough rhythmic training is that the pupil sees clearly in himself what he really is, and obtains from his powers all the advantage possible. . . . I have gradually produced a method which gives a child musical experiences instead of musical knowledge. . . . One can create nothing of lasting value without selfknowledge. . . . The only living art is that which grows out of one's own experiences. . . . We must, from youth upward, learn that we are masters of our fate, that heredity is powerless if we realize that we can conquer it, that our future depends upon the victory which we gain over ourselves."

We have here two dissimilar schools with a com-

mon goal. Each is seeking to develop consciousness in the individual, to make the individual human mind capable of directing its own machinery. And while the two seem to be entirely dissimilar, they are, in reality, very much alike, the dissimilarity appearing only in the external details. The basic law of each is action, action regulated by rhythm. In the Perse School it is the rhythm of words, in the Jaques-Dalcroze School it is the rhythm of music. In each it is the coordination of brain and muscles that is developing mind; it is, in fact, the coordination of brain, muscles and mind. In primitive man it was the coordination of brain and muscles that developed mind, but the child of today is a bit farther advanced than was primitive man. In the child of today the capacity for mind is already present, and all that is necessary is to arouse his mind to an appreciation of itself. In these two schools the child mind is being stimulated to action, is being aroused to the fact that it has the power to direct the reaction between brain and muscle. The headmaster of the Perse School and Professor Dalcroze hit the truth when they say, the one, that "thought, word, and act linked together make an impression such as nothing else can," and the other, that "the creation in the organism of a rapid and easy means of communication between thought and its means of expression by movements allows the personality free play." These two expressions reveal, in very truth, the whole secret of child education. "Thought, word, and act," and "free play": interest and freedom. A mind aroused by interest and given space in which to swing itself, as it were, soon becomes master of itself.

Occasionally we hear it said that the little red schoolhouse of early American history better prepared its pupils for their life work than does the public school of today. And that is true, but it is not the whole truth. It was not the little red schoolhouse alone that did the trick, it was the whole environment, of which the little red schoolhouse was only a part. This environment was an environment of open air freedom, a freedom of muscles and of mind. The muscles and the mind free in this open air association produced sturdy, selfreliant men. The schools of today give a better education to the individual, a better veneer, but the little red schoolhouse developed the real man. In the little red schoolhouse the individual learned less, but he knew more.

It becomes obvious, then, that environment is the developing force. It developed the primitive man: it is developing the man of today. The man is the result of the reaction between his brain and his environment; it is this reaction that determines the direction of his mind. If his environment is close fitting, snug, his mind will be compressed, stultified; if his environment is elastic his mind will respond to that elasticity. In the first the man may attain to a mechanical efficiency, but he never will be able to reach to the height of conscious efficiency. He will not have the mind to appreciate the difference. He will not have the understanding that will enable him to get inside and look out; he always will be on the outside looking, not in, but toward. He will look, but he will not see. He will be a man of three

dimensions. But that is not the kind of man we seek. We want a man who knows; we want a man of full consciousness. We want a four dimensional man.

949 DELAWARE AVENUE.

PEANUT BRONCHITIS.*

BY ELLEN J. PATTERSON, M. D.,
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Since the advent of war economy and the high cost of living has necessitated the use of "meat substitutes," the peanut is coming into its own. Its real value has been scientifically established and we learn that the peanut needs only to have added suitable inorganic salts and the fat soluble accessory to make it a complete food. With the anticipation of seeing the peanut transferred from the category of a delicacy to that of a more staple item in the diet, it seems, as though it were timely to consider the seriousness of the peanut as a foreign body in the bronchi of small children. The following cases appear to illustrate the characteristic train of symptoms which follow the inspiration of fragments of peanut into the respiratory tract and which continue until they have been removed bronchoscopically or evacuated spontaneously and the pus which follows its sojourn in the bronchus has been evacuated bronchoscopically.

CASE I.—E. K., boy, aged eighteen months was referred by Dr. J. W. Beyer, August 26, 1915, with the history of having choked on peanuts three days previously, coughing up fragments of the pericarp ever since. The child was a well developed boy. His color was good, but obstructive dyspnea was indicated by a marked indrawing of the neck at the epigastrium. Physical examination, by Dr. Henry T. Price, showed that little or no air was entering the lower left lobe and the röntgenogram confirmed the physical signs. Without anesthesia, fragments of peanut were removed from the lower left lobe bronchus through the four mm. bronchoscope. There was immediate relief from the dyspnea and air was found to be entering all parts of the lung by a physical examination by Doctor Price. Twelve hours after the bronchoscopy it was necessary to perform tracheotomy, to relieve laryngeal dyspnea. The child developed a septic pneumonia and died on the fourth day.

Remarks. This case illustrates the septic pneumonia which we so frequently encounter in this serious class of foreign body cases, and which continued, unrelieved, after removal of the peanut kernel.

CASE II.—J. G., boy two years old, referred by Dr. John Walters, of Sewickley, was admitted to the Presbyterian Hospital, June 2, 1917. On April 27, 1917 (six weeks previously) the child had been eating peanuts, when his brother tried to take some of them from him; he then cried, choked and became cyanotic. From that day on the child was ill, restless, feverish, coughing, moaning in his sleep, and dyspneic at times. The doctor who first saw

*Read at the First Annual Meeting of the Association of American Peroral Endoscopists at Philadelphia, May 31, 1918.

the case treated the child for "cold" and gastrointestinal trouble until the parents became dissatisfied and consulted Doctor Walters, who referred the case to me. On admission the child was restless, hoarse, dyspneic, coughing, temperature 99.4 F. Physical examination was made by Dr. C. W. Morton. Percussion revealed a well defined area of dullness over the left bronchus at about the junction of the third rib and costal cartilage; other percussive findings were negative. On auscultation, breath sounds were hoarse, and there were many moist râles both on inspiration and expiration. Air entered all parts of lung. The radiograph taken by Dr. G. C. Johnston showed a transparent foreign body at the opening of left upper lobe bronchus. Without anesthesia, I passed the four mm. bronchoscope into the left bronchus and after removing a large amount of secretion found several fragments of peanut, and a marked tracheobronchitis. Physical examination by Doctor Morton after the operation showed some râles over lower left lobe, the apex was clear, and the dyspnea was less marked. The dyspnea and hoarseness steadily decreased. The temperature fluctuated between 99.6 and 101 until the seventh day when it became, and thereafter remained, normal. The child was discharged as cured on the tenth day.

Remarks. This case shows that small fragments of peanut are at times held in the swollen mucosa and that they are not coughed up.

CASE III.—E. C., a girl, aged eighteen months, was admitted to the Allegheny General Hospital, June 11, 1917. Three days previously she was eating salted peanuts and choked, becoming dyspneic. The day following the accident two bronchoscopies had been done at another hospital under general anesthesia, each lasting one half hour, but both had been unsuccessful. The child became very dyspneic and was then referred to the Allegheny General Hospital. On admission the child was slightly dyspneic and quite hoarse. Her color was good, the temperature was 101; pulse 130; respirations forty-eight. Physical examination by Doctor Elterich showed on inspection that the excursion of both sides of the chest were equal; percussion dullness was increased on the right side, at the base of the lung; the vesicular murmur was very much exaggerated on the left side; vesicular murmur on the right side posteriorly was very much diminished. Doctor Elterich stated that the foreign body was probably in the right bronchus. The radiograph taken by Dr. R. V. Robinson showed a nonopaque foreign body occluding the right lower lobe bronchus. Without anesthesia I passed a four mm. bronchoscope and removed a large piece of peanut kernel from the right bronchus. The dyspnea was relieved immediately. Air entered both lungs freely, temperature dropped to normal on the fourth day and the baby was discharged as cured.

Remarks. The accurate diagnostic work of Doctor Elterich in this case is worthy of note. In the very numerous cases of foreign bodies not opaque to the x ray the physical signs are our sole reliance. Too often, the physical signs are considered indicative of the lesions present, but the foreign body origin is unsuspected.

CASE IV.—E. A., male, aged twenty-one months, was admitted to the Presbyterian Hospital on November 24, 1917. One week previously, while eating salted peanuts, the child had choked and become cyanotic, after which he had frequent severe paroxysms of coughing and the temperature rose at times to 104°. Upon admission the child was restless, slightly dyspneic, and coughed frequently; temperature 99; pulse 116; respirations 26. Physical examination by Dr. J. H. Barach was negative on inspection, palpation and percussion. On auscultation bronchial breathing was present over the right lung about the bifurcation of the bronchus and many large moist râles were heard over the middle lobe. Although the physical signs were not conclusive of the presence of a foreign body and the radiograph taken by Doctor Robinson was negative, I decided that a bronchoscopy was indicated since the child's illness dated from the inspiration of the nut. Without anesthesia I passed the four mm. bronchoscope into the right bronchus and found a large quantity of secretion, a severe tracheobronchitis, but no nut fragments. The sponges used to wipe out the secretion were all carefully washed but no fragments of nut were found. Recovery was uneventful and the child was discharged well the ninth day after bronchoscopy.

Remarks. In this case the nut was probably evacuated spontaneously, leaving a tracheobronchitis with thick pus in the bronchus which these children seem unable to expectorate. I neglected, in this case, to have the sponges used in bronchoscopy examined microscopically for nut fragments and to have a bacteriological examination of the secretion.

CASE V.—R. F. J., male, aged two years, referred by Dr. C. C. Stewart, of Poland, Ohio, was admitted to the Presbyterian Hospital March 4, 1918. On February 14, 1918, (eighteen days previously) he had picked up a piece of English walnut, while his mother was making a cake, upon which he choked and became very cyanotic. The family physician, disregarding the history of foreign body, treated the child for bronchopneumonia until March 3d. In the absence of the attending physician the mother called Doctor Stewart, who appreciated the probability of the presence of foreign body and sent the child to me. The night before admission to the hospital the child had a very severe paroxysm of coughing, after which the mother thought he seemed a little better. Upon admission the child was very restless, refusing to lie down, and had a peculiar greyish appearance. The respirations were very rapid with slight dyspnea; temperature 100.4, pulse 148, respiration 72. Physical examination by Dr. J. H. Barach showed inspection and palpation negative. On percussion some dullness over right lower lobe. On auscultation, anteriorly, marked bronchial breathing over right costo sternal junction and at mid-clavicular line in third interspace; also roughness on inspiration. The bronchial breathing transmitted to right lower lobe as far as sixth interspace. On auscultation posteriorly, bronchial breathing was marked over the fifth, sixth and seventh ribs and an exaggeration of breath sounds on inspiration. There was a complete atelectasis of

right lower lobe. The radiograph taken by Dr. R. V. Robinson, showed an area of opacity two inches in diameter in the right lung toward the periphery, blocking off the right bronchus just below the branch to the upper lobe bronchus. Without anesthesia, I introduced the four mm. bronchoscope and found a large amount of pus in the right bronchus and a marked tracheo-bronchitis but no fragments of nut. A culture from the pus evacuated from the right bronchus showed staphylococci. The leucocyte count was 24,200. Doctor Barach made a physical examination on the morning following bronchoscopy and reported that the change in the condition of the lung was remarkable. Recovery was uneventful, the lung cleared up slowly and the child was discharged the fourteenth day. A letter from the mother, dated April 16, 1918, says "the boy eats and sleeps well and looks fine."

Remarks.—This case illustrates the spontaneous evacuation of the foreign body with symptoms persisting until the pus was removed bronchoscopically.

CASE VI.—E. F., male, aged eighteen months, referred by Dr. Victor Cowan, of McKeesport, was admitted to the Presbyterian Hospital April 27, 1918, with the following history from Doctor Cowan: "On the 10th of March E. F. was brought to my office in a choking condition. He was not breathing, was blue and almost pulseless. The mother said he was eating roasted peanuts and had choked. After passing my finger back to the larynx with no result, I passed an intubation tube, which along with oxygen brought the child around. The child continued to breathe with some difficulty so I sent him to the McKeesport Hospital. An x ray picture taken there did not show anything in the bronchus. After two or three days high septic type of temperature developed in the child and dullness of one side. This lasted for a couple of weeks. I am firmly of the opinion that there is a peanut kernel somewhere in the bronchi and I do not think it will show up on x ray examination. Since leaving the hospital the patient has taken spells of extreme difficulty in breathing." Upon admission the child coughed considerably. Temperature 98.3, pulse 110, respiration 26. Physical examination by Dr. C. W. Morton showed tubular breathing very marked over right upper lobe; coarse friction rales over right middle and lower lobes anterior; thrills felt over right lower and middle, anteriorly, when in upright position, and not felt when in prone position. The rales were very distinct when child was lying on its back, but not heard when in the upright position. Some alteration in dullness over the right middle lobe. Doctor Morton suggested that the foreign body was in the right lower lobe bronchus. The radiograph taken by Dr. George W. Grier showed a triangular area of partial consolidation in the lower lobe of the right lung, the apex of the triangle being at the hilus of the lung. Doctor Grier reported that it appeared as though a foreign body were blocking up a bronchus and the bronchi and bronchioles distal to the point of obstruction and filled with mucus or pus. There was no foreign body visible in this case, although a foreign body transparent to the x ray would give the same appearance. At 11 a. m., without anesthesia, I passed the five mm. broncho-

scope and evacuated a very large amount of thick pus from the right bronchus and small fragments of peanut. The pus from the lower lobe bronchus was in thick strings. Physical examination immediately after bronchoscopy showed that the loud rales heard before operation had disappeared, but fine crepitant rales could be heard over the lower lobe; bronchial breathing over the right middle and lower lobes and at the level of the third interspace in mid-clavicular line a friction rub could still be heard. The child was in excellent condition until 10:30 p. m., when suddenly a peculiar type of dyspnea developed, with the respirations 70. I performed tracheotomy at 11 p. m. with immediate relief of dyspnea and evacuation of thick pus from the trachea. At 7 a. m. the following morning the nurse reported that the child suddenly coughed up about two ounces of thin yellow pus which ran down the side of the neck on to the sheet. The child continued to cough up thin pus throughout the day in such large quantities that it ran out on the neck. In the afternoon of the day following tracheotomy, while I was changing the tracheotomy tube the child coughed up a large piece of peanut into the trachea. He continued to cough up an unusual amount of pus for several days. The pus from the right bronchus showed streptococci, staphylococci and pneumococci; while the pus from the trachea showed staphylococci, diplococci, pneumococci and unidentified bacilli. The temperature also dropped and remained normal after the tenth day; physical signs cleared up gradually and the child was decannulated on the twenty-eighth day.

In this case, I think the peanut was suspended in a large abscess cavity opened during bronchoscopy. The case demonstrates the necessity of tracheotomy to prevent the patient from drowning in his own secretions. Much credit should be given Doctor Cowan for his prompt attention in saving the child's life and for his recognition of the symptoms indicating the presence of a peanut kernel in the bronchus. Undoubtedly hundreds of children die from the failure of recognizing the true nature of such symptoms.

WESTINGHOUSE BUILDING.

PULMONARY TUBERCULOSIS AND INSANITY.

BY IRVING J. SANDS, M. D.,
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The problems of pulmonary tuberculosis, representing a physical maladjustment in which the resistance of a group of individuals is lowered and a consequent propagation of the tubercle bacilli occurs; and the question of the psychoses which are expressions of environmental maladaptations of another group of individuals caused either by anatomical alterations in the cerebral cortex occasioned by endogenous or exogenous toxins, or by vicious habit reactions (1) in a group of peculiarly predisposed individuals (2), have much in common.

It is not so very long ago that the individual with pulmonary tuberculosis was regarded as a person to be avoided, his very presence in a room was thought to be a source of danger to those around him; that he was doomed to an early death, and his family a subject for charity. Through systematic educational propaganda, instituted by philanthropic organizations and instigated primarily by physicians who in some instances were themselves victims of the disease, directed at first toward teaching the general medical profession and later the intelligent laymen and subsequently adopted by the various State health boards as a part of their responsibility, the problem of pulmonary tuberculosis has come to be better understood and the disease is now fairly well under control. At present we know how to treat the tuberculous individual scientifically and effectually, and how to prevent the acquirement of the disease.

From the medical and the sociological aspects, insanity is today on the same plane that pulmonary tuberculosis was about twenty-five years ago. We are now beginning to realize that insanity is not altogether incurable; that most of its forms are not only curable but also preventable; that the individual suffering from psychosis is not a criminal to be incarcerated in jails or almshouses but only mentally ill and should be cared for by physicians who have been especially trained in the treatment of insanity; that society is not an entirely passive etiological factor in most of the psychoses and especially in those caused by alcohol and syphilis, therefore it is under moral obligations to support any movement to restore the psychotic individual to a normal state of mental health, if, by any possible means, this can be brought about.

It has been known for some time that pulmonary tuberculosis and insanity may exist in the same individual. The central nervous system is often one of the first to be affected in tuberculous patients (3). As shown by F. M. Pottenger, only a few escape some nervous disturbance. The abnormal behavior of the tuberculous individuals, however, is usually of the psychoneurotic type with a preponderance of neurasthenic and psychasthenic symptoms (4). In general, true psychoses among the tuberculous patients are quite infrequent, and, as Maurice Fishberg has demonstrated, may be considered merely as a coincidence (5). The manic-depressive and the toxic exhaustive forms of reactions are the ones usually encountered in the tuberculous individuals. The toxemia, exhaustion, inanition, and the subfebrile temperature caused by the tubercle bacilli, usually produce a picture of delirium, resembling that ordinarily met with in infective exhaustive psychosis. Again, these agents may produce a typical manic form of reaction with the characteristic exaltation, flight of ideas and motor hyperactivity, or depression with the usual retardation and psychomotor inactivity and suicidal tendencies. While insanity is infrequently found in tuberculous, most authorities agree that pulmonary tuberculosis is quite common among the insane (5, 6). The poor hygienic surroundings (7), the general inactivity of the majority of the insane (8), their filthy habits, the overcrowding of the hospitals

for the insane, and the physical debilitating factors prevalent among most of the psychotics, lower the resistance of these patients to a degree which enables the tubercle bacilli to bring about the general phenomena of disease. Pulmonary tuberculosis is responsible for at least thirty per cent. of the deaths occurring among dementia præcox patients (9), and these patients are the ones in whom the above etiological agents are most active.

During the past eight years there were 962 autopsies performed at the Manhattan State Hospital; the brains and most of the spinal cords, and some of the other unusual pathological specimens from these cases were preserved in the museum; several thousands microscopic slides were kept in the laboratory; and complete typewritten records of the gross pathological findings and of the microscopic preparations were filed together with abstracts of the clinical histories. An analysis of these 962 cases reveals many interesting facts (see table). Among these, in 131 cases, or 13.61 per cent., the lesions of active pulmonary tuberculosis were found. In 107 cases, or in 11.12 per cent., a clinical diagnosis of pulmonary tuberculosis was ventured, while in eighty-one out of the 107 cases, or 76.35 per cent., the diagnosis of pulmonary tuberculosis was corroborated at postmortem examination and in twenty-six of the 107 cases, or 23.65 per cent., no corroborative evidence of tuberculosis was found at autopsy. Of the 131 cases of active pulmonary tuberculosis found at autopsy, eighty-one or 61.83 per cent., were correctly diagnosed antemortem and fifty or 38.17 per cent., were not clinically suspected as tuberculous.

If we consider the difficulties encountered in the diagnosis of pulmonary tuberculosis among the insane, the correct diagnosis in sixty-two per cent. of the anatomically proven tuberculosis cases reflect favorably upon the skill of the physicians. The subjective symptoms cannot be relied upon, for the depressed psychotic exaggerates his most minute ailment and the exalted manic or the grandiose parietic pays little attention to many distressing symptoms, while many other patients are too demented to take cognizance of any change in their health. In the early stage of the disease it is difficult to obtain sufficient cooperation from the patient to enable the examiner to make the thorough examination which is essential for the diagnosis of incipient pulmonary lesions. In the later stages of the disease many of the patients do not expectorate, either because the ordinary bronchial irritations sufficient to produce a cough in an apparently mentally sound individual do not elicit any response in the psychotic patient, or if the bronchial irritation is effectual the patient swallows the sputum.

The application of therapeutic principles for pulmonary tuberculosis in the hospitals for the insane has given rather satisfactory results (10). The open air treatment and forced feeding inaugurated in the State hospitals at Ward's Island, Middletown, and at Binghamton proved so effectual that most of the average hospitals and all of the institutions of the better class for the treatment of the insane have installed separate cottages for the use of the tuberculous patients.

CONCLUSIONS.

1. From the medical and sociological aspects pulmonary tuberculosis and insanity have much in common.

2. Psychoses among tuberculous patients are infrequent and are usually, either of the infective toxic type of reaction, or shown by the manic depressive behavior. Psychoneurosis, especially of the neurasthenic and of the psychasthenic types, is quite prevalent among tuberculous patients.

3. An analysis of 962 cases of psychoses coming to autopsy showed that: a, 13.61 per cent., revealed active pulmonary tuberculous lesions and b, 61.83 per cent., of the active tuberculous cases had been properly diagnosed antemortem.

4. The general therapeutic principles employed in the treatment of tuberculosis are equally applicable in the insane as in the mentally sound patients afflicted with the disease.

Fiscal year.	Total No. autopsies.	Anatomically active pulm. tuberculosis.	Clinically pulm. tuber.	Corroborated by autopsy.	Not corroborated.
1910-1911	126	17	13.49%	23	18.25%
1911-1912	101	13	12.87%	4	3.96%
1912-1913	100	8	8.00%	9	9.00%
1913-1914	123	19	15.44%	15	12.19%
1914-1915	123	8	6.46%	8	6.50%
1915-1916	101	14	13.86%	13	12.87%
1916-1917	162	28	17.28%	22	13.58%
1917-1918	126	24	19.04%	11	8.73%
Total	962	131	13.61%	107	11.12%

Of the 131 cases of active pulmonary tuberculosis, eighty-one or 61.83 per cent. had been correctly diagnosed, while fifty or 38.17 per cent., had not been suspected of tuberculosis.

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Tonsillar Infections.—H. J. Nichols and J. H. Bryan (*Journal A. M. A.*, November 30, 1918) state that the tonsils are the principal foci of infection in throat carriers of *Streptococcus hemolyticus*. Cultures taken from excised tonsils show the presence of streptococci in seventy-five per cent. of cases. Crypt cultures show a higher percentage of positive results. Excision of the tonsils renders the throat negative in nearly all cases.

BORDERLINE GASTRIC DISEASE.*

By MAX KAHN, M. D., PH. D.,
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In that region of indefinite abdominal disease in which the clinician cannot readily make his diagnosis, there are certain symptoms to be deduced by laboratory analyses only, which may throw much light on the character of the disease and the site of its pathology. To neglect eliciting these symptoms is to fail in one's duty to the patient. Like the measurement of the temperature, like the determination of the blood pressure, etc., the estimation of the exact functional activity of the organ under suspicion is essential—if practicable—and to pass it cursorily by is to invite erroneous diagnoses and faulty therapeutics; in general it means the practice of unscientific medicine.

The determination of the exact functional capacity of the gastrointestinal tract is a matter of comparative ease at the present time. It has been noted, from the pathochemical observations, that certain derangements of function are prone to accompany certain structural diseases. Together

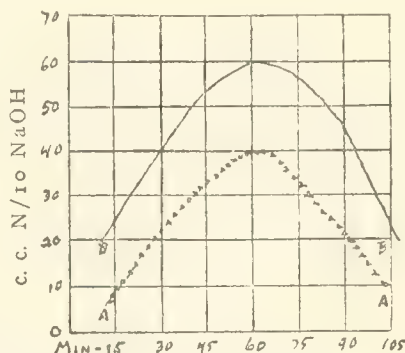


CHART I.—Acidity curves of normal human stomach. AA, normal free acidity, isosecretion; BB, normal total acidity, isosecretion.

with the clinical history and symptoms one may more readily reach an idea of the underlying pathology.

The study of stomach function has been much advanced of late years. Until about three years ago, it had been the custom to administer to the patient a certain test diet, and after allowing it to be digested in the stomach for one hour, to remove the gastric contents and analyze it for the various constituents. Such a test diet, as the Ewald white bread and glass of water diet, is especially popular. This method of investigation is well known and I shall not discuss it fully. In my opinion the results of an Ewald test meal analysis have but limited significance. Attention should be paid to the results if a marked hyperacidity is observed; a report of a normal acidity or a hyponormal acidity may or may not have any special significance. It will be seen from the following résumé how erroneous the results of an Ewald test extraction may be.

In 1914, Rehfuß described his method of studying gastric secretion. He devised a tube by which

*Read before the Eastern Medical Society, January 10, 1919.

it is possible to follow the entire cycle of gastric digestion with practically no discomfort, and by which it is possible at any given moment to draw off any quantity of the juice desired to perform the necessary chemical examinations. The tube is in-

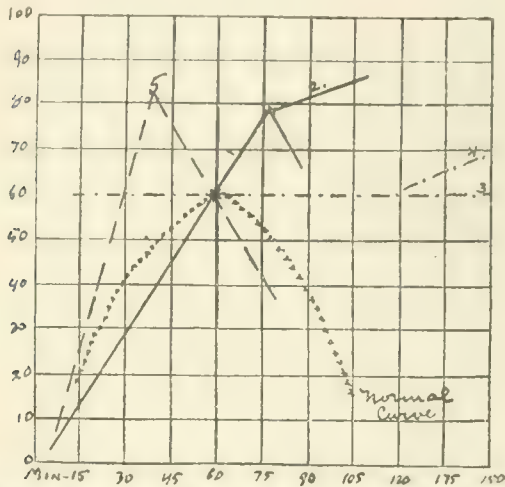


CHART II. The inadequacy of the one hour gastric examination. The possibilities of the gastric curve with normal acidity at the one hour period. 1, Hyperacidity; 2, persistent hyperacidity; 3, continued hypersecretion; 4, prolonged digestion; 5, larval hyperacidity (after Rehfuß).

serted immediately after the patient has partaken of an Ewald test meal, and specimens of gastric contents are withdrawn every fifteen minutes. This collection at fifteen minute intervals is continued until the close of digestion, which is marked, as Rehfuß, Bergeim, and Hawk have pointed out, by 1, the failure to aspirate any further material; 2, the character of the preceding specimens; 3, the character of the murmur elicited by inflating through the tube and auscultating over the stomach, thus making sure that the stomach is empty; 4, lavage, which enables one to determine the presence of any food residues and their quantity. For the purpose of the chemical analyses, about six to eight cubic centimetres of the gastric contents are sufficient. The results of these examinations are plotted, the abscissa being the number of minutes at which time the gastric contents were removed, and the ordinate being the number of cubic centimetres of decinormal sodium hydroxide solution necessary to titrate the free acidity and the total acidity of the gastric contents.

The normal curves that may be obtained are of three types, according to Rehfuß and his co-workers

1. The isosecretory type shows a steady rise, high point, in terms of tenth normal sodium hydroxide, forty for free acid and sixty for total acid, usually sustained for from half an hour to an hour and then a gradually declining, with total disappearance of the food residues in from two to two and a half hours (Chart I).

2. The hypersecretory type shows a rapid response to stimuli, often a marked change in the acidity even of the five minute samples, rapid increase in acidity, high point from seventy to 100 or over, either sustained or abrupt, and a slow decline or none at all in the usual time. The food

left the stomach in normal time from two to two and one half hours, but even after the passage of all food material there was often encountered an outpouring of pure gastric juice for half an hour, one hour, or even several hours. This finding, which was obtained in many cases, is so pronounced and distinct that they call it *continued digestive secretion* in contradistinction to *hypersecretion* because it occurs in normal symptomless persons. This type they call the hypersecretory type because of the general tendency of the acidity to assume exaggerated proportions (Rehfuß, Bergeim, and Hawk). In my experience such curves are not to be met with in symptomless persons.

3. The hyposecretory type shows a slower ascent than the isosecretory curve, a slower response to stimuli, and a high point from forty to fifty. This type is rarely met with.

It will be seen here how worthless the results of an Ewald extraction after one hour may be. The one hour period represents but one phase in the constantly changing cycle of gastric digestion. While it is true that in a certain proportion of normal cases the high point is to be found at the one hour interval, this is by no means always the case, and pathologically every deviation from this type may be encountered. Granted that at the one hour period the acid figures obtained are those that we suppose to be normal, it is impossible to judge what has preceded or what will follow this point, unless we have the data absolutely necessary to a complete understanding of the case. (See Chart II.)

So called normal figures at the one hour point cannot be interpreted in the light of a single isolated phase examination. They may mean a perfectly normal curve; they may be followed by a marked hyperacidity, hypersecretion, and motility disturbances at a later period; they may be only one point

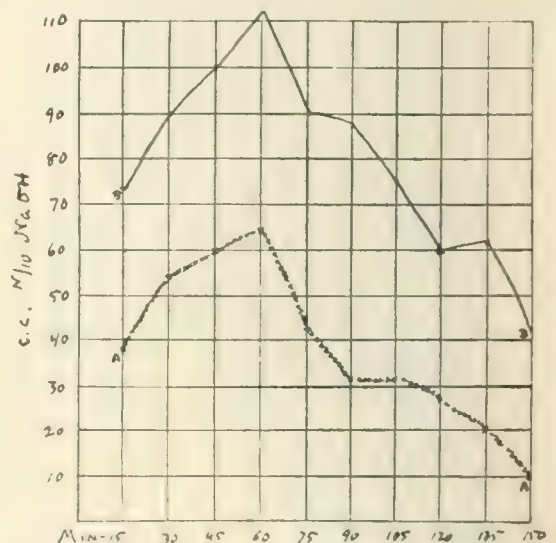


CHART III.—Miss W., gastric ulcer; AA, free acid, TT, total acid.

in a continued high acidity and hypersecretion, such as is encountered in obstructive cases; they may mean a form of larval hyperacidity.

The curves that may be obtained by the fractional method in gastric ulcer, duodenal ulcer, and

in gastric cancer are rather typical. In cases of gastric ulcer the ascent of the curve is rapid and may reach its maximum before the hour or a little after. The high point in the free acidity may be between sixty and seventy, and the total acidity be-

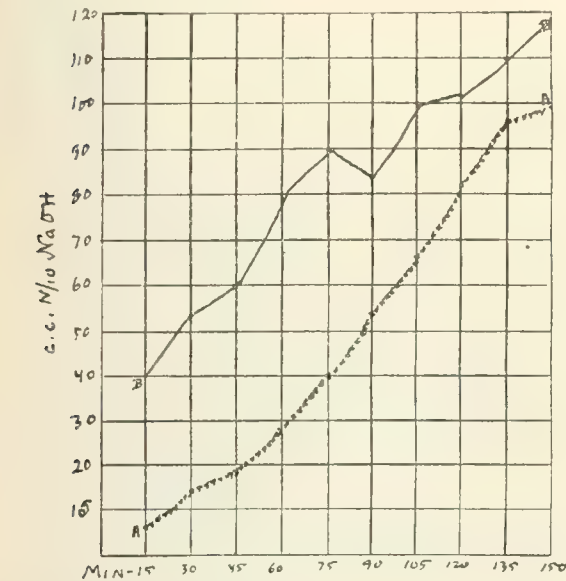


CHART IV.—Mrs. B., duodenal ulcer; AA, free acid; BB, total acid.

tween 100 and 110. There is then in a gradual or sudden decline as the stomach empties itself. Blood may, of course, be found in the fractions removed. The typical analyses of the secretion in cases of gastric ulceration, confirmed by operation, are given in the following tables:

Time.	Miss H.		Mr. M.	
	Free acid.	Total acid.	Free acid.	Total acid.
15 minutes	38	74	28	46
30 minutes	54	90	50	60
45 minutes	60	100	52	80
60 minutes	64	112	54	84
75 minutes	42	90	64	90
90 minutes	32	88	65	95
105 minutes	32	75	40	70
120 minutes	28	60	24	44
135 minutes	20	62	20	36
150 minutes	10	40	empty.	empty.

In duodenal ulcers the ascent of the curve is gradual. The height of the curve seems to be reached when the stomach is emptying itself, and the reflex irritation of the food passing over the diseased duodenum stimulates the secretion of the gastric juice. Table II shows the result of the analyses by the fractional method of two cases of duodenal ulcer, confirmed by operation:

Time.	Mrs. B.		Mrs. F.	
	Free acid.	Total acid.	Free acid.	Total acid.
15 minutes	6	40	0	20
30 minutes	14	54	12	32
45 minutes	18	60	32	46
60 minutes	28	80	38	56
75 minutes	40	90	42	68
90 minutes	54	84	48	82
105 minutes	66	100	56	80
120 minutes	80	102	80	98
135 minutes	96	110	96	112
150 minutes	98	118	98	116

It will be seen from these analyses how inefficient the ordinary one hour examination would have been. The report would have been: total acid 56, and free acid 38 (Mrs. F.), and the conclusion would have been reached that this was a case of hypoacidity, and one would begin to suspect stasis, malignancy, etc. In reality, the fractional method shows this to be a case of hyperacidity, pointing toward a duodenal ulcer.

In pyloric carcinoma, the curve that is usually present is the following, in my experience. The free acid is either entirely absent or rises to a point between ten and fifteen after one hour. The total acidity may, on the other hand, be normal or even above normal. The following analysis of gastric carcinoma, confirmed by operation, is rather typical. Blood and lactic acid were very heavy:

TABLE III (Chart V).

Time.	Mr. C.	
	Free acid.	Total acid.
15 minutes	0	90
30 minutes	0	102
45 minutes	0	115
60 minutes	0	126
75 minutes	0	120
90 minutes	5	130
105 minutes	10	100
120 minutes	5	90
135 minutes	0	84
150 minutes	0	70

In carcinoma of the cardiac end of the stomach, both the total and the free acids are low, due to lack of obstruction. In my opinion the analyses of the gastric secretion by the fractional method yields results of great significance and of distinct aid in

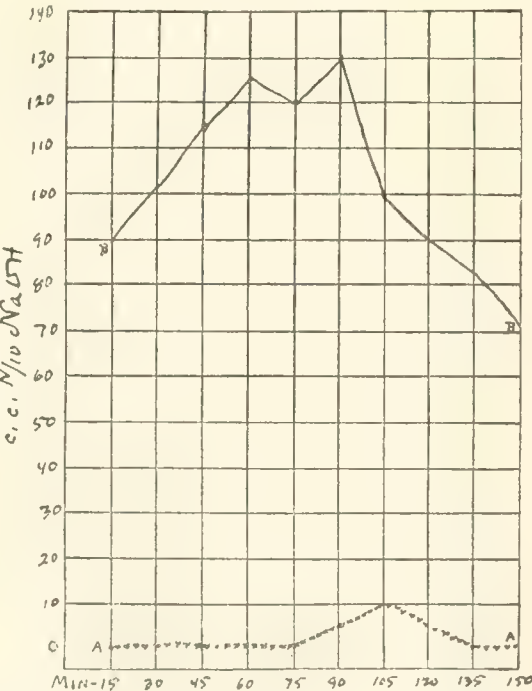


CHART V.—Pyloric carcinoma; AA, free acid; BB, total acid.

the diagnosis of diseases of the stomach and duodenum.

Reflex irritation due to gallstones, appendicitis, colitis or renal stone, may influence the gastric curve markedly and give results simulating duodenal

ulcer. This must always be borne in mind, and means should be employed to differentiate structural duodenal disease from reflex disturbances.

Smithies states that in gastric cancer or in cases where a peptic ulcer is suspected of being carcinomatous, the Glutzenski method for the study of gastric acidity is particularly instructive. The method of procedure is as follows: The contents of the fasting stomach are siphoned out in the morning and the findings recorded as to amount, color, odor, relics of food, and blood, litmus reaction, free acid with Congo paper and free acid with phloroglucin vanillin; lactic acid with Strauss or Uffelmann's tests, and occult blood with the guaiac turpentine, or benzidine tests. The amount of free acid and total acid is determined by titration. The microscopic findings are also recorded. Then the stomach is washed out clean with tepid water and an Ewald-Boas test breakfast is given. Forty-five minutes later the stomach contents are siphoned out again and the stomach thoroughly rinsed out anew. The test dinner is then given: about 100 grams of chopped roast veal or boiled beef; 150 grams of potato cooked with twenty grains of fat and no fluid. The stomach contents are siphoned out anew after two hours. All this is done in one day. The findings of larger amounts of hydrochloric acid after the test dinner speaks for ulcer; smaller proportions for cancer. The insufficiency of the stomach mucosa is revealed by the lack of acid after the test dinner, even when some acid was found after the test breakfast. Fonis regards such findings as absolutely conclusive in doubtful cases. He tabulates the findings in twenty-six ulcer cases and comments on the value of the information thus derived. In four cases the findings proved dubious and the course of the cases showed that the ulcer at the time must have been just starting—malignant degeneration. The procedure, says Smithies, is one of much promise, and should be tried in doubtful cases as a matter of routine. Negative information should never, however, postpone laparotomy where the clinical history is suggestive. (Smithies).

Rusca does not believe in the reliability of the Glutzenski test. According to him there are too many factors that play an important part in determining the amount of free hydrochloric acid. Kuttner also could not substantiate Glutzenski's claims. Nevertheless, Nicolayessen, of Christiania, reported before the International Congress of Surgeons, New York, 1914, that he and his collaborators have obtained good results with this method.

According to Zoeppritz, Glutzenski's method in 462 cases, so called relative secretory insufficiency occurs comparatively often in the presence of gastric carcinoma, but may also be observed in other affections of the stomach and even when the stomach is healthy. The method is useless in the differential diagnosis between stenotic and non-stenotic carcinoma and between carcinoma and ulcer, and in the early diagnosis of malignant disease.

A method has been devised for the simultaneous fractional analyses of the gastric and duodenal contents. The technic is as follows: An Einhorn tube is inserted into the duodenum of the patient, using

the technic of Einhorn. Next morning a Rehfuess tube is inserted into the stomach of the patient. The patient is then given an Ewald test meal, and the gastric and duodenal contents removed simultaneously at varying intervals of time. The extractions are usually made every fifteen minutes for a period of two and a half or three hours. The gastric contents are analyzed for the acid secretions and the enzymes; the duodenal contents are analyzed for the various enzymes. The results are charted in the form of a curve. It is possible by this means to determine whether there is any point of bleeding in the duodenum. The involvement of the pancreatic duct and gland is easily demonstrated if the curve of enzyme action is level or descending, indicating pancreatic involvement or obstruction, instead of being ascending, as is normally the case.

Borderline cases of malignancy of the gastric mucosa may be more accentuated by a study of the protein contents of the gastric secretion. The so called gastroalbumorrhea test is quite easily carried out. On the assumption that malignant disease of the stomach is accompanied by degeneration processes which liberate debris and protein matter into the stomach cavity, Salomon recommended a test which he thought was diagnostic of cancer of the stomach. The theoretical assumption is in accordance with our knowledge of cancer in general, and the results reported by various observers would seem to bear out the theory. It must be remarked, however, that such diseases as gastric ulcer would also cause a gastroalbumorrhea, as has been demonstrated by several opponents of Salomon's test.

Salomon's method for testing the stomach contents for the albumin fraction is as follows: The stomach is first carefully washed on the evening before testing, after a preliminary nonalbuminous fluid diet has been administered for twenty-four hours. The next morning the stomach is thoroughly washed with normal saline solution, 400 c.cm., the same fluid being repeatedly used and then tested for the quantity of nitrogen by the Kjeldahl method and for the quantity of albumin by the Esbach method.

Salomon found the nitrogen content in noncarcinomatous cases to be between 0 and 16 milligrams per 100 cubic centimetres of fluid. His study of six cases of cancer of the stomach revealed between 16 and seventy milligrams of nitrogen per cubic centimetre, and the albumin content was between 0.06 and 0.5 parts per thousand. According to Salomon, one should be extremely suspicious of carcinoma if the nitrogen content is more than twenty milligrams per 100 cubic centimetres of the fluid, or if the Esbach test gives a distinct precipitate.

Wolff and Junghans modified the Salomon technic somewhat. They determined the albumin by the phosphotungstic acid reagent. They obtained very good results. Smithies found that the Wolff-Junghans modification is of decided value. Another modification of this test has been recommended by Goodman, who desired to eliminate the labor involved in the Kjeldahl determination. He analyzed the gastric contents for phosphorus.

Katzenelson studied the reaction of Wolff-Jun-

hans in twenty-one cases of achylia and in fourteen with various degrees of acidity, but all without blood to be detected in the stomach. He did not wash the stomach before giving the test breakfast. In nine cases of malignant achylia, with complete absence of hydrochloric acid and total acidity not exceeding sixteen, or total anacidity as in seven of this group, he found the albumin index between 200 and 400. In ten cases of benign achylia the index ranged from twenty to thirty. In two cases of doubtful achylia, probable cancer, it was 100 to 400. The reagent is a mixture of 0.3 parts phosphotungstic acid; one part hydrochloric acid; twenty parts alcohol; and water, 200 parts. They apply the test to a set of beakers containing the stomach content diluted in turn from 0.25 up to ten per cent. In each beaker one drop of reagent is superimposed on the diluted stomach content. The index is the dilution in the first beaker in which no ring forms at the point of junction with the reagent. The albumin index is thus the figure representing the dilution: 10, 20, 40, 80, 100, 200, or 400. In Katzenelson's cases, he thus found the albumin index in nine cases of gastric cancer from 200 to 400—average 355. In his ten cases of benign achylia it was only from twenty to eighty—average fifty-five. Hence it seems that an albumin index below eighty speaks for benign conditions; above 100 for malignant forms of achylia. As this test is so very simple it must be considered an extremely valuable method for differentiating between malignant and benign achylia. Cases in which even small amounts of hydrochloric acid are present are not suitable for this test, as there is liable to be considerable albumin in the stomach content. The index ranged from 100 to 400 in fourteen patients with different proportions of hydrochloric acid in their stomach content, although cancer could be positively excluded.

Siegel concurred with Salomon's opinion, concluding from his own results that a figure over twenty-five milligrams of nitrogen per 100 cubic centimetres is suspicious of gastric cancer. Orłowski, Schittenhelm, and Lowejs, Zirkelbach, Witte, and Schupfer are convinced that the Salomon test is of value. Gerster regards this test as useful in cancer of the lesser curvature without stenosis, unless the cancer has formed on an old ulcer, in which case the little hydrochloric acid present would digest the albumin present. Zirkelbach, however, is of the opinion that the minimum nitrogen content suggestive of cancer is thirty milligrams nitrogen per 100 cubic centimetres of washing fluid. Berent and Guttman, Romano, Minkowski and Yague have reported very unfavorable results with this test. Goodman, on the basis of his findings with his modified technic, concluded that: 1, in normal persons and in persons suffering from diseases exclusive of carcinoma of the stomach, the Salomon test gives more than twenty milligrams of nitrogen per 100 cubic centimetres of wash water; 2, not all cases of gastric carcinoma reveal more than twenty milligrams of nitrogen—the absence of ulceration is probably responsible for this; 3, the test is by no means pathognomonic and can be considered as contributory only to the other symptoms; 4, the phosphoric acid

of the wash water of a noncarcinomatous case is less than ten milligrams per 100 cubic centimetres, whereas in cancerous conditions it usually exceeds ten milligrams.

I have found the gastroalbuminorrhea test to be of distinct value in the diagnosis of cancer of the stomach. It will be seen from the accompanying table that the figures obtained in gastric malignancy were very much higher than the figures found in other diseases of the stomach. Care must be observed to eliminate gastric ulcer and acute inflammation of the stomach mucosa. A negative test is significant of a nonmalignant condition. A positive test has to be judged discriminatingly.

I wish again to call attention to the fact that ordinary, routine examination of the gastric contents after an Ewald test meal is of but little value as an aid to diagnosis of gastric carcinoma, as will be especially seen from the following report.

Graham and Guthrie analyzed the gastric contents of 150 patients suffering from carcinoma ventriculi. They obtained these results, which I shall present in the form of a table. This shows how little reliance can be placed on an ordinary gastric analysis.

Free hydrochloric acid present in.....	70 cases
Free hydrochloric acid (no blood, lactic acid, food) in	46 cases
Blood present in.....	80 cases
Blood and lactic acid present in.....	20 cases
Blood and food present in.....	15 cases
Blood and food and lactic acid present in.....	30 cases
Food remnants present in	62 cases
Lactic acid present in.....	64 cases

MEDICAL NOTES FROM THE FRONT.

By CHARLES GREENE CUMSTON, M. D.,

Geneva, Switzerland.

GUNSHOT WOUNDS OF THE BLADDER.

Wounds of the bladder in warfare may occur without lesion of the integuments, as in fracture of the pelvis from crushing, or on the contrary, the abdominal wall may be injured from a bullet or exploding shell. Wounds of the bladder without injury to the integuments follow the course of major traumatism and set up symptoms ordinarily quite characteristic, such as decreased or absent micturition, presence of blood in the urine, negative catheterization and signs of engorgement of the true pelvis. In addition, there usually exist other symptoms indicating deep seated lesions from extensive traumatism, viz.: stupor, shock, small pulse, etc.

When the diagnosis has been made and if the patient is in a condition to support surgical interference, all surgeons will agree with me that by a free suprapubic incision the exact condition of affairs should be ascertained *de visu*. For this purpose local anesthesia is usually quite sufficient, and according to the lesions found the necessary additional anesthesia may be employed which I shall describe elsewhere.

The existence of intraperitoneal lesions or extensive pelvic damage assume a capital importance in the prognosis. Regardless of the most conscientious care, these patients often die either before operation or within a few days thereafter.

Wounds of the bladder with lesions of the integuments differ widely in the extent of traumatism obtaining. They may be very extensive wounds, the result of exploding shell, or as frequently happen, superficially small bullet wounds which may be overlooked by the inexperienced medical officer.

In the case of the extensive injury to the integuments, the site of the superficial lesion, the direction of the wound, the absence of micturition, the discharge from the wound of a fluid having the odor of urine, make the diagnosis an easy matter. However, it is well to remember that with a large superficial wound a small wound of the bladder may exist without early symptoms and consequently it is important to carefully and closely examine for deep seated lesions.

An absolute indication is to assume proper drainage and by this is meant the bladder itself and not only the urohemetic discharges surrounding the bladder. The opening in the bladder wall must be exposed in order to introduce a large drainage tube. If this opening cannot be found the bladder should be deliberately incised in the median line in order to enable thorough exploration of its inner aspect. By this means one can often ascertain the real amount of damage done, while it also offers a better approach to lesions of the interior vesical surface.

Too much cannot be said to impress upon the less experienced the necessity of a thorough examination for the possible presence of an entrance aperture of the missile in cases where the injury to the integuments is small. This entrance aperture may be very small, almost completely closed and situated quite a distance away, as for instance in the gluteal or sacral region or perhaps in the flanks. The intergluteal furrow must never be overlooked in this connection.

Such an examination may appear to be a simple matter in a well equipped base hospital where the activity is not excessive, but in ambulances at the front, especially during the reception of large numbers of wounded continuously arriving, it is far from easy. It is nevertheless absolutely necessary and should be done by the surgeon himself, and not by his assistants.

In many cases symptoms of bladder lesions are evident, the bladder is found empty or the urine bloody; a persistent suprapubic tumefaction obtains with or without the presence of gas, and occasionally a peritoneal reaction.

On the other hand, lesions of the bladder may be doubtful, but in either case one should look for one's self and not be content with expectant treatment, with or without a permanent catheter. The better practice in doubtful cases would be to operate, as, all things considered, it gives the patient the better chance.

In reality, the case is one of abdominal wound and the diagnosis can be made certain only by an exploratory abdominal incision. Therefore, without delay involving loss of valuable time in passing catheters, make a median suprapubic incision and look for the wound in the bladder. At the same time explore the abdominal cavity, and when in the least doubt as to the extent of possible injury, re-

move the bloodclots and other neighboring collections, and act surgically according to indications.

On general surgical principles, it is better practice to perform complete suture of bladder wounds. But experience during the past four years has shown that it is wiser to be content with partially closing large wounds and draining freely. This applies both to the bladder itself and the abnormal extravescical cavity resulting either from the traumatic or operative lesion.

Should one desire to close the vesical wound, it is quite useless to complicate the sutures. It is by far more to the point to operate simply and rapidly by inserting interrupted catgut sutures in just the necessary number.

Therefore, if the wound in the bladder is on the anterior aspect and subperitoneal, the bladder should be drained through the wound itself; the drain at the same time assuring drainage of Retzius' space.

If the bladder wound is lateral and extraperitoneal, drainage as above indicated may likewise be carried out; or the bladder may be drained by a median incision. The continued evacuation of the extravescical cavity must then be assured by a second drain.

If the wound is near the neck of the bladder, a perineal incision is indicated as well as a suprapubic one.

A posterior wound of the bladder, which would be extraperitoneal, may communicate with the rectum, median suprapubic drainage might be attempted, even without complete suture of the bladder wound itself, a thing always difficult to accomplish and only too often ineffectual. But as a very free drainage of the bladder is certainly the best precaution one can take, the rectovesical wound is given thereby the best conditions obtainable for spontaneous closure.

When the wound is intraperitoneal, it is proper to suture the bladder in order to separate its cavity from that of the peritoneum. Drainage of the bladder should be carefully assured, while the space of Douglass should be packed with gauze strips to protect the drains in the proximity of the bladder.

To sum up, it may be said that in wounds of the bladder in warfare, it is of the first importance to freely explore the abdomen through a large incision as soon as the patient's condition permits; and to establish the free and effective evacuation of the urine by draining the bladder itself as well as extravescical cavity resulting either from the original traumatism or from the operative interference.

TREATMENT OF KIDNEY LESIONS.

In the case of missiles lodged in the renal parenchyma it is of utmost importance to locate the region of the kidney containing the foreign body or to decide upon its situation when it is outside of the renal gland. An aseptic missile located in the perirenal atmosphere may be well tolerated but an intrarenal foreign body, or one in contact with the ureter should unquestionably be removed. Hematuria cannot give any precise data, because it may be the result of a simple contusion of the kidney by the missile or its penetration or transfixion of

the gland. The great variability of the position of the kidney and its mobility, as well as the variability of the thickness of the posterior abdominal parietes makes the diagnosis of the localization difficult even with the x rays. To make a precise localization Fullerton uses an opaque ureteral catheter combined with stereoscopic radiography. This method is simple and may be done without narcosis. The ureteral catheter is pushed up into the renal pelvis and general experience teaches that usually the tip of the instrument goes into the upper calyx. Now, the upper end of this calyx is located from two centimetres to two and one half centimetres from the upper renal pole, thus permitting the exact localization of the latter. Stereoscopic radiographs are taken with the catheter in situ and the antero-posterior relationship of the foreign body to the catheter is rested.

It is probable that Chevassu has had about as large a personal experience in the surgery of the kidney in warfare as any surgeon, he having had a total of fifty-six cases. In eleven of these there was a wound of the liver and kidney, of the renal gland and lung in nine, twice the kidney lesion was accompanied by a gastric lesion and in three others the colon was damaged. Three cases of renal lesion also probably had a damaged small intestine and in yet three others there was a wound of the cord or lumbar plexus. A certain number of these kidney cases offered various types of cranial injury or damaged limbs, so that in only twenty-one cases was the renal injury the only lesion present. Aside from the possible gravity of concomittant injury to other viscera, wounds of the kidney are serious from the possibility of hemorrhage or infection. The gravity of hemorrhage is not great and serious internal hemorrhage or hematuria are not frequent, although Chevassu lost five cases, a sixth being saved by nephrectomy. In most renal wounds the hematuria is slight and soon ceases. In five cases a perirenal hematoma developed and in only two was incision required on account of the fever, the others recovering by expectant treatment. Thirty-five cases only offered a hematuria with shock at the time of entrance to hospital. Of these cases there was one nephrectomy (death), seven lumbar drainage (one death) and in three others there were interferences on other viscera besides the kidney with one death. In two other cases a secondary operation was resorted to for lesions other than the kidney, namely once for pleural empyema (death) and once an incision of an intraperitoneal abscess with recovery. The remaining twenty-two cases were treated by absolute rest, diet, and urotropin; three died and nineteen recovered.

In twenty-eight cases the missile had lodged in the kidney (ten deaths) and in eighteen others the ball had gone through the gland (four deaths). The distinctly higher mortality of cases with the missile retained in the kidney parenchyma is due to hematuria, secondary hemorrhage and infection and immediate treatment should be directed against the two latter complications. The danger from hemorrhage is relatively slight, but serious internal hemorrhage which occasionally complicate renal wounds are more apt to be due to injury of some

other abdominal viscus. If the kidney is giving rise to the loss of blood, nephrectomy alone is indicated. Operation for hematuria is only indicated when the loss of blood is continuous and in considerable quantity. Partial nephrectomy can be done in those rare cases where the renal lesion is limited in extent. Other than for hemorrhage, experience has shown that the majority of "tunnel" wounds of the kidney heal spontaneously under proper conservative treatment. When the missile lodged in the kidney is very small, it is better to leave it alone, for it is perfectly well tolerated and its removal necessitates extensive damage to the organ. On the other hand, large missiles which can be readily removed without destruction of the renal parenchyma, should be removed. For the small ones, interference is only required secondarily, if they give rise to accidents. Long standing wounds (from five to eighteen months) may require operation for continued pyuria, nephritis or pain but the majority of cases will not need surgical treatment.

REMOVAL OF FOREIGN BODIES IN KNEE JOINT.

The Belgian surgeons, Willems and Caestecker have treated five cases of movable foreign bodies, in wounded men, by arthrotomy and extraction of the body. This was followed immediately by the patient being allowed to walk about. This method was formerly advocated by Willems following the removal of fluid collections from the joints of the lower extremity. The technic is as follows. After the arthrotomy incision has been closed by three lines of suture, and the patient has recovered from the anesthesia, active movements of the knee joint are begun. This is accomplished by the patient executing a series of movements of flexion and extension of the greatest degree possible. The following day the patient walks about without aid, and he gradually becomes accustomed to this so that within a few days he is able to walk in a normal fashion. The use of this method gives a rapid functional recovery, and for an end result the joint is perfectly normal and there is no subsequent muscular atrophy.

Traumatic Tuberculous Effusion.—H. A. Bray (*Journal A. M. A.*, November 23, 1918) reports a clear cut case of acutely developing pleural effusion of tuberculous nature which arose immediately after a severe muscular strain which sufficed to tear old pleuritic adhesions. The fluid was found to contain tubercle bacilli. Treatment along the usual lines employed in tuberculosis was followed by complete recovery. The author points out that in the majority of the cases reported in which trauma is given as the precipitating cause of pleural effusion there is little evidence of a previous tuberculous pleural lesion. In this case the patient was known to have had a localized patch of tuberculous pleurisy three years before the traumatic effusion. This case suggests the explanation for the not infrequent development of acute tuberculous pleural effusions in apparently normal persons following traumatism which involve the thorax.

Editorial Notes and Comments

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PAINFUL POINTS IN THE DIAGNOSIS OF CHOLELITHIASIS.

The diagnostic value of the painful points encountered in cholelithiasis, depends upon their distinctness and their persistency upon repeated examination. It is rare to find all of the eight points present in the same subject and must not be counted upon. The absence of several painful points does not invalidate the diagnosis, but it is certain that their value is in direct relation to their number. The manner in which these pain areas are associated must be taken into consideration. If, for example, the cystic and phrenic points are painful, in a given case, this circumstance may be of more value than if the cystic and epigastric areas are sensitive. But, above all, no single symptom can be seriously considered *per se*, and in each case one must only draw conclusions from the presence of several points and compare them with the other symptoms.

For several months, or even years, cholelithiasis makes its presence known only by a vague pain, mild signs of hepatic insufficiency, repeated attacks

of indigestion and epigastric distention after meals. In its early phases the lithiasis often assumes the characters of a dyspepsia or some intestinal affection, but the premonitory dyspepsias of biliary origin are well recognized at present. The pain is seated in the epigastrium, while the liver area may be completely free from pain.

In other cases the intestine alone appears to be the seat of the trouble with intense and obstinate constipation and painful intestinal evacuation, the desire occurring during meals. The hepatic paroxysm is usually diagnosticated with ease, but in some cases offers difficulties. In these cases every possible diagnostic means must be resorted to and the precision with which the clinician questions the patient as to the exact location of the harmful spots and the search for the eight painful spots which occur in cholelithiasis when pressure is made over them, are often a sufficient index for drawing attention to the liver and gallbladder and a correct diagnosis being made. Therefore, the value of the painful points is evident in the diagnosis of cholelithiasis, especially in the latent or abnormal forms of the process. But as regards a precise diagnostic topography of biliary calculi—an exceedingly difficult matter—it is uncommon to be able to draw useful indications from the study of the painful points. An uninhabited gallbladder may still be painful on pressure, while pain in the pancreatic-choledochus area, even when fixed and permanent, may be quite as likely due to a pancreatitis as to a calculus embedded in the choledochus.

MOTHERS AND CHILDREN.

One of the distinct surprises of our vital statistics, here in the East, in recent years was the discovery that the foreignborn mothers raised a larger proportion of their children than the nativeborn mothers. Almost needless to say, the nativeborn mothers, in a very large proportion of the cases, live in rather comfortable circumstances and all of them have the advantage of our public school educational system and of the educative influence of contact with other native fellow citizens who have intellectual advantages. The foreignborn mother, on the contrary, in the vast majority of the cases, lives in crowded slums; she has often lacked the educational opportunities afforded to the nativeborn woman as she grew up, and until comparatively recent years she depended, in the care of her children, on the age-long family traditions which had come

down from generations and the origin of which was often sunk in the greatest obscurity.

In spite of this difference, with so many details of it apparently to the advantage of the native-born mother and the serious disadvantage of the foreignborn mother, in both New York and Boston, the foreignborn mother raises one in seven more of her children than does the nativeborn mother. When this fact was first revealed by the statistics, in New York, it was very seriously doubted, and it was not until they had been confirmed by the vitality and mortality records of the neighboring Eastern city that it would be quite credited. Of course the principal reason for the difference in the survival of the two classes of children is that the foreignborn mother almost invariably nurses her infant, while the nativeborn mother almost as invariably does not. This fact alone is probably sufficient to account for the difference in the mortality.

There are a number of almost equally surprising facts concerning mothers and children which deserve to be better known. It is often said in our time when, as Professor Conklin suggested, the cry of Rachel, "Give me children or I die," has been turned by many modern women into "I'd rather die than have children," and when small families are fashionable, that in large families the children suffer in their health from the very fact that the mother is worn out in her strength and vitality while bearing them, and therefore does not transmit such sturdy constitutions to her children as they would otherwise have. It is comparatively easy to show by statistics gathered from the quarters of the city where the families suffer much from poverty that this seems to be the case, but Poponoe and Johnson in their book on *Applied Eugenics* declare that "it can easily be shown by a study of the more favored families that the best children come from the larger families."

Alexander Graham Bell, in his investigation of the Hyde family in America, found evidence that the children which showed the greatest longevity in the family were those who came in the midst of groups of ten or more in the same family circle. His studies showed also that infant mortality was least when the children were born from mothers under twenty-five and that it constantly increases as the mother grows older. Even mothers under twenty have made excellent records, so that it becomes clear that the babies are handicapped in the race of life when marriage is delayed beyond the age of twenty-five or if childbearing is unduly delayed after marriage.

Not only is comparatively youthful maternity better for the children, but it is also better for the mother. The vital statistics of New South Wales show that maternity, so far from being a drain on the vitality, actually seems to be a stimulus by which new stores of vital energy are called upon. The mothers who lived the longest in New South Wales were those who had borne from five to seven children. The younger the mothers, as a rule, the longer the lives of their children.

There is enough information here to contradict a number of popular traditions which are often assumed to be almost obvious. The strain of childbearing would seem to be exhaustive of vitality, but as a matter of fact, it calls out ever deeper and deeper layers of energy which otherwise might have lain latent all during life, and thus provides a renewal of vitality from almost unsuspected sources, rather than any exhaustion. The facile conclusions of an earlier period give way to deductions made from actual investigation which serve to make it clear that nature has wonderful powers of vitality which are manifested under the stress of necessity and whenever a strenuous call is made upon them.

THE HISTOLOGY OF TUBERCULOSIS VULVÆ.

There are two forms of lesions in tuberculosis of the vulva. In the first, the morbid process invades the tissues deeply, involving, not only the epidermis and dermis, but the hypodermis as well and more profoundly. In the second, on the contrary, the process is limited to the epidermis and dermis. From the clinical viewpoint the first form corresponds to the so called ulcerating type and the nonulcerating hypertrophic variety, while the second corresponds to the lupic form, or lupus vulvæ.

In the deeply seated type the anatomic changes are as follows: The epithelium is at times perfectly distinct without any manifest changes, excepting, of course, over the ulcerated surfaces; sometimes beyond them it may be thickened and have undergone horny transformation. Occasionally, but not always, an infiltration of embryonal cells may be seen, the cells being united in little masses in some spots, with or without a giant cell in their centre. The lesions are especially manifest in the hypodermis, sometimes exclusively so. The connective tissue fibres are multiplied and greatly increased in size and swollen by a transparent liquid. There are lesions of chronic edema. There are very numerous ves-

sels and far more numerous lymphatic spaces, while the vessels are surrounded by a cuff of embryonal cells. The embryonal cell infiltration is occasionally very marked in the hypodermis. At some spots cell clusters are seen, in the centre of which epithelioid or giant cells appear, but these two cell types rarely together. In the cell clusters a few specific bacilli may be found, but usually they are rare. The older lesions extend to the dermis, resulting in ulceration, and should this morbid change be late in its development, this is due to the thickening of the epidermis and horny transformation, which is much more evident than in the ulcerating type, where it is frequently nil.

In the superficial form, the lesions are seated in the epidermis and dermis. The former structure is often very much thickened, sometimes only slightly so, and the papillæ are increased in size. But what is more important, from the viewpoint of differentiation from the preceding form, is that the tuberculous lesions are seated in the dermis and not beyond it. They there manifest their presence in the form of embryonal cell proliferation with the formation of rather complete and characteristic tuberculous follicles at some spots. The hypodermis is intact.

Finally, it is known clinically that a leucoplasia vulvæ may conceal tuberculous lesions, and this is a new example of tuberculous leucoplasia, as Audry has shown, for the tongue and internal aspect of the lips and cheeks. It is certain that tuberculosis vulvæ has been of late distinctly separated from other morbid processes of this region and occurs much more frequently than has generally been supposed. Its evolution is always progressive and, therefore, the prognosis must be guarded.

From what has been learned by the histologic study of this morbid process it is clear that only complete destruction and removal of the diseased tissues can effect a cure, and even when a supposedly thorough operation has been done, a recurrence is not at all unlikely.

TUBERCULOSIS AMONG RETURNED SOLDIERS.

A problem of rehabilitation connected with the war will be that of tuberculous returned soldiers. This problem will not concern this country to any very great extent, but it will be a matter of serious importance to Canada, Great Britain and France. Of all the nations that took part in the war France was the nation among whose soldiers pulmonary tuberculosis was most prevalent owing to the press-

ing need for fighting men during the first two years of the war. Examination was somewhat lax and many men were passed as fit who were in fact definitely tuberculous and under the stress and strain of a soldier's life the disease developed in an active form, and so it was spread among the susceptible. When the situation was realized all tuberculous soldiers were discharged from the French army, and American authorities on tuberculosis went to France to assist in grappling with the problem.

The disposition of the returned tuberculous soldiers presents many difficulties. In Great Britain and Canada they are first sent to hospitals and then to sanatoriums. In Canada sanatoriums have been established in each province in which occupational therapy and industrial reeducation comprise a part of the treatment. By occupational therapy is meant the provision of an interesting employment which will help to pass the time pleasantly and afford mental and physical occupation. Industrial education is teaching a man a new trade or fitting him for a new occupation when his physical condition will not permit him to return to his former employment. So far, so good.

In Great Britain a somewhat similar course is followed. But the great difficulty is to discriminate between the different stages of the disease and to decide when, if ever, a patient is in a fit state to exert himself and when he is able to do without a pension and become selfsupporting. At first thought, the case of the tuberculous soldier appears more simple than that of the returned maimed soldier. In reality, it is more complex, by far. The former is wounded with tuberculosis and the wound is frequently invisible. If the case is one of any gravity the mode of procedure is obvious. The patient must be kept quiet, free from worry; that is, he must have complete relaxation of mind and body. If, however, he is in that stage of the disease in which there remains a hope of cure he is in a degree unfortunate, because it is a feature of the tuberculous to be sanguine, he does not realize that he is ill and he is apt to exert himself too much, to forego treatment, and to break down. If, again, his tuberculous wound is invisible he is liable to be regarded both by the physician and himself as entirely cured and enter into the hurly burly of life with disastrous results to himself and, frequently, to the community.

It must not be forgotten that although much useful work is possible for men in the early stages of tuberculosis, such work can only be done under sanatorium conditions of work and rest hours, with appropriate diet and absence of overstrain, worry, and undue excitement. If the wound, which is invisible, is healed, it does not necessarily signify that

the man is sound, for under unfavorable conditions his health will give way.

No false economy should be employed in dealing with the returned tuberculous soldier; he has served his country and his country should be generous with him. Neither should undue sentimentality be used. He should be treated fairly, but justly, and, above all, when his health will allow, he should be taught a suitable trade or profession by which he may become, at any rate to some extent, selfsupporting. The fact should always be borne in mind that the man who has had a pulmonary tuberculous lesion is liable to a recurrence of the trouble if things go wrong.

COMMON THERMOMETERS.

Our instruments of sanitation are often crude, and when they are perfect we often fail to make the most of them. Take for example, the thermometer. It is now recognized that for purposes of ventilation (the term is not good,—suppose we say, “best atmospheric surroundings”) the proper temperature of the air is of great importance. This is especially true of school rooms where mental work is being carried on wholesale. Pupils do badly when the temperature of the room falls below or runs above a certain point, and since we are so anxious lest we do not get all we should from the schools for the money we put into them, it is imperative that the temperature of the room be properly regulated. Thermostats are scarce, are also often crude, and are usually out of order, so that we must fall back upon the common thermometer. Unfortunately, the cheapest kind of thermometers are usually selected. If you will set a dozen of these instruments side by side, you will scarcely find two of them agree, and there will often be a variation of six degrees. Now, if the temperature of a room is to be kept below 70° and the thermometer registers six degrees above what it should, the temperature may be 76° when the instrument reads 70° . This would certainly be a sad state of affairs if a clinical thermometer were so inaccurate, and yet the detection of a fever heat in a room as affecting forty delicate, nervous systems would seem to be of considerable moment. It may be wise, for the time, to allow a clinical fever to remain. It is not wise to maintain an atmospheric fever for a moment longer than is necessary.

In the library of a certain university there has been hung recently, by the side of the long resident vertical thermometer, one of the new fangled dial temperature indicators. There is a discrep-

ancy of four degrees in the readings of the two, yet no one has been sufficiently interested to find out just which one is correct, and the astute librarian has taken the half way point between the two readings as possibly correct. Taking 70° as the proper temperature, he sees that one thermometer registers 68° and the other 72° . As there are all sorts of variations of temperatures in the big room according to the distance from an open window, the readings of those thermometers are not of so much consequence. And this leads to the matter of the placing of thermometers.

Two thermometers which register alike when placed side by side may differ in their readings when hung in different parts of a large room. If there are two accurate thermometers, the average of their readings may be taken, and if there is but one, it should be hung in such a place as to give an average reading for the room. Evidently it should not be hung near the door as it usually is, nor near a window. The continuous and complete circulation of air is of great importance in ventilation, and if there is a proper circulation the reading of a thermometer in a large room, if drafts are eliminated, should be practically the same everywhere except near the openings of the room. Thermometers have heretofore been difficult to read, and it has taken time to examine them frequently. It was not to be wondered at that a public school teacher who is always occupied should allow the temperature to mount unduly. Thermometers are now being put on the market which can be read at a glance, and there is less excuse for superheating. No doubt one will soon be invented which can be set like an alarm clock, so that when the mercury goes up or down to a given point a buzzer or bell will be set going.

Where there is a possibility of being more exact in our methods of sanitation by the small cost of an accurate thermometer, one that can be easily read, and properly placed, it is inexcusable to be as careless as we usually are in the matter of the heating of rooms.

THE DEATH OF HORACE FLETCHER.

Mr. Horace Fletcher, who died in Copenhagen on January 13th, won widespread notoriety by his lectures, addresses, and published communications on prolonged mastication. He was born in Lawrence, Mass., in 1849 and educated at Dartmouth College. Since 1865, he has been a traveler, author, and lecturer. After taking up several hobbies, he began, about fourteen years ago, to publish his views regarding the necessity for prolonged mastication. He held that practically every one ate too much and that the appetite could be satisfied and thoroughly satisfactory and physiological results could be ob-

tained by materially reducing the amount of food eaten, provided that the food was thoroughly masticated. He was very successful in his propaganda and the practice of Fletcherism, as it was termed by him, had a very considerable vogue, not only in the United States, but in the north of Europe. He carried out a series of experiments at Yale University and also at Cambridge University in England, the results of which tended to confirm his theory. He served as a food economist on the Belgian Food Commission. Mr. Fletcher was a member of numerous clubs and scientific societies and had a very wide circle of friends, as, aside from his particular hobby, he was a man of broad culture and great personal charm.

News Items.

The Associated Physicians of Long Island.—A series of clinics will be held at the Kings County Hospital on January 25th by the Associated Physicians of Long Island.

Harvey Society Lectures.—The third lecture in the series will be given Saturday evening, January 25th, by Dr. R. M. Yerkes, his subject being Psychological Examination of the Soldier.

Gift to Holyoke Hospital.—A gift of \$10,000 for a children's ward in the Holyoke City Hospital was made on January 10th, by Mr. John P. Baggs, president of the Parsons Paper Company, of that city.

Brooklyn Medical Association.—The principal feature of the January 8th meeting of this association was an address by Dr. Victor A. Robertson on his experiences at La Panne Hospital in Belgium which is under the direction of Doctor Depage.

Queens-Nassau Medical Society.—At the annual meeting of this society, held recently in Brooklyn, Dr. James S. Cooley, of Mineola, was reelected secretary-treasurer, an office he has held for many years. Dr. L. Howard Moss, of Richmond Hill, was elected president and Dr. Arthur D. Jaques, of Lynbrook, vice-president.

Kings County Medical Society.—At the annual meeting of this society, held in Brooklyn on December 17th, the following officers were elected: Dr. Stephen H. Lutz, president; Dr. R. L. Moorhead, first vice-president; Dr. John A. Lee, second vice-president; Dr. Charles E. Scofield, secretary; Dr. Alfred Bell, treasurer.

Personal.—Dr. Harry Lowenburg announces his removal from 262 South Seventeenth street to 2011 Chestnut street, Philadelphia.

Major General William C. Gorgas, Medical Corps, formerly surgeon general, U. S. Army, has been named by the French government, among others, as a commander of the Legion of Honor.

Professor C. G. Barkla, professor of natural philosophy in the University of Edinburgh, has been awarded the Nobel prize in physics for 1917, for his work on röntgen rays and secondary rays.

Dr. Simon Flexner, of the Rockefeller Institute for Medical Research, was elected president of the American Association for the Advancement of Science, at the annual meeting held in Baltimore on December 27th.

Specific Hospitals for Special Treatment.—The Office of the Surgeon General of the Army has made arrangements to send certain classes of patients to specific hospitals where special facilities for treatment are provided and has issued a list of nineteen classes of cases with the hospitals which will treat such cases. The classes of cases include amputations, chronic arthritis, blindness, deafness, epileptics and mental defectives, insane, maxillo-facial, general medical cases, functional neuroses, drug addicts, and inebriates, peripheral nerve injuries, and paralyses, speech defects (not neurotic), general surgical cases, pulmonary tuberculosis, wounds or injuries of the skull or brain, wounds or injuries of the spinal cord and organic disease of the nervous system. Provision is also made that "patients who will be benefited by waters of Hot Springs, Ark.," will be sent to the Army and Navy General Hospital at that place.

Hospital Work Authorized by War Department.—The following additional hospital construction has been authorized and will be undertaken at once by the construction division of the army: At Walter Reed General Hospital, Washington, D. C.: Alterations and additions to the receiving ward and the construction of a building for automobile repairs and farm mechanics necessary for physical reconstruction exercises. At Debarkation Hospital No. 51, at Hampton Roads, Va.: nurses' quarters, barracks for enlisted men, as well as mess barracks for them, diet kitchens, alterations to existing barracks and sheds, a new wharf, and a hospital train track and shed. The estimated cost at this point is \$195,000.

Medical Association of the Greater City of New York.—The annual meeting of the association will be held in Du Bois Hall, New York Academy of Medicine, Monday evening, January 20th, under the presidency of Dr. Edward E. Cornwall, of Brooklyn. The programme includes the following papers: The Present Status of Some of the Newer Methods of Obstetrical Procedure, by Dr. Frank Oastler; The "Higher Up" Theory of Sterility in Women and Its Relation to the Endocrines, by Dr. Samuel W. Bandler; A Review of the Progress of Obstetrics and Gynecology for the Year 1918, illustrated by lantern slides, by Dr. J. Osborn Polak, of Brooklyn. Among those who will take part in the discussion are Dr. J. Clifton Edgar, Dr. Asa B. Davis, Dr. Austin Flint, Jr., Dr. G. W. Kosmak, Dr. George G. Ward, and Dr. George I. Brodhead. Officers to serve for the ensuing year will be elected.

Western Surgical Association.—Dr. Roland Hill, of St. Louis, was elected president of this association, at the twenty-eighth annual meeting held in Chicago on December 21st, succeeding Dr. James F. Percy, of Galesburg, Ill. Other officers were elected as follows: Dr. Emil G. Beck, of Chicago, first vice-president; Dr. George N. Kreider, of Springfield, Ill., second vice-president; Dr. Arthur T. Mann, of Minneapolis, secretary-treasurer (reelected); Dr. Jabez N. Jackson, of Kansas City, Mo., Dr. Edward Evans, of La Crosse, Wis., and Dr. Edward S. Judd, of Rochester, Minn., were elected members of the executive council. Next year's meeting of the association will be held in Kansas City, Mo.

Commissioner Copeland Criticised.—The executive committees of the Citizens' Union and the Women's City Club have adopted resolutions asking the Commissioner of Health of the City of New York, Dr. Royal S. Copeland, to reconsider his decision to withdraw the division of industrial hygiene from the Bureau of Preventable Diseases. These resolutions assert that the director of the bureau, Dr. Louis I. Harris, has had exceptional training and experience which would make him the best person to direct the division of industrial hygiene, which is, moreover, so closely associated with the work of the Bureau of Preventable Diseases that its establishment as a separate bureau would involve a great deal of wasteful duplication. The proposed change is characterized as being in a line with the wholesale removal of specialists which was inaugurated by the mayor last spring.

American Women's Hospitals to Send Doctors to Serbia.—Announcement has been made by the American Women's Hospitals of the medical personnel for the Serbian unit of the American Red Cross, which will leave for work in Serbia just as soon as passports can be obtained. This will probably be within a month. Those who are going include Dr. Minnie C. O'Brien, San Antonio, Texas; Dr. Marjorie B. Burnham, Kinsman, Ohio; Dr. Katherine M. Cook, Pittsburgh, Penn.; Dr. Mary H. Elliott, Columbus, Ohio; Dr. A. F. H. Greene, Fergus Falls, Minn.; Dr. Lulu Hunt Peters, Los Angeles, Cal.; Dr. Helen F. Ratterman, Cincinnati, Ohio; Dr. Harriet Gervais, Dorchester, Mass.; Dr. Sarah Elizabeth Foulks, Burlington, N. J.; Dr. Edna Ward, Denver, Colo., and Dr. Marie Hyndman, New York City. The American Women's Hospitals received a check for \$1,500 from the Business Women's Christian League, of Philadelphia, for an ambulance and one year's maintenance. Another check, for \$1,016, came from the National Special Aid Society, of Wilmington, N. C., for an ambulance.

Peck Memorial Hospital.—The Carson C. Peck Memorial Hospital, at Albany avenue and Crown street, Brooklyn, was opened for inspection on Friday, January 10th. The institution is well equipped with all modern appliances, and has accommodations for about eighty adults and twenty children, in wards of eight beds and four beds, respectively, in double rooms and single rooms, respectively, and suites of two rooms and bath. The main floor contains the administration offices and waiting and reception rooms, the children's ward, and its special solarium; on the next floor are the wards, examination room and laboratory; the second floor is devoted to private rooms; the maternity ward and the nursery occupy the third floor, while on the fourth floor are operating, dressing, and sterilizing rooms and the recovery room. The operating rooms are novel in their appointments and are toned in French gray, instead of the usual white. The superintendent is James H. P. Ritter, formerly of the Presbyterian Hospital, New York. Dr. Magnus T. Hopper is medical director of the institution. Dr. Bruno W. Bierbauer is chief of the medical department, and Dr. William Francis Campbell, Lieutenant Colonel Medical Corps, U. S. Army, is chief of the surgical department.

Philadelphia Medical Societies.—The following medical societies will meet in Philadelphia during the coming week: Monday, January 20th, Academy of Medicine and Allied Sciences, Blockley Medical Society, Medical Society of the Woman's Hospital; Tuesday, January 21st, Mount Sinai Hospital Clinical Society, South and West Branches of the Philadelphia County Medical Society; Wednesday, January 22d, Philadelphia County Medical Society, Neurological Society; Thursday, January 23d, Pathological Society; Friday, January 24th, Northern Medical Association.

Meetings of Medical Societies to Be Held in New York.—The following medical societies will meet in New York during the coming week:

MONDAY, January 20th.—New York Academy of Medicine (Section in Ophthalmology); Medical Association of the Greater City of New York (annual); Psychiatric Society of Ward's Island; Yorkville Medical Society.

TUESDAY, January 21st.—New York Academy of Medicine (Section in Medicine); Federation of Medical Economic Leagues (annual).

WEDNESDAY, January 22d.—New York Academy of Medicine (Section in Rhinology and Laryngology); New York Society of Internal Medicine; New York Surgical Society; Brooklyn Pediatric Society.

THURSDAY, January 23d.—Hospital Graduates' Club, New York (annual); New York Physicians' Association; Ex-Intern Society of Methodist Episcopal Hospital, Brooklyn.

FRIDAY, January 24th.—Academy of Pathological Science; Audubon Medical Society (annual); New York Clinical Society; Society of Alumni of Sloane Hospital for Women; Brooklyn Society of Internal Medicine.

SATURDAY, January 25th.—Harvard Medical Society; Lenox Medical and Surgical Society; New York Medical and Surgical Society (annual); West End Medical Society.

The Bronx Hospital Charges.—Charges against the financial management of the Bronx Hospital Association are characterized as preposterous and slanderous by Dr. Alexander Goldman, president of the board of directors. He states that the author of the charges, laid before the State Board of Charities, who formerly acted as manager of collections for the hospital fund, will be sued for libel and slander. Doctor Goldman says that instead of \$150,000 which it was alleged in the charges had been collected from the people of the Bronx, the total amount collected in eight years was less than one third of this sum, out of which payments to date of \$8,500 have been made upon the Eichler property, with approximately \$15,000 on hand to make the necessary alterations for a hospital of 100 beds. Out of this sum also there have been paid during eight years the yearly deficits in the expenses of the dispensary, which has treated more than 35,000 persons yearly, charging a maximum sum of ten cents a visit where patients could afford to pay for treatment, and charging nothing where the patients could not afford to pay. In regard to the charge that tens of thousands of dollars had been spent in printing and advertising, Doctor Goldman says that the total printing bills for the Bronx Hospital never exceeded \$300 a year. The books of the institution have been audited by a certified public accountant and are open to inspection by the State Board of Charities or any one else. As to the price paid for the Eichler mansion, expert realty appraisers agreed that the price was from \$20,000 to \$25,000 below the market value.

Modern Treatment and Preventive Medicine

A Compendium of Therapeutics and Prophylaxis, Original and Adapted

RECENT GLEANINGS RELATIVE TO THE PROPHYLAXIS AND TREATMENT OF INFLUENZA.

BY LOUIS T. DE M. SAJOUS, B. S., M. D.,
Philadelphia.

I. PROPHYLAXIS.

The tendency noticed in the latter part of December toward a secondary rise in the number of cases of influenza, the forebodings of a return of the earlier very serious epidemic, and the wealth of new data available on the disease, appear to warrant at this time an attempt at a critical summarization of the prophylactic and therapeutic measures that may be applied for the better control of the condition. Unfortunately, instances of whole families stricken with the disease, and of children mourning their parents claimed as victims, are still being met with, and all serviceable information that can be gleaned from recently accumulated observations may yet find an early practical application. Before the various measures of prophylaxis can advantageously be discussed, a brief review of some of the etiological and epidemiological peculiarities of the disease will be in order.

Epidemic influenza superficially appears to have little relationship to the coryzal and other affections of the respiratory tract which have been termed "grippe" or "influenza" during the intervals between severe epidemics. Yet every fall there occur mild epidemics of "colds," in many cases of which the symptoms are indistinguishable from those of epidemic influenza when uncomplicated. The salient clinical difference between ordinary "grippe" and the severe epidemic recently encountered is the tendency of the latter toward complication with pneumonia. The impression has been widespread that the virus responsible for the recent epidemic was imported from Europe; yet Soper, 1918, has called attention to the fact that last March and April the Army training camps in this country were visited by an epidemic of influenza apparently identical with that of September and October save in its mild character and absence of pneumonic complication, in consequence of which it attracted but little notice. Studying the curves of incidence of influenza and of pneumonia at various Army camps, Soper found marked discrepancies between the two conditions. The development of the influenza visitation showed considerable regularity in the different camps, taking place after the manner of an explosion, in which the maximum number of cases occurred within about ten days after the onset, and the total duration of the outbreak was less than three weeks in most instances. The curves of pneumonia incidence, on the other hand, proved entirely different from those of influenza. The development of the pneumonia cases did not seem to take place in an explosive fashion, and although the time of greatest pneumonia incidence was usually about one

week after the greatest influenza incidence, the pneumonia curves for the different camps did not resemble one another, the pneumonia bearing no fixed relationship to the influenza, save that it followed it. These observations suggest that the conditions governing the development of pneumonia during influenza are somewhat different from those governing the development of influenza itself, and that it may be advisable to differentiate from the measures appropriate for influenza prophylaxis certain other measures particularly calculated for the prevention of its deathdealing complication, pneumonia.

Whether the influenza bacillus of Pfeiffer, possibly in an unusually virulent form, is the cause of the disease, must still be considered uncertain, though a number of observers have reported finding it in large numbers in the sputum of these cases. Recent researches of Richet, Jr., and Barbier show that the complications of influenza, including pneumonia, exhibit a variable flora, the Pfeiffer organism, the pneumococcus, and the catarrhal micrococcus occurring alone or in combination. Especially interesting have been the recent observations of Nicolle and Le Bailly, who demonstrated in the bronchial expectoration of influenza cases a filterable virus manifestly capable of inducing influenzal symptoms in man and the monkey. According to Nicolle and Conseil, both influenza and measles are due *per se* to filterable viruses, while their complications are due to other recognized organisms comprising, in the case of influenza, chiefly the pneumococcus and the Pfeiffer bacillus.

That prophylactic measures against influenza must be both prompt and energetic if the disease is to be controlled follows logically from two of its characteristics, viz., short incubation period and extreme contagiousness, the combination of these two peculiarities accounting for the explosive rapidity with which extension of the disease may occur. The incubation period is stated by many as two or three days, but according to Violle, its maximum duration is twenty-four hours. Contagiousness doubtless varies with the degree of virulence of the germ or the susceptibility of the individual exposed; in the recent epidemic the high degree of contagiousness was illustrated by an instance reported by Lereboullet, in which the entire number of thirty-one children in a small children's hospital service fell ill with influenza within three days as a result of contamination of a nurse. Absence of immunity following an attack of influenza is an attribute upon which much stress has been laid, in textbooks especially. Recent observation has seemed, however, to necessitate a decided revision of this view. Data concerning this point, as well as certain other features bearing upon the question of practical influenza prophylaxis, will be referred to in the succeeding issue.

(To be continued.)

General Principles in Treatment of Influenza.

—Thomas Horder (*Lancet*, November 23, 1918) says that since no one can foretell the severity of a case of influenza when it is first seen the initial treatment should be based on the consideration that every case is potentially a severe one. Order the patient to bed with the first symptom and keep him there until at least a week after his temperature has become normal. Then allow him to get up only if the heart and lungs are normal. The room should be large, light and airy with the windows kept wide open day and night irrespective of the weather and the temperature of the room. If possible the latter should be kept more or less uniform at about 60° F. by artificial heat. Proper ventilation is the most important point in the treatment of all cases. The diet should be limited to hot fluids and no attempt should be made to "feed up" the patient. Meat extracts are to be avoided. The bowels should be well opened by a double dose of the patient's customary laxative, or by 0.015 gram (one fourth grain) of calomel for four doses at hourly intervals, followed by a hot saline. The patient should be sponged all over twice daily with warm water. No drugs are specific, but 0.6 gram (one fourth grain) each of acetylsalicylic acid and Dover's powder should be given at once and repeated in six hours, to be followed by some simple diaphoretic. Severe headache is best relieved by 0.3 gram of acetphenetidin with 0.13 gram of caffeine every four hours for four doses. For gastric disturbance give the following mixture every six hours:

Sodium bicarbonate,	}ã 0.6 gr. x;
Sodium sulphocarbolate,	
Glycerite of phenol,	.....0.6 M. x;
Peppermint water,	.....to make 30.0 oz.

For vomiting abstain from feeding for twenty-four to forty-eight hours, give 0.06 mil. tincture of iodine in 4.0 mls of water every hour for six doses, inject 500 mls of normal saline into the rectum two or three times during the starvation period. The cough is often a difficult problem and local applications of mustard and flaxseed poultices to the chest, inhalations of four parts of compound tincture of benzoin with one of menthol, or sprays containing two per cent. each of chloretone and menthol in liquid petrolatum are often useful. Codeine or heroin are of some value, but in the most intractable cases chloral with ammonium bromide in fluid extract of glycyrrhiza is the most useful. Sleeplessness may be relieved by ammonium bromide in ammoniated tincture of valerian, paraldehyde disguised with tincture of quillaja and tincture of orange, or given per rectum, or large doses of chloral hydrate and ammonium bromide. In the intensely toxic cases with high fever the bedding should be light and a cradle used to raise it off the patient. The thermometer should guide the amount of bedclothes, not the patient's sensations. Very high temperature, not relieved by removal of the bedclothes, should be relieved by cold, or even ice, packs with hot drinks. Antipyretic drugs must be forbidden. Brandy or whiskey is usually required in these cases for the heart. In the pulmonary type of cases poultices of mustard and flaxseed meal should be used and the Gamgee jacket or

kaolin paste is also of decided value. Volatile stimulants, sedative expectorants and diaphoretics are most helpful, including compound spirit of ether, small doses of the iodides, the bromides with the chloride of ammonium, tincture of senega, tincture of belladonna and solution of ammonium acetate. Ipecac and antimony should be avoided as they are depressing. Brandy or whiskey should be given periodically, and cough should be treated as outlined. Inhalations of oxygen passed through warmed alcohol are very helpful. The volatile stimulants may have to be supplemented by strychnine, camphor in oil or strophanthin intravenously. Enemas should be given daily. Convalescence should be watched carefully and should be prolonged until there is no further danger from the depression of the heart.

Copper Sulphate in Therapeutics.—De Hérain (*Presse médicale*, October 31, 1918) uses the following standard ointment of copper sulphate:

Cupri sulphatis	20 grams;
Zinci oxidi,	150 grams;
Adipis lanæ hydrosi,	100 grams;
Petrolati,	q. s. ad 1000 grams.
Fiat unguentum.	

The copper salt is first dissolved, then incorporated in the wool fat. In the author's weak copper sulphate ointment only two grams of the salt are used per kilogram. As powders he uses mixtures of twenty or two grams of copper sulphate—previously dissolved—in 1,000 grams of talc. As solutions he employs a saturated or one in twenty solution, a 0.25 gram to the litre solution, and a 0.1 gram to the litre solution. Ampoules of five mls of a one in 200 solution in distilled water are employed for intravenous injections of copper sulphate. Internally, the salt is given in cachets each containing 0.03 gram of copper sulphate and 0.25 gram of prepared chalk, two or three times a day in the middle of the meals; or, preferably, in glutinized pills of 0.05 gram each. The stronger ointment proved very useful in favus and ringworm, papillomas, seborrheic eczema, ecthyma, furuncle and carbuncle, infected wounds and ulcers, and soft chancres and buboes. This ointment is temporarily diluted one half if at first badly borne. The weak ointment proved effectual in acne rosacea, sycosis, impetigo, eczema, burns and sloughs, uninfected ulcers, infected scabies, herpes zoster, and operative wounds. The stronger powder is used in soft chancres and incised buboes, and in operative wounds; the weaker powder, over uninfected but weeping surfaces such as burns, surface injuries, and eczema, as well as over cuts. At times intravenous copper sulphate injections are combined with the local treatment. Furunculosis is promptly and surely arrested by a series of daily intravenous injections repeated for one week. The solutions are used particularly in eczema and in infected scabies. In eye infections the weakest solution proved of value as a collyrium. Lymphangitis yields rapidly to intravenous injections. Such injections caused rapid defervescence in eleven cases of influenza, and no patients receiving the injections for skin disorders developed influenza during the

epidemic, though exposed to the infection. Pills or cachets of copper sulphate proved useful in deodorizing the stools in intestinal disorders. Two severe cases of fetid bronchorrhea yielded to intravenous injections administered by Levy. In pulmonary tuberculosis, four to six pills a day regularly reduced the amount of expectoration by one half in the course of a month. The pyogenic organisms were evidently brought thus under control, though tubercle bacilli persisted in the sputum.

The Curse of Immobilization.—J. W. Dowden (*British Medical Journal*, November 23, 1918) makes the direct statement that thousands of soldiers have been more or less disabled for life solely on account of prolonged immobilization of injured limbs. Among the lessons taught by the war one of the most important is that injuries of the extremities should, from the very beginning, be treated with frequent passive and active movements and that splints should never be used except when absolutely indispensable, and then only for as short a time as possible. They should never interfere with passive and active movements. Massage is of the greatest value as an adjunct to the movements, while baths and electricity are of little importance. Since the future usefulness of the man is of the utmost importance, the order of value of the injured structures is; muscles, joints, and bones. Disuse means malnutrition and atrophy of the parts with a tendency for pus to track along the muscular planes. Active and passive movements overcome all these dangers. Both types of movement should be started early, pain being used as the guide to their extent. Wounds involving muscles especially should not be immobilized at all because of the dangers of contraction and adhesions.

Extraction of Missiles from the Thoracic Cavity.—R. Le Fort (*Presse médicale*, October 31, 1918) discountenances all extensive, mutilating operations for the extraction of missiles from the chest. Removal with forceps under fluoroscopy by the Petit de la Villéon method is appropriate for small and medium sized projectiles embedded in lung tissue at some distance from the hilum or mediastinum. Marion's procedure, with substitution of chondrotomy and temporary retraction of the rib for costal resection in operations by the anterior route, is serviceable in the removal of large, irregular, and sharp-edged foreign bodies of the lung. The transpleural route is necessary for the dangerous regions, viz., the hilum, pedicle, and mediastinum. The best route of access is anterior or anterolateral. Section of an intercostal space and of one or both costal cartilages above and below is the ideal procedure for the region of the hilum, and even for a considerable part of the mediastinum, especially below. The opening can, if required, be enlarged indefinitely by section of the adjacent cartilages. Difficult mediastinal extractions can usually be done through Delorme's externally hinged flap. Rib fracture, even greenstick, can generally be dispensed with. In a recent case with a large shell fragment between the ascending aorta and vena cava the author made a left sternal flap and also a right costal flap.

Surgical Closure of Wounds.—Georges Dehelly (*Annals of Surgery*, October, 1918) wishes to call attention to the fact that if we have made any progress in the treatment of infected wounds it is because surgery has discarded empiricism, becoming more scientific through the acceptance of help from other sciences, such as biological chemistry, bacteriology and mathematics. The time is past when the appearance of the wound and the temperature chart were sufficient indicators to the surgeon of the evolution of a wound. Something else is necessary. The bacteriological chart of Carrel and a complete bacteriological examination must enter into the practice. An antiseptic substance must no longer be judged by the color it imparts to the wound, but according to the real effect on the secretions on the dead or living tissues and on the germs which contaminate it. It is just to say that this evolution of surgery has been guided by the work of Carrel and Dakin.

Dilatation in the Treatment of Gonorrhea.—Le Fur (*Presse médicale*, October 31, 1918) counsels dilatation treatment at an earlier stage in urethritis than that in which it is generally applied. Instead of continuing urethrovessical irrigations indefinitely in obstinate gonorrhea, one should add dilatation to the irrigations as soon as the period of pain and inflammation has terminated, i. e., after about three weeks to a month. At this time the infection is no longer diffused throughout the canal, but is localized at certain points, either as superficial ulcerations and indurations or as a deep interstitial and glandular urethritis. The action of dilatation is then of the nature of an intraurethral massage. Prudently and progressively carried out with soft bougies of 16 to 24 or 25 calibre, and preceded by free urethrovessical irrigation with one in 4,000 permanganate solution, it is harmless even though there are still in the discharge a few gonococci indicating glandular infection, and often notably shortens the treatment in previously rebellious cases. The method also presents the great advantage of obviating later strictures of the urethra.

Epidemiology of Virulent Oriental Smallpox.—Charles F. Riggs (*The Military Surgeon*, November, 1918) concludes that when virulent smallpox appears in an individual who possesses a considerable immunity it is more likely to assume either a very mild or a very severe form than it is to assume the intermediate and usual form. If a group of men be sufficiently large and human intercourse sufficiently intensified it may be expected that exposure to the most virulent variety of smallpox will overcome the immunity in several instances, even though the group be considered thoroughly vaccinated. In the presence of a virulent epidemic of smallpox, at least, three vaccinations in series of one week's interval should be resorted to, as this method seems to obtain a large number of "retardation" takes which in all probability have considerable immunizing power. The epidemic diseases of the East are a constant menace to the rest of the world, and on account of Eastern conservatism it is likely that this condition will continue for many years to come.

Mustard Burns.—Leonard D. Frescoln (*Journal A. M. A.*, December 7, 1918) describes the course and symptoms of burns due to the action of so-called mustard gas and says that two important points in combating its effects are the early recognition of a suspicion of its presence with protection against it, and the administration of first aid correction to prevent the involvement of others. Masks should be applied immediately, exposed parts should be well covered and contaminated clothing and objects should be discarded as much as possible, together with withdrawal from the immediate neighborhood. The eyes and throat should be well washed with a two per cent. solution of sodium bicarbonate and the skin with a two per cent. chlorinated lime solution, both of which should be used at once. Aromatic spirits of ammonia can be inhaled, or a spray used containing two per cent. of sodium thiosulphate and 0.5 per cent. of sodium bicarbonate. Complete rest should be insisted upon in severe cases and good ventilation is a necessity. In emergencies a lather of soap may be used on the exposed parts of the body. Further treatment of the skin lesions is that of ordinary burns, including the aseptic opening of blisters and the application under a pad of gauze of sterile boric acid ointment or an ointment containing ten per cent. of sodium bicarbonate. The eyes should be washed with boric acid solution and the lids protected with bland yellow oxide of mercury ointment. A dusting powder of bismuth and zinc oxide or stearate is valuable for abraded areas. The clothes should be soaked in several changes of water at 70° C. A 0.05 per cent. solution of potassium permanganate or 0.1 per cent. solution of zinc chloride is useful between the fingers and in the folds of the scrotum.

The Abduction Treatment of Fracture of the Neck of the Femur.—Royal Whitman (*Surgery, Gynecology and Obstetrics*, December, 1918) puts the arguments in favor of the surgical efficiency of the above method as follows: 1. That nonunion occurs in childhood under the same conditions as in adult life, although there can be no question of the capacity of the tissues for repair. 2. That repair after nonunion is the rule when at open operation the fragments are freshened and adjusted, indicating that fixation in apposition is the first essential of success. 3. That experience in bone grafting proves that union is possible under far less favorable conditions, as regards the blood supply, than in fracture of the neck of the femur. 4. That the obstacles to repair, whether intrinsic or extrinsic, actual or fanciful, that have thus far justified inadequacy and neglect, furnish the strongest presumptive evidence in favor of opportunity as the determining factor in the result. 5. That it has already been abundantly proved by practical experience that repair is possible in every variety of fracture at the hip and at any age, and, although it cannot be asserted that opportunity will always ensure success it is self-evident that want of opportunity will always assure failure. Consequently, the responsibility for opportunity, upon which the result is primarily dependent, rests upon the one who selects and applies the treatment. This conclusion, however, revolutionary as contrasted with

conventional teaching, is, in effect, simply that surgical principles, whose application has been made practical by the abduction method, should now govern the treatment of this as of other fractures. The abduction treatment as the exponent of these principles has made steady progress in recent years. To quote from the *Nouveau Traité de Chirurgie*: "Cette methode precouisée par Whitman est à l'heure actuelle par tout appliquée." This encouraged the belief that when the treatment is properly presented in the text books it will be generally adopted, because the method is efficient, the purpose definite, the effects demonstrable and the patient under single control. In other words, because it meets in a comprehensive sense the conditions essential to success as contrasted with conventional practice, which is lacking in each of these particulars and which has been so thoroughly discredited by results as to furnish a legitimate excuse for the virtual neglect which has thus far been the portion of these unfortunate patients.

Colloidal Arsenic and Silver in the Treatment of Grave Influenza.—Capitan (*Bulletin de l'Académie de médecine*, October 29, 1918) reports favorable experiences in apparently doomed cases of influenza by the use of pure colloidal preparations of arsenic and of silver especially made by Fouard, of the Institut Pasteur. The arsenic preparation contains about three milligrams of the pure metalloid per mil and the silver preparation about two milligrams of the metal. The dosage was six to nine mils of the arsenic a day, with or without an equal amount of silver; where twelve or fifteen mils of the combined preparations was not exceeded the whole amount was given in one dose, even intravenously, while where the total amount was larger, half the amount was given intravenously in the morning and the remainder intramuscularly in the evening. No untoward effects resulted from the injections, save rarely slight headache and nausea. Excellent results were obtained with the treatment in mild cases and cases of intermediate severity, but to prove the measure more thoroughly it was applied particularly in forty very severe cases with pronounced typhoid state, temperature of 40 or 41° C., often redness and swelling of the face, extensive dull areas over the lungs—often involving one entire lung and part of the other—meningeal symptoms, enlarged spleen and liver, albuminuria, etc.; in short, cases which, according to previous experience were doomed to die. Administration of from three to seven injections in each patient resulted in recovery of one half the members of this series. Even in the cases not saved, temporary improvement followed the treatment. In the favorable cases, there was a prompt and complete transformation in the general condition. The temperature usually returned to normal in two or three days, and the lungs nearly always showed a prompt and often very striking improvement, dullness disappearing almost from one day to the next. In several instances a sequence of events suggestive of an actual pharmacodynamic experiment was observed, the initial improvement under the treatment passing off when the latter was stopped, then recurring when it was resumed.

Miscellany from Home and Foreign Journals

Juvenile Form of Complete Arrhythmia.—L. Gallavardin (*Paris médical*, October 19, 1918) notes that complete arrhythmia, primarily due to auricular fibrillation, may be met with mainly in two classes of cases; first, in the course of valvular disease, generally mitral, and, second, quite as frequently, but almost always in elderly or aged persons, in the absence of any valvular lesion. There exists, however, a juvenile form of this independent complete arrhythmia, to which not enough attention has as yet been paid. At present there is too great a tendency to consider all arrhythmias in the young as extrasystolic arrhythmias or as unusually marked respiratory arrhythmias. This form can readily be detected upon careful auscultation of the heart while the patient holds his breath; no extrasystoles are heard in the longer pauses, and the groups of more rapid beats bear no relationship to inspiration. The author presents of six cases of this variety, in all of which the diagnosis was made by mere clinical examination, though subsequently confirmed by polygraphic tracings. While the cause of this juvenile complete arrhythmia is uncertain, the condition seems most probably analogous to the group of independent arrhythmias encountered in the elderly, or aged, the same causes that are operative in the latter being exceptionally exerted in children or adolescents. The prognosis depends upon the nature of the cause as well as the extent of the lesions. In some of these cases the arrhythmia is well borne for a considerable period; even here, however, the prognosis must remain far less favorable than in simple extrasystolic arrhythmia.

War Nephritis.—A. Gouget (*Presse médicale*, October 31, 1918), in two years in a French military hospital, encountered seventy cases among 5,214 patients, or 1.34 per cent. There was thus no striking increase of frequency of nephritis in war practice as compared to civil practice. The incidence of nephritis among the soldiers appeared to increase, however, in accordance with the duration of their stay at the front. Out of 140 cases of "war nephritis" twenty-five had originated before the war. Among ninety-three cases of recent war nephritis thirty-one, or one-third, appeared due to some definitely recognizable cause, such as typhoid fever, influenza, sore throat, acute enteritis, syphilis, gonorrhea, prolonged suppuration, etc. The same ratio of cases ascribable to a definite cause was obtained in the twenty-five cases originating before the war; recognition of war nephritis as a special type of kidney disease is thus not favored by the observation of an unusually high ratio of idiopathic cases. It appeared difficult to ascribe to excessive physical labor, exposure to moist cold, or excess of meat or preserved food in the diet a rôle in the production of war nephritis. Nor did the clinical picture in these cases show anything different from ordinary nephritis cases. The blood pressure was high in over half the cases. The amount of albumin passed was very variable. Of 140 cases only ten showed any serious symptoms, such as dyspnea, cerebral uremia, etc. Only

three patients died. Prognostically the cases could be divided into three groups. In the first, comprising eleven cases, albuminuria and functional disturbances had all passed off upon discharge of the patients after three to six weeks. In a second group of thirty-five cases, observed from three weeks to three months, the albumin progressively diminished, but never descended to zero. In the third group, fifty-two cases, the albuminuria became irreducible after descending to a certain limit, or disappeared temporarily, only to return when an ordinary diet was resumed; in most of these cases there were also headache, lumbar pains, breathlessness upon exertion, and rapid fatigue. The ultimate prognosis in these cases must therefore always be guarded. On the whole the author failed to find any especially striking distinguishing features in so-called war nephritis and does not believe a differentiation of these cases in a group separate from ordinary civil cases of nephritis to be warranted.

The Pandemic in the Army Camps.—George A. Soper (*Journal A. M. A.*, December 7, 1918) presents an exhaustive survey of the data relating to the recent pandemic, with special reference to its mode of spread, its incidence, mortality, and other factors bearing upon epidemiology and prevention. From September 12 to November 1 there were 306,719 cases among the troops, with 48,079 cases of pneumonia and 19,429 deaths among a strength of about a million and a half. About one man in five acquired influenza, of these about one in six developed pneumonia, and about two out of every five pneumonia patients died. In each camp affected the influenza epidemic occurred as an explosive outbreak, beginning with a few scarcely recognized cases and reaching its maximum within ten days. The epidemics usually lasted less than three weeks. The incidence of pneumonia bore no definite time relation to that of the influenza, except that the pneumonia curve followed that of influenza. The epidemic spread in a general way from the North Atlantic Coast in a westerly and southerly direction and at a rate slower than that of human travel. The influenza spread equally rapidly in both barrack and tent camps, but both the incidence and fatality of pneumonia were appreciably less in the tent than in the barrack camps. The proportions of men attacked by influenza varied in the several camps from less than ten to about fifty per cent. As the pandemic continued the proportion of men attacked increased and the same was true of the proportion of cases developing pneumonia. The case fatality from pneumonia, however, decreased with each successive camp attacked. The influenza of this epidemic must be regarded as a specific, infective disease and it seems to be spread exclusively by human beings through the interchange of mouth secretions by coughing, sneezing, talking, crowding, and through the common use of eating and drinking utensils. Theoretically its spread should be preventable and practically it would be so if the isolation of cases could

be begun in time. At present it cannot be stated what the effectiveness of any of the methods of control has been. The Bacillus of Pfeiffer has been generally regarded as the causative agent, but this organism was rather commonly present before the outbreak of the pandemic, and the virulence of the epidemic must be explained either by an increase in the virulence of the organism, the appearance of a more active strain, or a reduction in the susceptibility of those attacked, probably all three having been concerned. It has been shown that prophylactic vaccination against pneumonia is practicable, but that against influenza is still purely in the experimental stages.

A Simple Method for Blood Cultures.—J. G. Wurtz and S. W. Sappington (*Journal of Medical Research*, July, 1918) have employed with success, in certain infections, the patient's blood diluted in a test tube with sterile water as a culture medium. The patient's blood thus furnishes the culture medium and the infecting organism. To insure reliable results, the water must be sterile. In pneumococcus and streptococcus infections the results obtained with this method compare satisfactorily with other methods. In fifty cases of croupous pneumonia there were thirty-eight per cent. of positive cultures; nineteen streptococcus infections gave 47.3 per cent. positive results. In the positive cases the laboratory diagnosis can usually be made in twenty-four hours from the primary culture. In seventeen cases of typhoid fever there were 64.7 per cent. positive cultures. As the bile method is quicker, it offers advantages over the author's method in typhoid, but if the slower growth is not prohibitive, the proportion of positive results would probably equal those obtained with the bile method.

Immunity and Tissue Transplantation.—M. S. Fleisher (*Journal of Medical Research*, July, 1918) reports experiments in which both rabbit and guinea-pig kidneys were transplanted into both rabbits and guineapigs. In the case of homoiotransplants, there is more active regeneration, more active connective tissue reaction, and perhaps a less marked leucocytic reaction, than in the case of heterotransplants. In the rabbit the connective tissue reaction is less marked than in the guineapig, while in the early stages, the leucocytic reaction is more marked in the rabbit. A late or secondary leucocytic reaction occurs in the guineapig which is usually not so marked as the early reaction in the rabbit. The guineapig kidney seems to have more ability to regenerate than has the rabbit kidney. These experiments seem to furnish additional evidence that the leucocytes play a part in the reaction to heterologous transplants, although it is not sufficient to account for the poorer growth of the tissue in the heterologous animals. The difference in regeneration between heterologous and homologous transplants may be partly due to a combined action of the leucocytes and the connective tissue. Fleisher does not feel justified in offering an explanation for these differences, but he thinks that perhaps differences in the body fluids play an important rôle, either by failing to provide substances necessary for the growth of the tissue, or by containing substances directly influencing the nutrition and injurious to the tissues.

Studies on the Circulation of the Kidney.—Louis Gross (*Journal of Medical Research*, July, 1918) finds two essential changes in the contracted kidney—altered blood supply and distribution, and loss and regression of secreting epithelium. The knowledge of these histological changes would appear to throw some light on two of the manifestations of advanced contracted kidney: the abundant watery urine and the marked nitrogen retention. The cortex is largely lost, and has become passive, while the pyramids are well preserved and have a good blood supply. This may represent a compensatory blood supply. The changes mean renal insufficiency and perversity, so that it may be that these, together with the accompanying disturbances in metabolism, in time upset the harmony of the whole organism, and may in the end be largely responsible for uremia and death.

Neuroses among Returned Soldiers.—Clarence B. Farrar (*Boston Medical and Surgical Journal*, November 7 and 14, 1918) notes the following features as the general characteristics of war neuroses. 1. The preponderance of exogenic factors as compared with the neuroses of peace. 2. The wide prevalence of neurotic reactions at least in mild or transitory form among soldiers at the front, though not necessarily incapacitating for duty. 3. The distinctive reactive war coloring. 4. The frequent incidence of phases of trench neurosis masking for a time, or modifying the course of the actual mental disease. 5. The not uncommon association of neurotic symptoms with minor physical disabilities, giving to the latter an apparently aggravated character. 6. The almost universal occurrence of stereotyped symptoms; the conditions and associations of warfare constituting a real neurosis school. 7. The attitude of hospitality on the part of the invalid toward his neurosis, or at least an air of resignation often suspiciously like satisfaction. 8. The stubbornness with which these neurotic habit reactions may persist as a result of the unique fixation motives underlying them.

Incidence of the Influenza Bacillus in the Epidemic.—James McIntosh (*Lancet*, November 23, 1918) emphasizes the difficulties encountered in attempting to isolate and grow the influenza bacillus from the sputum and pathological tissues and fluids. By the use of a perfected technic and a special medium, both of which are described, it is possible to isolate this organism with relative ease and certainty. Employing this method in the present epidemic a considerable number of cases was investigated with the result that the Bacillus influenzae was found in 74.5 per cent. of the cases, in 84.5 per cent. of the sputa in bronchopneumonic cases, in sixty-eight per cent. of the postmortem cultures from similar cases, and in nearly sixty-seven per cent. of nasopharyngeal cultures from uncomplicated cases. The various other bacteria also found did not predominate as did the influenza bacilli and it is evident that this organism is directly concerned in the etiology of the disease. The primary invasion is probably by the Bacillus influenzae, which sets up an inflammation with the elaboration of toxic bodies which injure the lungs and permit secondary invasion by the common organisms found in the respiratory tract.

Syphilis in Its Relation to Central Nervous System.—Leon H. Cornwall (*The Military Surgeon*, November, 1918) states that strict attention to all the details of preparation of reagents, distilled water and glassware is imperative, else the reaction is valueless. For the detection of the very early stages of paresis with but few symptoms the colloidal gold reaction is the most valuable test that we possess. Unless test tubes are shaken immediately after the addition of the colloidal gold solution to the dilutions of spinal fluid typical reactions characterized by a pale zone at the top of the tubes are obtained. Paretic fluids yield the greatest number of reactions, showing complete decolorization of colloidal gold in Zone I or the paretic zone. Among other diseases without luetic etiology, the spinal fluids of which react in the same manner, are lateral sclerosis, brain tumor, meningitis and eclampsia. The intensity of the reaction may be temporarily increased after treatment.

Barrack Life and Respiratory Disease.—Victor G. Heiser (*Journal A. M. A.*, December 7, 1918) presents analyses of some of the death rates from influenza among several groups living under widely different conditions, summarizing these by saying that among men living under barrack conditions there have been particularly high rates of morbidity and mortality from the respiratory infections. The mortality was higher among those who slept many in a room than among those who were quartered few in a room. The present high infectivity of respiratory diseases makes it unjustifiable to require men to live under barrack conditions, except in cases of extreme emergency. Patients with different respiratory infections should not be quartered in the same ward or room, even in the presence of the accepted standards of ventilation. The sanitary art has not yet reached the point of being able to safeguard adequately the lives of men against respiratory diseases when they live under barrack conditions.

Acute Infective Nephritis.—R. P. Campbell and Lawrence J. Rhea (*Surgery, Gynecology and Obstetrics*, December, 1918) conclude that there is a type of acute infective nephritis the gross picture of which is characterized by multiple, small or large areas of acute infection, which may, and, as a rule, do proceed to abscess formation. These areas are for the most part situated in the cortex. The infection is usually unilateral. The lesions may resolve or leave the kidney so damaged that complete recovery is impossible and may serve as a foci upon which further infection may develop. The commonest infecting organism is a member of the *Bacillus coli* group, but other organisms as staphylococcus and *Bacillus typhosus* may produce similar lesions. The infection is in most cases probably lymphatogenous, or hematogenous, and in some cases of *Bacillus coli* infection, some abnormal condition of the gastrointestinal tract, seems to play a distinct part. There are frequently no demonstrable lesions of the genitourinary tract which might contribute toward the localization of infection in the kidneys. Treatment may be palliative, but operation may be necessary. If nephrectomy is performed early the prognosis is good.

Sign of Pathological Activity in Tuberculous Disease of the Hip Joint.—H. J. Gauvain (*Lancet*, November 16, 1918) emphasizes the need for trustworthy evidence of activity in tuberculous disease of the hip and points out the insufficiency of the usual criteria. Where there is no bony ankylosis the spasticity of the muscles about the affected joint gives a clear indication of the activity of the disease. This is best determined by grasping the femur of the affected side firmly in the region of the condyles. The head of the bone will be found to be capable of gentle rotation inward or outward through a considerable angle. When this movement is checked by the muscles and the disease is active a further slight and sharp rotation is instantly followed by spasmodic muscular contraction which is not confined to the muscles about the joint, but which extends to the abdomen and is visible in the abdominal muscles, or is even more easily detected by the hand placed between the iliac spines. The muscular spasm may also be detected by noting the sudden movement of the iliac spines in the direction of the sudden rotation. The presence of the sign certainly indicates activity, though its absence does not necessarily exclude activity in all cases. The sign is also of considerable value in determining when the time has arrived for ambulatory treatment, which should not be started until the sign has disappeared. In prognosis, too, it is of value, for the early disappearance of the sign under recumbency, immobilization and extension indicates a very favorable outcome.

Investigation of One Thousand Consecutive Cases of Peripheral Nerve Injury.—J. Le Fleming Barrow and H. S. Carter (*British Medical Journal*, November 16, 1918) begin by laying great stress upon the need for a full and accurate statement of the methods employed in the study of nerve injuries, and proceed to give their methods in great detail. Their observations after nerve repair point to the following general facts: The first functions to recover are the trophic and vasomotor, trophic ulcers often healing with surprising rapidity. The next to recover is deep sensibility, generally in the order of pressure sense, perception of movement in joints, roughness, and pressure pain. Location of tactile pressure recovers earlier than accurate gauging of position and range of movement. Then there appear radiating, ill localized sensations, usually associated with tingling, and having a high threshold value. The gradual disappearance of these sensations is accompanied by the accurate perception of light touch and a lowering of the threshold value of the stimulus required. Finally the various discriminating senses recover, but usually very imperfectly. Recovery of voluntary movement appears first in the highest muscles and gradually extends downward. It begins long before the radiating and ill localized sensations are gone. The first change in electrical reaction following suture is a brisker response to the anodal closing stimulus. This is followed by a gradual change in the polar reversal through polar equality to normal polarity. Faradic responses are slow in returning and voluntary movement may appear weeks before there is the slightest faradic response.

A Statistical Study of 164 Patients with Drug Psychoses.—Horatio M. Pollock (*State Hospital Quarterly*, New York, November, 1918) studies the first admissions of patients with drug psychoses to the thirteen civil State hospitals of New York during the period beginning October 1, 1909, and ending June 30, 1917. Pollock draws a number of conclusions from this study, of which the following are of especial value: Only a small part of the total number of drug addicts develop psychoses. Opium and its derivatives were the principal drugs used by the patients studied. About five and a half per cent. of them die within one year of the date of admission and about seventy per cent. recover in the same time. Approximately nine per cent. of the drug cases discharged are readmitted.

Suggestions for a Study of the Pathological Anatomy of Dementia Præcox.—Charles B. Dunlap (*State Hospital Quarterly*, New York, November, 1918) published some suggestions for the use of hospitals for mental disease in studying their dementia præcox cases at autopsy. Some of these suggestions of general interest are: That the patient be not over thirty-five in order that changes due to advancing age may not complicate the histological picture. That the cases be unquestionably præcox and not "grouped as" or "allied to" præcox, thus avoiding results of dubious value. Dunlap also suggests the use of control material, that is, the study of cases of about the same age, where there is no suspicion of dementia præcox. He also offers some fundamental suggestions regarding the mode of study, illustrated by cuts.

Rubella with Recurrent Fever.—P. Nobécourt and C. Richet, Jr. (*Paris médical*, October 5, 1918) report a series of twenty-eight cases of rubella occurring in a single company of French engineers and exhibiting, in general, the customary mild manifestations of this disease, viz., a short or absent period of invasion, little or no catarrh of the conjunctiva and respiratory mucous membranes; moderate fever or a pyrexia; a morbilliform, scarlatiniform, or mixed eruption; multiple glandular enlargement, and a rapid course. Six patients, however, developed a secondary febrile movement which delayed their discharge from the hospital. In three cases it appeared on the sixth day and in one each upon the fourth, fifth, and thirteenth days, after a stage of apyrexia and apparent recovery. The temperature generally rose to 39.2° or 39.4° C., though at times it did not exceed 38°. The febrile movement lasted from one to three days and was accompanied by a corresponding rise in the pulse rate and by headache and diffuse pains; there was, however, no chilliness nor sweating. Laryngitis appeared in five out of six instances, with cough, hoarseness, and more or less complete aphonia; in spite of appropriate treatment it sometimes lasted ten or twelve days. Less constant accompaniments comprised bronchitis, abdominal symptoms, pain in the left hypochondrium, vomiting, epistaxis, and a secondary scarlatiniform rash. There was no albuminuria nor any secondary glandular enlargement. The secondary syndrome as a whole seems analogous to, though milder than that sometimes encountered in diphtheria and scarlet fever.

Nephritis in Epidemic Influenza.—C. P. Symonds (*Lancet*, November 16, 1918) observed twenty-two cases of epidemic influenza in which there were well marked signs of renal disease along with bronchopneumonia. The patients, in general, did not present typical clinical pictures of nephritis, and this complication would not have been suspected in most cases without routine urinary examination. The nephritis seemed to occur among those who looked much poisoned with their bronchopneumonia. In these cases the mortality was fifty per cent, which was easily explained by the pus laden lungs giving off toxins which overwhelmed the kidneys and nervous system. The urines in these patients were loaded with casts and albumin but showed few red blood cells, indicating that the renal process was one of acute degeneration rather than acute inflammation.

The Comparative Values of Some Local Anesthetics.—Herbert C. Hamilton (*Journal of Laboratory and Clinical Medicine*, November, 1918) in a study of various anesthetics, obtained results differing from those of Sollman, so that the purpose of this work is to present a fuller study of apothesine (which was not viewed particularly favorably by Sollman), and to compare it with cocaine and novocaine. Three of Sollman's methods were used for this purpose: motor nerve anesthesia, surface anesthesia, and the intracutaneous method. The results of the last method of administration demonstrated that novocaine is about one half as efficient as cocaine and that apothesine is practically equal to cocaine in its anesthetic value. These results are quite at variance with Sollman's conclusions. The experimental evidence would indicate that from every point of view apothesine is equal to or exceeds novocaine as a local anesthetic and in some ways is no less efficient than cocaine.

The Grafting of Tissues in the Rat.—Leo Loeb (*Journal of Medical Research*, July, 1918) transplanted tissues from parents to children, and vice versa, and from sisters and brothers to sisters and brothers. Such tissue grafting behaves in a manner intermediate between homoiotransplantation and autotransplantation. The difference in the results obtained is so small that it may be accidental. All degrees of variation are seen between the two extremes. The lymphocytic reaction increases with the increasing unfavorableness of the host for the transplanted tissues, and with the degree of injurious action on the transplanted tissues, until a maximum is reached when the destruction has gone so far that only a very little or no living parenchyma is preserved, at which point the lymphocytic infiltration decreases. These results in tissue grafting show that while it is better to use tissue from nearly related individuals of the same species for the purpose of transplantation, such pieces cannot be expected to give such satisfactory results as are obtained by autotransplantation. The individuality differential (the chemical characteristic which differentiates all the tissues belonging to one individual from all the tissues belonging to others) is not inherited according to Mendel's law, as its inheritance is distinct from the inheritance of other characters of organs and tissues.

Proceedings of National and Local Societies

AMERICAN ASSOCIATION FOR STUDY AND PREVENTION OF INFANT MORTALITY.

*Ninth Annual Meeting, Held in Chicago, December
5, 6, and 7, 1918.*

The President, MRS. WILLIAM LOWELL PUTNAM, Boston,
in the Chair.

Public Health Service Program for the Nation Wide Control of Venereal Diseases.—Lieutenant Colonel C. C. PIERCE, U. S. Public Health Service, of Washington, D. C., said that a great deal of thought had been given to the medical attack on venereal disease in the United States, for it was a problem which not only affected the soldier and sailor, but the civilian of today and tomorrow.

Section 6 of the Act provided for the allotment to State Boards of Health of \$1,000,000 each year for the two fiscal years beginning July 1, 1918, for the fight against venereal diseases. For the second of these two years the payment of the State's allotment was conditioned upon the expenditure of a like amount by the State in the prevention of venereal diseases. For the first of these two years this condition was not imposed.

State boards or departments of health receiving their respective allotments had to agree to the following cooperative measures: a. Venereal diseases must be reported to the local health authorities in accordance with State regulations approved by the U. S. Public Health Service. b. Penalty to be imposed upon physicians or others required to report venereal infections for failure to do so. c. Cases to be investigated, so far as practicable, to discover and control sources of infection. d. The spread of venereal diseases should be declared unlawful. e. Provisions to be made for control of infected persons that did not cooperate in protecting others from infection. f. The travel of venereally infected persons within the State to be controlled by State boards of health by definite regulations that would conform in general to the interstate regulations to be established. g. Patients to be given a printed circular of instructions informing them of the necessity of measures to prevent the spread of infection and of the importance of continuing treatment.

The Division of Venereal Diseases detailed to each of the various State boards of health an officer of the Public Health Service in uniform. His work was directed jointly by the Public Health Service and State Board of Health. The general plan of work for the State Bureau was as follows. a. Secure reports of venereal infectives from physicians. b. Suppressive measures, including the isolation and treatment in detention hospitals, and establishment of free clinics. c. Extension of facilities for early diagnosis and treatment through laboratory facilities for exact diagnosis and scientific determination of conditions before released as noninfectious. d. Educational measures which included informing the general public as well as in-

fecting individuals in regard to the nature and manner of spread of venereal diseases and measures to combat them. e. Cooperation with local civil authorities in their efforts to suppress public and clandestine prostitution. f. Accurate detailed records must be kept of all the activities of the venereal disease work, copies to be forwarded to the U. S. Public Health Service.

Local or legislative funds that might be available should be used by the State or city health authorities having jurisdiction for extension of the work. In extension of the educational measures the State's health authorities and its bureau of venereal diseases should exert their efforts and influence for the organization of a State venereal disease committee for furthering the comprehensive plan for nationwide venereal disease control. The State health authorities should take such measures as might be practicable for the purpose of securing such additional legislation as might be required for the development of control of the spread of venereal infections. The State allotment should be expended along general standard lines for all States and in accordance with an accounting system, to be forwarded by the interdepartmental social hygiene board, approximately as follows: a. For treatment of infected persons in hospitals, clinics, and other institutions, including arsphenamine and other drugs, fifty per cent. of the allotment. b. In carrying out educational measures, twenty per cent. c. In carrying out repressive measures, twenty per cent. d. In general administration and other activities of venereal disease control work, ten per cent.

This distribution was provisional and subject to modification after conference and agreement between each State and the United States Public Health Service to best meet the needs of the particular State. During the 609 clinic days represented there was a total of 25,224 visits to the clinics, with an average daily attendance of 41.09 at each clinic. There were admitted during the past month, 2,301 new cases. On November 15th there were 11,149 cases remaining under treatment. Twenty-eight thousand, nine hundred and eighty-one treatments were administered during the month. Two thousand, seven hundred and seventy-seven doses of arsphenamine were administered to syphilitics. A total of 2,933 prostitutes were treated in the clinics, detention homes and jails. Of the 833 prostitutes placed in detention during the month, 812 or 98.5 were found to be infected with venereal diseases. The remaining twenty-one or 2.5 were held for further diagnosis. Five thousand, three hundred and sixty-five microscopical examinations were made. Nineteen of these were dark field illuminations for *treponema pallidum*; 3,267 were for release.

Conservation of Life of the Unborn and Newly Born Child.—Dr. RUDOLPH W. HOLMES, of Chicago, stated that the conservation of human life—of mother and baby—might be most happily realized by various correlated circumstances. It would be desirable that every college for young men and

women should have compulsory instruction on the influences of heredity. Every young man and woman should know the dire consequences to the offspring resulting from a tainted strain; every young individual should know that not only syphilis but many of the physical and nervous evidences of the stigmata of degeneration might be transmitted to the offspring; they should know that a clear descent only was obtainable from a clean strain. Every young individual should be instructed upon the general principles of the rights of the newborn—they should be made to recognize the principle that altruism should govern the selection of a mate; that, as one young man argued to him, his parents did not consider his inheritable possibilities, why should he consider the questionable attributes of his possible children, was the height of sophistry. It was an utopian dream, but it would be well if it were possible to curtail the mating of the misfits. Sterilization of the criminal insane, the moron, the epileptic, was a problem for the future. The legislative control of marriages of those afflicted with inheritable disease, requiring a medical certificate from one or both parties was theoretically correct—in practice was of questionable value. At the present time control of mental defectives, those afflicted with transmissible taints which might mar the mate or the young was too abhorrent to the yet uneducated mind. Coordinated instruction given to the young in college, even high schools, it would be well to have systematic courses of instruction to young men and women who could not secure a higher education. Conferences should be held covering the general problem of eugenics; suggestive courses should be given to prospective mothers, and to young fathers, that they might meet their responsibilities with intelligence and knowledge.

He would have a properly equipped maternity hospital with divisions covering the various needs of the prospective mother, her child before and after its advent into the world. He doubted the expediency of having independent centres for the prospective mother, for her confinement, and for the infant welfare. A properly coordinated whole under one efficient head would bring about more ideal results than haphazard attempt at conservation. Such an ideal centre would comprise these divisions: a. A social investigator who should visit the home and determine the true economic need of the family. If the family had a certain degree of affluence they should be directed to approved, enthusiastic young practitioners who had the heart and conscience to carry on the truths of conservation for a stipend. Such physicians in an emergency could call upon the staff of the institution for aid or advice. b. Opportunity and encouragement should be given to all prospective mothers to avail themselves of the antenatal clinics. At stated hours each day a corps of young physicians should be attendant so that periodic examinations, physical as well as those of urinalysis might be carried out; at the same time, general hygienic rules might be formulated for the individual. As one half of the crises incident to the unborn were more or less preventable, here was the first step to the conservation of infant life. c. At the time of labor the

record of the patient should be transferred, or at least made available to the maternity department. The personnel of this department should be imbued with the responsibility of his task; he should have an obstetric conscience; he should have a love for the work, and an enthusiasm which would prompt him to sacrifice self in the need of the patients. Parenthetically an administrative body of physicians should have the control of policy, of expediency that no man might become a fadist or an extremist without check. This department should control the care of the woman, and her child until discharged from the institution. d. Every woman, before leaving the maternity, should receive positive instructions for her return for a postpartum examination—for recommendations for her own welfare. e. An infant welfare department where periodically the baby might be brought for weighing and advice; where it might be brought if ill. In conjunction with this department there should be an adequate department for the preparation of foods for infants. f. Systematic courses of lectures should be instituted covering all the phases entering into the questions of personal hygiene, marriage relations, matters cognate to bearing of children, the care of women in pregnancy, and the care of children thereafter.

Syphilis and Its Relation to Infant Mortality.—

Dr. P. C. JEANS, of St. Louis, said that when conception had taken place, the effect of maternal infection upon the product of conception was dependent to a large extent upon the duration of the pregnancy at the time of fetal infection. The infection of the germ cell, if such an event ever occurred, would preclude the possibility of its further development. The earlier in pregnancy the infection of the fetus, the more likely was pregnancy to terminate in a dead or nonviable infant. The birth of a viable syphilitic infant signified its infection late in pregnancy. The time at which fetal infection occurred was dependent upon the activity of the infection in the mother and this in turn was dependent to a large extent upon the time elapsed since the onset of her infection. In many instances in untreated mothers pregnancies occurring ten years or more after the infection of the mother had resulted in the birth of nonsyphilitic children. It had become a well recognized fact that syphilis was the largest single cause of the death of the fetus at or before term. Stillbirths had averaged in the neighborhood of five per cent. of all births wherever studied, and at least one third of this number was due to syphilis. A compilation of statistics showed that of 4,148 pregnancies in syphilitic families, 1,258 or thirty per cent. resulted in the death of the fetus at or before term. That this was more than three times greater than what might be considered the normal waste of life at this early age was shown by a similar study among the poorer class in both St. Louis and London, and including no obvious syphilis. In St. Louis, 9.9 per cent. of 886 pregnancies and in London, 9.4 per cent. of 826 pregnancies resulted in the death of the fetus at or before term. Though there might be some doubt as to syphilis being a frequent cause of sterility, there was no doubt that it was a fairly frequent cause of

childless marriages. Adair stated that of fifty premature infants observed in Minneapolis, nine, or eighteen per cent., were proven syphilitic. Prematurity occurred but eight times in 886 pregnancies in 200 St. Louis families in which there was no obvious syphilis, while it occurred ten times in 453 pregnancies in 100 syphilitic families, showing an incidence two and one half times greater in syphilitic than in nonsyphilitic families, and indicating that syphilis was the most frequent cause of this event. The mortality among premature infants was relatively high whether with or without syphilis. When the problem of maintaining the nutrition and body heat of a premature infant was added to by a syphilitic infection, the outcome was much less hopeful. There was in the literature a scarcity of statistical studies bearing on the incidence of syphilis in the infant population of this country. Because of the high mortality connected with syphilis in infancy, the group studies among older children or among groups containing older children gave an incidence much lower than was to be found in infancy. In St. Louis, clinical study was made of 854 infants of one or under, and Wassermann reactions were made on all infants whose family history, personal history or examination gave any suspicion of syphilis. Of the 854 infants studied, forty-two or 4.9 per cent. were found to be syphilitic. This figure represented the minimum in this group because it was not a complete Wassermann survey. In New York, Holt found 6.2 per cent. positive Wassermann reactions among 161 infants under two years of age. Holt's series was selected to the extent that it contained no clinical syphilis, but did contain a certain number of infants whose history or examination gave a suspicion of syphilis. Commisky reported 3.2 per cent. positive Wassermann reactions in 1,074 newborn babies in Brooklyn. Because of the frequency of a negative Wassermann reaction in a syphilitic newborn baby, such a study, though interesting, did not represent the true incidence of syphilis. It would seem safe to assume an incidence of about five per cent. for syphilis in our infant population. Perhaps of equal interest in this connection was the proportion of the pregnancies in syphilitic families that resulted in living nonsyphilitic children. Among 2,450 pregnancies of his own and collected cases 408 or 16.6 per cent. resulted in children who were living at the time of the study and found to be nonsyphilitic. This was but slightly more than one fifth of the healthy living children to be found in a similar study among an equal number of pregnancies in nonsyphilitic families. A survey of about 300 syphilitic families in which there occurred 1,366 living births showed that thirty per cent. of these infants died at an early age. Since syphilis was the only known factor of difference between these two groups it would seem that the infant with syphilis had just half the expectation of life as did a nonsyphilitic infant, leaving out of consideration all other factors. The prognosis in a syphilitic infant depended upon several factors including the severity of the infection, the type of feeding, and the state of nutrition. From ten to twenty per cent. of adult males and about ten per cent. of married

women were syphilitic, and a minimum of ten per cent. of marriages involved a syphilitic individual. Seventy-five per cent. of all the offspring in a syphilitic family were infected. In a syphilitic family thirty per cent. of the pregnancies terminated in death at or before term, a waste three times greater than was found in nonsyphilitic families. Thirty per cent. of all the living births in a syphilitic family died in infancy as compared to a normal rate of fifteen per cent. in the same class. Probably thirty per cent. of clinically syphilitic infants died as a result of syphilis. But seventeen per cent. of all the pregnancies in syphilitic families resulted in living nonsyphilitic children which survived the period of infancy. About five per cent. of our infant population was syphilitic. According to St. Louis vital statistics three and one half per cent. of all infants' deaths were ascribed to iues.

The Springs of a Nation's Life.—Dr. EDWARD P. DAVIS, of Philadelphia, stated that to secure a healthy infant population it was absolutely essential that the conditions of life be such that early marriage could be encouraged. A living wage, sanitary and comfortable means of dwelling, civic sanitation, including a pure and reasonable food supply, and all those agencies which made for physical, mental, and moral hygiene were of the utmost importance. A new responsibility was placed upon civic authorities and more than ever was there imperative need for civic righteousness in the administration of civic affairs. From the standpoint of efficiency only, the great corporations were realizing the necessity for caring for the individual worker. Genuine philanthropy reached its highest and most intelligent expression in this accomplishment. Some corporations employed skilled medical service, constructed hygienic dwellings, encouraged insurance and educated in matters pertaining to health, and not only gave a living wage, but taught those who worked with them and for them, how to live. No greater curse upon the nation in the care of its infant population could be devised than the presence of a large standing army. It was a fact, familiar to all who had lived in continental Europe, that marriage was forbidden to men of military age unless they possessed a certain stipend. The result was indiscriminate immorality and in order to save its population the state was obliged to care for the mothers in hospitals and to rear the children in foundling asylums. The mortality percentage among infants so reared was notoriously high, and the effect produced upon pregnancy and parturient women was most injurious. Whatever might be the military necessity of the future, the people of these United States should take warning, and under no circumstances saddle themselves with a large and permanent standing army. But the crying need in the prevention of infant mortality was better obstetrics. It was true that in order to make improvement in obstetrics possible, the economic and other factors to which reference had been made, must be present, but it was also true that without better obstetrics these factors would be of little value. The encouragement of early marriage in sound individuals was a step of primary importance; marriage among those physically unfit was to be discouraged

and, if possible, forbidden. It might not yet be possible to require physical examination of men and women before marriage, but certainly the need for such was evident. Education of the laity, nurses and doctors in matters concerning the increase and care of the population was of paramount importance. The difference between prudery and honest pride in what was natural, and in itself beautiful, must be made evident. The medical profession in Europe and the United States had for years been spreading abroad among women concise statements concerning the first symptoms of cancer. A brief description in simple language of its symptoms had been posted in rooms frequented by women only, upon the Continent and in some places in this country. Why should not a similar brief, clear statement of symptoms of dangerous conditions arising in pregnant women be posted in the rooms used only by women throughout the country? Why should not attention of expectant mothers be called to the dangers of miscarriage and convulsions and hemorrhage occurring during pregnancy? Much had been done to educate medical students and physicians for better obstetrics, but economic conditions and lack of hospital facilities had been such that doctors could not afford to do, in a large private practice, the careful work accomplished in good hospitals. At present there had been great improvement in many States of the Union; license to practice was refused to those students who had not had a fair obstetric experience. The multiplication of hospitals, the opening of maternity wards, the fact that patients resorted to hospitals for confinement, better knowledge of obstetrics, and above all, the recent developments in obstetric surgery, had been great advances, and yet today there were three great dangers which threatened the physical life of women in the childbearing age, tuberculosis, cancer, and parturition, and this condition was the result of the fact that in the so called private practice of obstetrics, as indiscriminately carried on by the general practitioners, there was very much to be desired. The modern obstetric trained nurse had saved the life of thousands of infants. So splendid was the profession of nursing that it was difficult to select one field more brilliant in results than another, but if life and health and happiness and joy of families were appreciated, then the well trained obstetric nurse had won great achievements. The trained nurse had made the modern hospital a safe refuge for the poor mother. The antiseptic precautions taken in such hospitals had eliminated to a large extent the greatest dangers of parturition. Maternity hospitals should contain a considerable number of beds devoted to pregnant patients only. Prenatal care he recognized as most important in the interest of mother and child. Pregnant women who were ill required hospital care, and life and health were saved in a surprisingly large percentage by such protection.

How to Conduct a Survey in the Interest of Child Welfare Work.—PANSY V. BESOM, of Boston, said that the most important factors in child conservation were prenatal care, obstetrical care and infant feeding. The committee felt that this survey would disclose the fact that deaths in early life

were due to the failure of people to secure proper care in these fields of medical work. It was assumed that the well to do would always be in a position to secure competent, continuous medical care. So provision must be made for the rest of society to conserve life and thus increase our man power. A public health nurse was appointed for each health district in the State, and an additional nurse for Boston. These nurses were selected with the greatest care, and all of them had had not only public health training but a considerable amount of experience in actual public health field work for children. In making the surveys the nurses had visited the representatives of the boards of health, the child welfare agencies, the visiting nursing associations and other private or church organizations which were doing child welfare work. Positions had been created for forty-six nurses as a result of the movement, while thirty child welfare stations and eight prenatal clinics had come into existence.

The Home Care of the Infant.—Miss F. E. BISHWANGER, of Philadelphia, said that at birth the infant's mouth and eyes should be cleansed with boric acid solution; the child turned upon its right side, so that its heart valve might properly close and the child should be thoroughly but gently rubbed with warm olive oil. A warm sponge bath and the clothing of the infant in woolen abdominal band, woolen shirt, diaper and flannel slip would make it comfortable and it would rest and sleep. The new born child should not be disturbed by friends or relatives. The secret of its comfort in its food and sleep lay in absolute regularity and freedom from disturbances. For good digestion the infant's mouth should be gently but thoroughly cleansed with boric acid solution before feeding. Water in addition to its food should be given at regular intervals, by the use of a bottle and rubber nipple. Every effort must be made to favor the nursing of the infant. In cases where the first milk was too fat and disagreed it might be removed by the breast pump with very gentle pressure, and the child given the less fat milk which came after. Where the milk was thin and deficient, the attention of the physician must be called to this fact and under his supervision suitable diet and perhaps tonics might be used. The first essential in artificial feeding was the cleanest and best milk available; the second essential, minute and written directions from the physician, and on the part of the nurse; the accurate measurement of the different ingredients of the child's bottle and the accurate carrying out of the physician's directions.

The Importance of Prenatal Care.—Dr. LIDA STEWART COGILL, of Philadelphia, summarized as follows: "More uniform and higher standard obstetrical teaching in medical colleges with greater attention to the subject of prenatal care. Establishing of a greater number of prenatal clinics and health centres. Establishment of health clinics for mothers of childbearing age." Child welfare workers were better able to cope with conditions affecting the life of babies from one year up to school age than they were with the prenatal conditions affecting mothers and the infants up to one year of life and they were calling for assistance and advice

in remedying this defect. The Woman's Medical College of Pennsylvania, was one of the first to realize the importance of instruction to students on the importance of prenatal care.

Object of postnatal clinic: To have complete obstetrical record of mother and child from beginning of pregnancy to end of puerperium, eight weeks. Questions as asked by the Babies' Welfare Association as to how many babies living and breast fed at end of first month could be more easily ascertained. Pelvic condition of mother could be watched and patient referred to another clinic for further treatment when needed. Making of a stepping stone to the establishing of a mother's health clinic, thus overcoming that stage of neglect among mothers of childbearing age. Help save those 15,000 mothers who died needlessly each year and that eighty per cent. of babies who perished before the first month of life.

The City Nurse as an Agent for the Prevention of Infant Mortality.—Dr. HARRIET L. HARTLEY, of Philadelphia, stated that in the matter of determining with some degree of accuracy the health of a given district or locality, we had no better or more intelligent surveyor than the city nurse. Her experience had brought her in contact with all kinds and conditions of men, her method of approach to the keeper of the home, usually the mother, was one which bred friendliness and confidence, and an understanding of the true condition of the home and its inmates was arrived at from a standard viewpoint with a minimum waste of time. The city nurse with her general training as a nurse knew the earmarks of disease. As a public health nurse she readily recognized poverty, destitution and alcoholism. She could judge whether the family income was large enough or expended in such a way as to insure the proper amount of health and comfort to the family. Her connection with the board of health made her an authorized sanitary inspector, and her general knowledge of the principles of housing and sanitation made her a good judge of the conditions surrounding the young infant. She could intelligently observe the care of the food, the refrigerator, and utensils, which either intimately or remotely affected the health of the baby. Here also brought into use her knowledge of ventilation and readily determined whether the baby got the proper ventilation to guard it against respiratory disease. In prenatal work the city nurse had no peer. The expectant mother was much more apt to confide in the nurse, who gave advice about babies, than she was any other type of health worker. The nurse often learned of the pregnancy early in its history, became the mother's friend and confidante and led her in the direction she should go.

Prevention of Infant Mortality.—Miss BLANCHE SOULE, of Philadelphia, said that the social service department took care of the prenatal work outside the hospital, and a great deal of prenatal work was done in the obstetrical department. The social service worker found the expectant mother, endeavored to gain her confidence and interest and impressed upon her the importance of medical care during her pregnancy. She was then directed to the prenatal clinic and at the same time

the patient's name, address and a short history, home conditions, and other information was sent to the clinic. If the patient did not visit the clinic as she promised, the clinic found out why she had not come and looked after her. The maternity department was made up of two distinct departments, one for the clean patients and the other for venereal patients. In the clean maternity wards during the past year they had not had one case of toxemia in the patients who were under their care several months before delivery. In the venereal maternity ward they had one case of toxemia in a patient who was admitted when eight months pregnant. In the children's department they had the same division as in the maternity department for the clean and the infectious patients. The vaginitis patients had a separate floor of the hospital. The doctors and nurses taking care of these children did not come in contact with children in any other part of the hospital. There was separate clothing for this department and all diapers were burned. In the work of prevention, the obstetrician, the pediatrician and the nurse must work together with one common aim. She believed that if the nurse would accomplish the most good in this great preventive work she must be thoroughly prepared for it. She had lectures in obstetrics and pediatrics and classes in these subjects, attended clinics and did followup work on the wards.

Problems of Infant and Maternal Welfare in Rural Communities.—KATHERINE M. OLMSTED, of Chicago, stated that the existence or the development of a well and a broadly organized public health nursing section in every State health department was the first and the most important need in any movement for better care of our rural health conditions. The obligation of this department should be: 1. To stimulate local county demand for public health nursing service and secure public funds for maintenance of work in counties. 2. To provide well trained competent nurses to meet the demand. This condition was improving. The work of the national was being felt. 3. To coordinate and supervise the work of all the nurses throughout the State much as was done with the county health officers now with a view to standardizing fundamentals and stimulate the tendency toward a higher type of public health nursing in rural sections. She firmly believed that were each State provided with such a department and each of these departments provided with an extremely efficient, well trained, widely experienced supervising nurse that within a few years most of the counties in all of our States would have efficient public health nursing services. The services of a State supervising nurse were varied; among them were: 1. To enlighten the communities about the value of the service, the duties of the nurse and methods of adequately financing the work. 2. To assist each nurse in adapting herself to the specific demands of the community. 3. To visit the nurses and give advice and training. 4. To conduct through correspondence a library department for encouragement and stimulation toward better work. 5. To arrange with universities and schools within the State, courses for beginners and institutes for older workers in public health nursing.

Rural Work for Infant Welfare.—Dr. MAURICE MACDONALD SEYMOUR, of Regina, Saskatchewan, Canada, in summing up the work undertaken in the different provinces of Canada, in the effort to reduce infant death rates in the rural districts, said the following were the important methods employed: 1. The establishment of municipal hospitals subsidized by the government at rural points. 2. The appointment of medical men at a salary by municipal councils, to serve the rural communities. 3. The conducting of child welfare clinics and exhibits, lectures, etc., at rural centres, more particularly in connection with fairs, when most publicity could be secured. 4. Wide distribution of literature dealing with care of the baby. 5. The adoption of a system of rural public health nursing which would be greatly increased in the near future. 6. Government maternity grant to expectant needy mothers in rural districts. 7. Education of the public and wide distribution of literature on the subject of infectious diseases; particularly with regard to the venereal diseases.

In order to improve the situation, the adoption of the following measures was to be strongly recommended: 1. A system of dominionwide training, registration and thorough supervision of midwives. 2. A general system of rural public health nursing, with particular reference to child welfare and prenatal care. 3. The providing of free treatment for all syphilitics by means of cooperation between government and municipal authorities. 4. A more general provision for government aid for maternity cases.

Adequate Reproduction.—Professor ROSWELL H. JOHNSON, of the University of Pittsburgh, said that for any country at any given stage of advancement of its arts, and of exhaustion of its resources there was an optimum number of inhabitants up to which the country could continue its population without producing an undue pressure upon subsistence. Above this optimum the number was such as to lead to injurious poverty regardless of faults of distribution. A well ordered community would strive to reach this adjustment. It might do so by encouraging or discouraging immigration, encouraging or discouraging emigration, or by raising or lowering the birth rate. General welfare demanded a minimum death rate and a marriage rate limited only by considerations of the unfitness of the parents, so that neither should be modified for population considerations. Only the birth and migration rates might be modified for this purpose. There was little reason to believe that any large part of the world was especially not our own country. There seemed to be no cause for increasing our population, and we needed to be concerned only in maintaining our population, which we were already doing. But so far we had considered the population as a whole. When measured it was found to consist of persons of widely varying individual and social worth. Our population was made up of a large number of those of middling value, with the proportion of persons above and below this middle average constantly diminishing as the deviation from the average increased. These differences in the value of the individual to society were known

to be in large part inherited. It became of great moment to know the relative birth rate of the several sections. Obviously racial progress depended on a disparity in the reproduction of these groups in one direction. If reproduction of the most inferior was prevented as should be done, then the remainder must yield to a higher birth rate. But in addition to that the superior half should have a higher rate than the inferior half. Professor Sprague, of the Massachusetts Agricultural College, found 3.7 births were necessary to sustain a fixed population. Hence we must expect more than 3.7 births from all superior women or we could not have a progressive race and maintain our numbers. There was then a racial noblesse oblige. Unfortunately it found little recognition for there was abroad a spirit of misguided selfishness cloaking itself in fine phrases "realizing one's capacities," "being true to one's selves," "following one's bent." The modern superior celibate, heedless of the future, set up these false gods. Woe to the nation, which like ours, found its superior women slacking on the job of motherhood, as ours were doing.

New Officers.—The following officers were elected for the ensuing year: President, Dr. S. Josephine Baker, New York; president-elect, Dr. Phillip Van Ingen, New York; first vice-president, Dr. William Palmer Lucas, San Francisco; second vice-president, Dr. W. S. Rankin, Raleigh, N. C.; secretary, Dr. Henry F. Helmholz, Evanston, Ill.; treasurer, Austin McLanahan, Baltimore; executive secretary, Miss Gertrude B. Knipp, Baltimore. There were seventeen States represented, also the District of Columbia and Canada.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

The Unsound Mind and the Law. A Presentation of Forensic Psychiatry. By GEORGE W. JACOBY, M. D., Author of *Child Training as an Exact Science*; Fellow of the New York Academy of Medicine; Consulting Neurologist to the Hospital for Nervous Diseases, the German Hospital, the Beth Israel Hospital, the Red Cross Hospital, and the Infirmary for Women and Children in the City of New York, etc. Pp. xv-438. New York and London: Funk & Wagnalls Company, 1918. (Price \$3 net.)

The attitude toward mental disorder taken by Doctor Jacoby may be illustrated by his statements that mental disorders must be due to actual disease of the brain and localized disease at that (pp. 43, 51, 57). He, of course, scouts the idea of functional disease or of a psychogenic basis for mental disorder, failing to differentiate between cause and effect. Sherrington, Crile, Cannon, Pavlov, and others have shown that there is a physiology and a pathology of emotion, but the profession as a whole is slow to recognize that the metabolic changes in such a disorder as dementia præcox, e. g., are manifestations of a profound emotional disturbance, rather than physical changes which cause mental symptoms. In spite of this, Jacoby's book contains much of value for the lawyer and general practi-

tioner. After a historical retrospect, he discusses responsibility, gives directions for a complete mental examination and then discusses the various forms of mental disease. The book closes with some practical examples of the problems which are likely to arise in forensic medicine. The physician who is unexpectedly called upon for a psychiatric opinion or the lawyer with a case involving the question of responsibility will find much of value in this book, although it is not one for the psychiatrist.

The Normal and Pathological Histology of the Mouth. Second Edition, Revised and Enlarged by ARTHUR HOPEWELL-SMITH, L. R. C. P. (Lond.), M. R. C. S. (Eng.), L. D. S. (Eng.), Professor of Dental Histology, Pathology, and Comparative Odontology, University of Pennsylvania, Philadelphia; John Tomes Prize-man of the Royal College of Surgeons of England. Illustrated. Philadelphia: P. Blakiston's Son & Co., 1918. Pp. 470. (Price, \$3.)

In this volume dealing with the histopathology of the tissues of the mouth, the author considers in the first three chapters the pathological conditions of the enamel, dentin, and cementum. These chapters leave nothing to be desired. Dental caries is considered in Chapter IV. Over forty pages is devoted to its study, closing with a brief summary of its microscopical appearance. This is followed by several chapters dealing with the diseases of the dental pulp, including injuries, degenerations, and vascular lesions. One chapter dealing with its pathology in relation to clinical dental surgery will especially interest the dental practitioner. Morbid affections of the alveolodental periosteum and pericementum, are carefully considered in two chapters. An entire chapter is devoted to a consideration of pyorrhea alveolaris. Attention is called to the fact that the author has had the opportunity of making sections through the dental and alveolar tissues of several patients who had pyorrhea and whose death was due to other causes. A most interesting description of the histopathology of these tissues is given under five different heads—the gingivæ, the pericementum, including that of the apical region, the cementum and alveolar process. His conclusions are that the disease of the bone is not a rarefying osteitis; that it does not begin as gingivitis; that it is essentially dependent on an atrophy of the bone; that the pus associated with it is derived from food debris, bacteria, etc., and that it is not caused by calculus. It is unfortunate that the author did not limit himself to the histopathology of the disease for it is obvious that he is not familiar with either its etiology or treatment. While admitting that its etiology is undetermined, the statement is made that it is probably caused by constitutional diseases coupled with infection of the gum margins. Probably very few of those most successful in its treatment would agree with this. The statement that "Pyorrhea alveolaris does not initiate, but is produced by the same septic cause which leads to general systemic affections, and which may set up among other diseases alimentary toxemia, gastritis, enteritis chronic toxemia, rheumatism, and remotely septic and pernicious anemia, arthritis, endocarditis, septicemia, etc.," is far from proved, and in the light of clinical experience, is improbable. It is a disease around which clusters more misinformation than any other in the body.

Part II is given to a consideration of the oral tissues, including the pathological conditions of the gums, palate, antrum, and jaws; diseases of the oral mucosa, tumors, odontomes, odontoceles, including a chapter on oral microbiology. The volume closes with a chapter on the extraoral dental tissues. In many respects the book is unique and occupies a place in dental literature filled by no other. It should prove of great interest to both physician and dentist.

Instituto de Butantan. Collectanea de Trabalhos, 1901-1917. Illustrated. Sao Paulo, 1918. Pp 496.

This is the report of the work of the Butantan Institute in Sao Paulo, Brazil, from 1901 to 1917, and contains twenty-four articles, eleven of which are by Dr. Vital Brazil. Most of the articles deal with snake venoms, the serum treatment of snake bite and prophylaxis. There is a thesis on the treatment of the plague by Dr. D. de Camargo Penteado with special reference to the serum therapy of the disease. The work covered is more of an abstract and theoretical nature than of practical value and consequently must be classed as a reference handbook.

Births, Marriages and Deaths.

Died.

ADAMS.—In Boston, Mass., on Thursday, January 2d. Dr. William G. Adams, aged forty-six years.

COURTNEY.—At Portsmouth, Va., on Thursday, December 26th, Dr. Thomas G. Courtney, of Waltham, Mass., aged thirty-two years.

COUTURE.—In Sacramento, Cal., on Thursday, December 26th, Dr. Alfred N. Couture, aged fifty years.

EVERETT.—In Bolton, Mass., on Thursday, January 2d. Dr. Oliver Austin Everett, aged fifty-six years.

HULL.—In San Francisco, Cal., on Tuesday, January 7th, Dr. Robert L. Hull, Major, Medical Corps, U. S. Army, of Portland, Me., aged forty-three years.

JACKSON.—In New York, N. Y., on Wednesday, January 8th, Dr. Frank W. Jackson, aged sixty-three years.

KING.—In Selmer, Tenn., on Sunday, January 5th, Dr. James M. King, aged sixty-five years.

McKNIGHT.—In Fair Haven, N. Y., on Saturday, December 28th, Dr. Virginia Harley McKnight, aged seventy-six years.

MARSTIN.—In Braintree, Mass., on Monday, January 6th. Dr. Chauncy M. Marstin, aged seventy-four years.

O'GORMAN.—In Hartford, Conn., on Saturday, December 28th, Dr. James O'Gorman, Lieutenant, Medical Corps, U. S. Army, aged thirty-four years.

PHELAN.—In France, on Monday, December 9th, Dr. Edward F. Phelan, Captain, Medical Corps, U. S. Army, of North Brookfield, Mass., aged thirty-one years.

POTTER.—In Des Moines, Ia., on Wednesday, December 25th, Dr. Homer C. Potter, aged eighty-four years.

SCHNEIDER.—In Rochester, N. Y., on Tuesday, December 31st, Dr. Frank Philip Schneider, aged twenty-six years.

SIMMONS.—At Mountain Lakes, N. J., on Tuesday, January 7th, Dr. Horace Melville Simmons, aged sixty-four years.

TRUEBLOOD.—In Fairfield, Cal., on Saturday, December 28th, Dr. William E. Trueblood, aged fifty-two years.

VANCLEFT.—In Oneonta, N. Y., on Wednesday, December 25th, Dr. Edgar D. VanCleft, aged forty-nine years.

VERMILYEA.—In France, on Saturday, November 2d, Dr. Sidney C. Vermilyea, Lieutenant, Medical Corps, U. S. Army, of Dresden, N. Y., aged thirty-two years.

WILSON.—In Boston, Mass., on Monday, December 30th. Dr. A. Janette Wilson.

New York Medical Journal

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WHOLE No. 2095.

Original Communications

DEVELOPMENT OF COLON SURGERY.

BY EDGAR R. MCGUIRE, M. D.,

Buffalo,

Professor of Surgery, University of Buffalo.

Some few years ago Lane startled us with his radical views on intestinal stasis. Lane's remarkable dexterity, his really excellent technic added to his personal charm as a speaker, made many think that some of his theories were based on sound scientific facts. It is not necessary to recapitulate all of his many questionable dictums, such as stasis being the primary cause of gastric and duodenal ulcer, gallbladder infection, hyperthyroidism; with all this you are familiar. I cannot, however, resist saying one word in condemnation of surgeons of this continent for accepting his work at its face value—in the absence of any attempt at scientific demonstration. As Dr. John Clark intimates in his review of twelve cases: Lane has proved that "it is possible for humans to live without the great intestine, and only in occasional cases are they improved." The harm done by ileosigmoidostomy in this country, as a result of Lane's visit would assume large proportions, could we but learn, first, the mortality, and second, the suffering of the patients who recovered—not only from Lane's work—but also from that of the enthusiasts, who later followed his example. Even, today, they are returning for relief. Surely the time has arrived when we must cease this foolish chauvinism of foreign surgeons. Not that I would detract from the most cordial welcome to all scientists who visit our shores, but they should be treated as surgeons, and not as vaudeville entertainers. Such exhibitions as followed the visits of Lorenz and Lane should never recur.

Doubtless, behind all this discussion of Mr. Lane, lie certain elements of truth. Some of these patients are improved. If we could prevent the enthusiast, who successfully removes an appendix, attempting the removal of the colon from neurotic individuals, who happen to have large cecums, displaced viscera, or so-called "Lane kinks," even now some definite indication for this operation might have been formulated. We have developed on this continent, many whom I believe to be the very best surgeons in the world—but, unfortunately, we have also developed many of about the worst. The lack of ideals in certain quarters has led men to become surgery mad. The desire to operate is overpower-

ing, and as a result the neurotic individual is a willing victim in their hands. The late Roswell Park was fond of an expression, "The resources of surgery are seldom successful when practised on the dying." To this might be added, the resources of surgery are seldom successful when practised on the neurotic. The sooner we, as surgeons, realize that neurotic individuals who happen to have displaced viscera—with or without stasis—are patients for the internist only, the better it will be for our good name.

Doctor Harvey shows that variations in the peritoneal attachments are frequent; that they are found in children, before the possibility of any inflammatory process exists; and that they correspond in every way to the so-called Jackson membrane and Lane bands. When so many good surgeons are in doubt regarding these borderland cases, which at operation show Lane kinks, Jackson veils, bands, et cetera, I am in no position to venture more than a word from the clinical side. For the most part these individuals are cured by rest and forced feeding, but unless some evidence of obstruction is present, they are not cases for surgical intervention. Usually these cases occur in women, who have lost weight, have grown nervous, have pain in the right iliac region. X ray shows enteroptosis, distended sigmoids, large movable tender cecums. They are operated and reoperated upon and the last condition is worse than the first. They are never cured until someone recognizes that they are suffering from mental fatigue, and gives them enforced rest. Personally, I have seen little, if any, relief follow surgical effort in these cases.

Why do these patients have large dilated cecums? Even after a right colectomy the ileum will dilate, showing the cause of the original distention to be still present. The possible relation of the nodal area of Keith to the function of the ileocecal valve is interesting, and may be important, but I cannot see its particular clinical value. Kellogg and Case place the trouble in the valve, and report cures by repairing same. I am of the opinion that regurgitation through the valve is the result of obstruction lower down, but not the cause of the trouble. The frequency with which the cecum dilates, would suggest a similar cause. In view of the fact that in these cases the cecum dilates, the ileocecal valve is often incompetent, and the sigmoid is usually large and distended, the cause would seem to

be lower down, probably in the lower end of the sigmoid, as this is the most fixed point of attachment.

There are certain individuals who have larger colons than their friends. This enlargement varies all the way from normal, to the well known Hirschsprung's disease. I have seen these individuals go for weeks, distended and uncomfortable, relieved only by vigorous washings. This type can unquestionably be relieved by surgery. I would like to offer for your sanction this rule. That no case of stasis should be operated without definite evidence of obstruction. If this is correct, then all patients with abnormal peritoneal attachments—not producing obstruction—are not suitable cases for surgery. The abnormal dilatations which occur are dependent upon definite obstruction lower down, either in the sigmoid or rectum, and a cure can only be obtained by relieving this obstruction.

In my personal pilgrimage around the country, I find a great diversity of opinion regarding the operations for these cases. Ileosigmoidostomy was much in vogue, but is rapidly disappearing. The almost certainty of regurgitation into the colon, is such a serious handicap, that most men have entirely abandoned it. I have several patients under observation now, who were opened by the late Roswell Park and myself—shortly following Lane's visit to Buffalo—where simply immense fecal tumors appeared in the abdomen, to disappear under thorough bowel washes. These individuals sooner or later should submit to one of two procedures. Either the intervening colon should be removed, or the intestinal canal ought to be restored to its original relation. Lane himself now admits that regurgitation is likely to follow his operation of ileosigmoidostomy, and he has given it up in favor of resection in most instances.

Regarding resections there is even a greater disagreement, whether the anastomosis should be a side to side, end to end, or end to side. We have been told in former years that it made no difference, because all forms of anastomoses after a few weeks gradually rounded off so as to form a perfectly straight tube. This, of course, is not so, as all have now seen cases where a diverticulum has formed on at least one blind end. It is rather difficult to show a diverticulum in a plate, but they can be demonstrated very easily by the fluoroscope. Formerly I followed the usual procedure of a side to side anastomosis, closing both ends. Radiographic study of these cases showed a certain amount of dilatation of the blind ends in almost every case. Next, an end to side anastomosis was done. Here a diverticulum forms in the proximal blind end of the colon. The only method known to me of preventing this complication is to use the end to end anastomosis. Here one will have a dilatation of the ileum, as the back pressure is exerted directly on the ileum, instead of on a blind end. I think the reason for all this is quite plain. If one watches the bismuth under the fluoroscope, he can definitely establish the reverse current which takes place in the colon. Whether the material is sent back to the cecum for the absorption of any remaining fluid, I do not know; but that it

goes back repeatedly is certain. The normal current, then, in the small bowel is always downward, but in the large bowel it is in both directions. This no doubt explains not only the regurgitation which occurs in ileosigmoidostomy, but also the frequency with which a diverticulum forms in the blind end of any anastomosis. It is, doubtless, also the reason for the dilatation of the ileum which so frequently is seen in the end to end anastomosis.

Charles H. Mayo has added another feature to the end to side anastomosis, namely, suturing the proximal end of the colon to the abdominal wall, so it may be readily opened to relieve the great distentions which occasionally occur. These enormous distentions which occur are certainly important. Personally I have only seen this in one case; but it was exceedingly distressing. The patient had some fluid stools, but very little gas passed for two weeks. In the meantime the abdomen became enormously distended. I debated whether or not to reopen the incision to allow for the escape of gas, but it finally subsided normally. Later this patient died, on the twenty-second day, from pulmonary embolism. These enormous distentions seem to occur so seldom, that I doubt the wisdom of deliberately planning an enterostomy in advance; but in the event of its occurrence, an enterostomy ought not to be long delayed.

The end to end anastomosis is really not difficult to perform. Leakage has been due, I think, to two main causes. First, the effort to make an anastomosis between two ends of different sized lumina. The remedy here is simply to divide one side of the ileum until the lumen is the same size as that of the colon. The so-called "puckering stitch," where the bite is longer on one side than on the other, will make up for the difference in the size in the lumen. For one or possibly both of these suggestions, we are indebted, I believe, to Dr. Charles H. Mayo. Second, the intestine must be divided along the line of the circulation, so that the side of the anastomosis opposite the mesentery will be viable. Theoretically there ought to be sufficient collateral circulation, but I have seen leakage at this point previous to my taking pains to prevent it. The circulation comes in a fan arrangement as seen in the mesentery. The bowel should be divided on a slant, so the side of the anastomosis opposite the circulation should be nearer the arterial supply. This in the large bowel, would mean dividing it so the curve would be from the mesenteric side toward the splenic side, and in the small bowel, the opposite direction—really making a v in the side opposite the mesentery. I have found by stripping back the omentum for a distance of an inch or more, the anastomosis is made more perfectly. Of course it is necessary to accurately close the opening in the mesentery to prevent hernia. One cannot be too careful in the control of hemorrhage in these cases. Each vessel should be clamped and tied separately, and not in a large bulk of mesentery. The smoothness of convalescence in these cases is in direct relationship to the amount of hemorrhage. In fact it is astonishing how little reaction takes place when no blood has been lost. The wound is closed with an oil silk drain—this is for the protection of

the external wound, as it is exceedingly difficult to prevent some superficial infection in these extensive resections.

My end results have been satisfactory in direct relationship to the amount of obstruction present at operation. Adhesions almost invariably tend to recur, but time usually cures them if the individual is fortunate enough to escape further surgery in the meantime. Where definite obstruction has been present the results have been excellent. I have seen no results in neurotics or joint infections, although fortunately, I have had few of either class. The recent conclusions of Doctor Draper (2) are in direct disagreement with my own. If the colon be excised in all chronic joint lesions, I feel sure a great deal of harm will follow. It would seem that this operation ought not to be advised in these cases, with so little clinical evidence in its favor.

In reviewing my personal cases, I find there have been twenty-eight, excluding minor procedures, as cecoplication, division of bands, et cetera. There were four shortcircuiting operations, with two deaths from intestinal obstruction, leaving twenty-four resections. Of these eight were for carcinoma, divided as follows: cecum two, descending colon five, sigmoid one. There were two deaths—both in old people—with evidence of uremia, being in coma and passing no urine. This leaves sixteen cases of marked stasis with partial obstruction. There were two deaths, one from hemorrhage and the other—on the twenty-second day—from pulmonary embolus.

In the early cases done for stasis, where obstruction was not marked, relief was only partial; and I think the operation of doubtful expediency in this condition. However, where giant colons were present, where extensive postoperative adhesions produced obstruction—shown by dilatation—the relief was marked. The obstipation and associated pain disappear, and the results are in every way satisfactory.

I have come to the conclusion that the operation for stasis is indicated only in the presence of definite obstruction. When indicated, the operation of choice is resection. Resection should be done by end to end anastomosis to avoid formation of a diverticulum.

REFERENCES.

1. HARVEY: *Annals of Surgery*, June, 1918.
2. DRAPER: *Annals of Surgery*, May, 1918.

622 DELAWARE AVENUE.

A Fatal Case of Syphilitic Pleuropericardio-mediastinitis.—Loeper and Grosdidier (*Presse médicale*, June 24, 1918) report the case of a young man having a history of pericardopleuritis with effusion complicated with signs of mediastinal compression. The pulse, studied with Jacquet's apparatus, proved to be quadrigeminate. At the autopsy, the pleura, diaphragm, the entire mediastinum, and the entire heart were found covered with a lardaceous layer at least one centimetre in thickness. Microscopic examination showed that this covering layer was of syphilitic origin and progressively penetrating into the interstices of the myocardium.

(Published by Authority of the Surgeon General,
United States Army.)

INFLUENZA EPIDEMIC

At United States Army General Hospital No. 17,
Markleton, Pa.

BY MAJOR PHILIP A. LOOMIS,

Medical Corps, U. S. Army,

AND

CAPTAIN JOSEPH WALSH,

Medical Corps, U. S. Army.

Our epidemic was unique in that we know the original case from which all others developed. For ten days previous to the admission of this case, the most rigid quarantine had been observed. The village of Markleton has but fifty-two inhabitants and we know that there were no cases of influenza among them. On October 13, 1918, a passing troop train consigned to our care a patient with an ex-

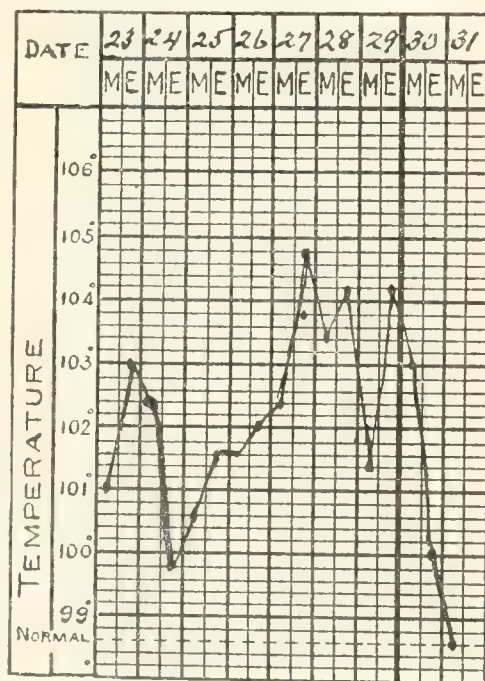


CHART I.—Characteristic temperature chart in bronchopneumonia case; slight remission on the third day and final almost abrupt drop following the eleventh day.

tremely malignant case of influenza. When put to bed he had a temperature of 104°, pulse 100, respiration 34, and the typical symptoms of a fully developed influenza with intense prostration, injected eyes, extremely red soft palate and fauces, and a short hacking cough. Though not present on admission, typical signs of bronchopneumonia began to show themselves at seven o'clock the next evening, October 14th, were fully developed the following day, October 15th, and he died on October 16th, at 4:45 p. m. The autopsy showed bronchopneumonia of both lower lobes, the left being completely involved and the right to the extent of about fifty per cent.

This first patient was carefully isolated in a private room on the third floor of a detached building which had been cleared out several days before in

anticipation of a possible epidemic. Previous to death and for several days after, no one was allowed on the floor except the physicians, nurse, and on the last day an attending corps man. The chief of the laboratory who saw him once on October 15th to examine his blood, manifested the disease

in only three, while twenty-eight cases occurred among our personnel of one hundred.

SYMPTOMS AND COURSE OF DISEASE.

Incubation.—Of the ten cases in whom the date of primary exposure was known with certainty the disease developed in nine in from one to three days; the tenth came down with the infection only after ten days' exposure, but it might be noted that this individual was over forty.

Onset.—As these cases developed among the hospital personnel and patients, we feel certain of having seen even the mildest cases on the appearance of the first symptom. In the majority of instances the onset was abrupt. The predominating features were head and general bodily aches, fever of 101° or higher, more or less cough, and in more than one half of the cases injection of the fauces and conjunctiva. Coryza was conspicuously absent. Chilliness was rare, and when amounting to a chill was found to indicate some other condition than influenza. Prostration was not often complained of at onset. The pulse was slow, and respiration not much increased. Epistaxis occurred in ten per cent. of the cases. The cases may be divided into two principal groups for purposes of description, the simple form, and one of more severe type, spoken of hereafter for convenience as the pulmonary form. In the simple form temperature persisted from two to seven days, averaging five, and subsiding gradually. The symptoms usually abated on the second or third day and the pulmonary evidences, like cough, were not

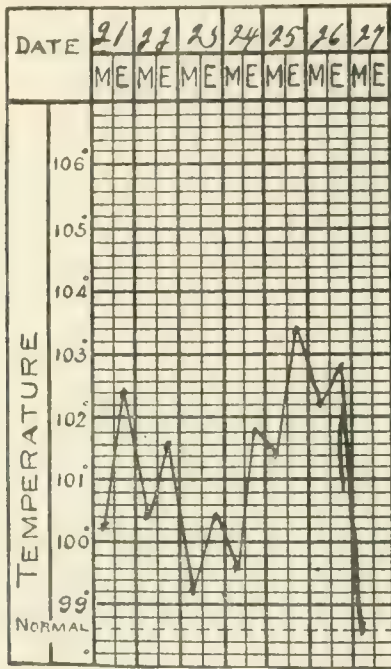


CHART II.—Shows gradual rise after first remission and abrupt fall simulating a crisis.

the next evening. The medical chief visited him on October 14th, 15th, and 16th and was taken ill on the 17th. The surgical chief saw the case only at autopsy on October 16th, but came in contact with the chief of the laboratory all day October 16th and the disease had fully developed on the 17th. The nurse who attended the first case from October 13th to 16th showed definite symptoms on the 17th. All four of these cases showed the typical signs of influenza and later bronchopneumonia, the chief of the laboratory dying October 22nd, the other three passing through severe sieges and recovering. On October 18th the disease developed in the wife of the chief of the laboratory; on the 20th, a nurse in attendance on the influenza patients; on October 22nd, two nurses in attendance; and on October 30th, the head nurse who had been caring for the sick nurses for ten days. In the meantime the disease also developed in eighteen enlisted men and three tuberculous patients. Of these thirty-one patients, pneumonia developed in eight. All but one of these eight had been in direct contact with the original patient or with the chief of the laboratory, both of whom died.

All physicians, nurses, and enlisted men, who came in contact with patients wore masks and gowns, and were carefully instructed in regard to precautions, though evidently without avail. Doctors, nurses, and attendants helped to feed the flames and fill the wards until an immune staff was found. It is interesting to observe that out of two hundred tuberculous patients the disease developed

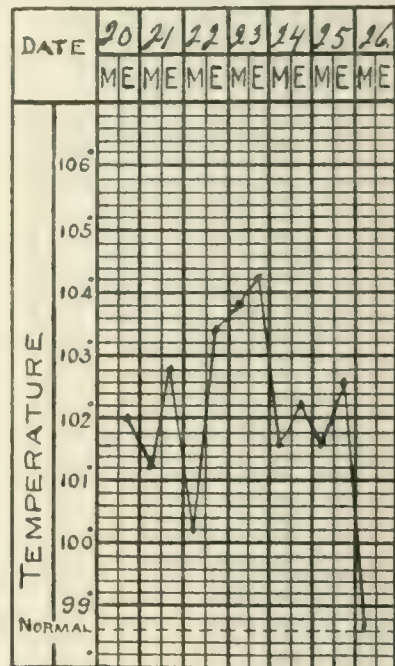


CHART III.—The temperature in two definite stages, finally falling to the seventh day.

severe. This form constituted about two thirds of all cases.

In the pulmonary form the onset was identical. There was, however, an early rapid drop in temperature to approximately normal on the second or third day. After a remission of a few hours, the

temperature again rose, coincident undoubtedly with a localization of the infection in the smaller bronchi. An early drop in temperature was always a cause for uneasiness as it was usually the forerunner of the secondary pneumonic stage. This phase has frequently been spoken of as a complicating pneumonia, but there are reasons for believing that it is but an extension of the specific infection. The temperature mounts rapidly to 103° or higher, the cough increases, the sputum which is usually thin and mucoid becomes blood stained, varying from a mere stain to a uniform pink. It is during this stage that the redness of the throat and mouth is most marked and typical. A persistent and distressing nausea, with vomiting and diarrhea, suggests that this hyperemia may even extend to the gastrointestinal mucosa. These gastrointestinal symptoms, frequently accompanied by restlessness, headache and more or less delirium, gave to the clinical picture an appearance of marked toxemia.

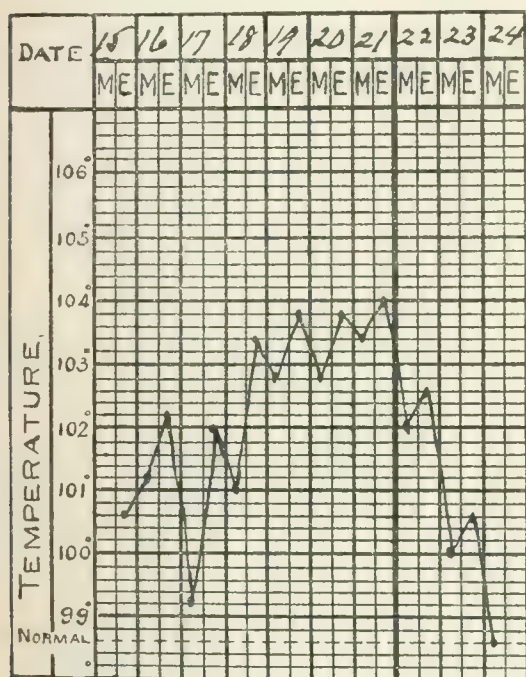


CHART IV.—The rise in temperature after the remission simulates the fall in a gradual progressive manner.

The cough was troublesome and often so persistent as to greatly exhaust the patient. Cyanosis at this stage was the rule. It was usually slight but in the very severe cases was most intense. The pulse was comparatively slow, seldom going over 110, except as a terminal event. The respiration varied from twenty to thirty-four, also showing but little increase, considering the temperature toxemia and pulmonary involvement. In more than one half of the cases in this small series the temperature fell by crisis. This crisis while not as definite as in the ordinary lobar pneumonia was nevertheless quite distinct. The average duration of this pneumonic stage was about six and one half days, varying from four to ten.

In the fulminant, rapidly fatal cases, there was no initial drop, in fact the temperature rose abruptly, with but slight remissions to 104° - 105°

and the cough, cyanosis, toxemia, and prostration were intense. Noticeable features in all cases were the remarkable loss of weight and the slow recovery of strength.

Complications.—But two complications were observed. Catarrhal otitis media occurred once and empyema once. The latter developed on the eighth day, following the simple form of influenza. A pure culture of *Streptococcus hemolyticus* was found.

Lung findings.—No pulmonary signs were evident on the first day or two; when the symptoms continued unabated, evidences of acute bronchitis were manifested by sibilant and sonorous râles over both upper lobes. In the simple form no other signs were noted. On the development of the pulmonary form, no further signs were found for about two days, when feeble bronchovesicular breathing appeared in various parts of the lungs. In the two fatal cases this breathing became more marked with the progress of the disease until it was almost bronchial. In the first fatal case bronchovesicular breathing began over the left lower lobe but eventually extended from the base to the clavicle; in the second fatal case it began over the left upper lobe and only later appeared in the lower. On the development of the bronchovesicular breathing, the percussion note became hyperresonant and only later impaired. In the first fatal case there was slight dullness on the left from the base to the fifth rib, twenty-four hours preceding death. At this time there was hyperresonance over the right lower lobe with feeble bronchovesicular breathing. The autopsy showed complete consolidation of the left lower lobe by coalesced patches of bronchopneumonia and scattered patches of bronchopneumonia in the right. In the second fatal case bronchovesicular breathing began over the left upper lobe and here the first impairment of resonance was noted. A day later there was impairment of resonance from the base to the fifth rib and dullness from the fifth rib up. The day before death there was dullness from the base to the top of the lung.

In one case at the height of the bronchopneumonia there was impaired resonance with bronchovesicular breathing from the fourth rib up on the left; in one, bronchovesicular over the right lower lobe; in one, bronchovesicular over several parts of the left lung; in one, bronchovesicular over both upper lobes; and in one there were present all the symptoms of bronchopneumonia, distressing and hacking cough, expectoration of pink tinged sputum for three or four days, high fever, marked toxemia, with no physical signs.

Epidemic of Bronchopneumonia.—Edwin F. Hirsch and Marion McKinney (*Journal A. M. A.*, November 23, 1918) studied the bacteriology of a very large number of cases of bronchopneumonia of influenzal origin, taking their cultures from the nasopharynx, the sputum, the blood during life and after death, and from the tissues post mortem. They found that the *Bacillus influenzae* played no part in the epidemic and that the causative organism in the bronchopneumonia was an extraordinarily virulent pneumococcus of Type II or Type IV.

FLAT FEET AND WEAK FEET.

BY H. SCHEIMBERG,

Brooklyn, N. Y.

The problem of flat feet is so comprehensive in scope that the writer cannot essay anything but a brief summary of the subject for the purposes of this article. Therefore, no attempt will be made to outline the pathological alliance existing between focal infection or constitutional disease and pedic deformities. However, the present subject will be reviewed from the standpoint of a visible mechanical deformity endangering the rest of the body, and irrespective of its original etiology. Not only flat feet, but foot pathology in general, is attracting attention.

This is concomitant with the alarming increase of foot ailments, particularly in our large industrial centres. The growing interest is reflected primarily in the great number of articles in respect to feet appearing, not alone in medical literature but also throughout the lay press. It is shown in the more concentrated study given it by eminent orthopedic surgeons, in connection with the brilliant orthopedic advances of the last two decades. In military life, most of us are aware of the intensity with which the problem has been approached. For example, the United States Government through its Munson Shoe Board devoted about four years to a close study of feet and footwear, which resulted in some unusually valuable discoveries and in the production of the Munson last shoe.

There are erroneous conceptions current as to flat feet which are unfortunately entertained by physicians, as well as laymen. General medicine has in the past, for reasons not easily understood, divorced the foot from its observation and this may account for the lack of more general knowledge about flat feet. In minimizing the importance of foot pathology, as has been the past practice, physicians have overlooked the value of a part of the body that the greatest military tacticians have declared often decided a battle, and the defects of which cause a nervous strain that others in civil life have declared to be responsible for many failures in everyday life. Physicians have been inclined to regard most pains as "rheumatic" and medicate internally by salicylates. Others, again, overlooking numerous other causes, regard arch supports as a general solution for foot troubles. There are others who still believe that general disturbances shown by pain in the regions below the abdomen will right themselves and warrant no special care. Recent researches, however, are rapidly changing this unfortunate state of affairs.

As to the alarming increase and prevalence of flat feet conditions, we have ample evidence. It was brought to light in the great number of rejections from military service in connection with early recruiting. Schuster states (1) that after recruiting began, the newspapers called the attention of the public to the fact that out of every 100 men who applied, twenty-five were found fit; over fifty were disqualified on account of bad feet and the remainder because of defective hearing, eyesight, teeth, and other causes. Berry states (2): "Any one

doubting the frequent occurrence of pronated foot should stand in front of any public school at closing time and observe the feet of the children as they come out." Schuster again (3): "My observations of children of school age have shown me that easily sixty per cent. are suffering consciously, or unconsciously, from defective feet. . . . That this percentage of defective feet in children when not cared for, does not become lower in later life, is shown by the fact that sixty-eight per cent of young men of draft age who were rejected for military service in the present exigency, were set aside on account of bad feet." The increase of foot troubles is also shown in the large number of so called "orthopedic" or "anatomic" shoes appearing on the market in response to a growing demand for relief. These shoes which unfortunately are not always "orthopedic" are advertised as cureall and to aggravate matters, physicians refer patients for some well advertised shoe without appreciating the fact that the therapeutics of a shoe is not in a name, but in a proper shoe for a particular condition. The commercial arch support which finds an extensive sale throughout the country, is, of course, *prima facie* evidence of the prevalence of flat foot conditions.

In approaching the question of flat feet from its many perplexing angles, we find that the subject naturally resolves itself into the following queries, which will be dealt with in the same order: 1, What is a flat foot or a weak foot; 2, its causes; 3, its general pathologic dangers; 4, its prevention and treatment.

The definition of a flat or a weak foot.—There is a common fallacy current which when disposed of will more than anything else enable a clearer explanation of the condition. It obtains in the belief that a low arch makes a flat foot, and, therefore, a high arch is the most serviceable kind. This view is not only incorrect but investigation shows has absolutely no foundation in fact. Primarily, there is no standard height that can or should be set for a normal arch any more than we can fix a reliable standard for the proper length or width of the foot, a toe, or for that matter the eyeball or the nose. On the contrary, we properly recognize that such differences as exist are inherent together with other particular characteristics either in an individual, in a family as by heredity, or in a race. For instance, the Jewish race and the Negro race show low arched feet; but scientific research has not shown that any one of these two races in comparison with others, possesses a proportionately greater number of weak footed specimens. Captain F. W. Weed (4), of the United States Army Hospital Corps, found that in a regiment of colored soldiers in a company of sixty-five men, most of them had very low arches, if not flat feet. But he states that complaint of foot strain was never heard from any of the men. Besides, this regiment was known to be the best marching unit of the organization. With the negroes, low arches are congenital just as it may be with an individual or his family. It follows, therefore, that a low arched foot is not a scientific test of a real flat foot which we know is one that cannot withstand ordinary foot strain. The fallacy as to the height of arch becomes more apparent when we examine types of highly arched

feet. For instance, the condition of Schaffer's foot shows an extremely high arch occasioned by the contraction of the plantar fascia and accompanied by a contraction of the posterior muscles of the leg which contraction limits the flexion of the foot on the leg to about ninety degrees whereas a normal foot should be able to flex to seventy-five degrees with the leg. Here we have a foot which should be perfect if height of arch were the sole determining factor. Yet the Schaffer's foot is anything but perfect as the important and essential function of flexion is retarded, as stated, by the muscular contraction of the posterior leg muscles. Again, if one is confined to bed by prolonged illness, consequent muscular atrophy of the muscles that fill the concavity of the foot takes place, and such a person emerges from confinement with an apparently high arch. In spite of this high arch, he is barely able to walk about; and when after a lapse of time, the musculature of the arch is strengthened so as to again carry the body easily, the arch will appear to have lowered because by exercise, the longitudinal bellies of the plantar muscles under the arch expand and fill up the concavity. Again, clinical and other observation shows that women have generally higher arches than men, yet we recognize that men have far stronger feet than women. In countries where women do heavy physical labor and walk barefooted, thus permitting complete muscular functioning, we find the arch appearing lower because in reality, the muscles of the plantar foot are fully developed.

When we realize then that height of arch does not settle the question of a flat foot, we can approach the question without being misled by a standard which, from the writer's personal observation, has often occasioned the rejection from military service of good feet; and the acceptance of poor marching feet that, under military needs, fail in the test. Yet the fact remains that a real incapacitating flat foot has a low arch and sometimes to such a degree as to be almost obliterated. Where, then, is the difference between a real flat foot and a low arched one. How can the clinical condition be recognized? To understand the difference, we must distinguish between the congenital or normal low arched foot, and the flattened out or real flat foot. One difference is seen in the fact that the normally low arched foot like any normal foot, can move through certain normal spheres of flexion, extension, inversion, and adduction, that is, it can functionate as required in walking or running; though it may lack a little flexibility as compared with the really perfect foot because a lower arch naturally has less spring to it than a higher one. This functioning is possible in the normal low arched foot because it has not been subjected to certain anatomic changes in muscles and bones that have occurred in the real flat or flattened out foot. Another difference is that in a perfect foot or in a normal low arched foot, a line drawn from the inner heel to the great toe will be a straight line, while in the flat foot, such a line is not straight but shows a convexity on the inner side of foot, sometimes even amounting to a sharply angulated apex at the astragaloscaphoid junction. The arch has

angulated through its longitudinal axis at the astragaloscaphoid junction and the scaphoid has become very prominent.

An examination of the skeleton helps us to understand the pathological change that has produced this convexity on the inner side of a real flat foot. We observe that the arch is composed of two limbs with the os calcis forming the posterior and shorter limb of the arch, while the anterior limb is formed by the bones in front of the astragalus, the astragalus itself forming the keystone. A strange defect of the arch becomes visible when viewing the foot in the skeleton from the rear or vertically downward. When we do so, we observe that the os calcis as the posterior limb does not occur squarely underneath the keystone or astragalus but its inferior and posterior portion is situated more to the outer side of the foot, while its anterior superior articulating process leans inward. In other words, the weight of the body is falling on an arch, the posterior limb of which is already tilted inward and the body weight transmitted directly through the astragalus tends, if anything, to further tilt this heel bone. From the os calcis to the scaphoid inferiorly occurs the inferior calcaneoscaphoid or "spring" ligament upon which the head of the astragalus rests, which ligament, as its name implies, furnishes the spring to the arch. As the body weight eventually bears on the anterior and upper part of the heel bone, a sagging of the calcaneoscaphoid ligament naturally occurs. This is natural, for as the os calcis tilts inward, the astragalus on top of it cannot follow the same inward and lateral displacement because it is wedged in firmly between the malleoli of the tibia and fibula. The astragalus, therefore, meets the distortion by sliding down forward on the os calcis. The head of the astragalus thus presses down on the spring ligament referred to and thereby causes the greatest strain at the joint between the astragalus and scaphoid. The anterior limb of the arch, as the lateral displacement of the os calcis advances, is caused to swing to the outer side, that is, the forefoot abducts. This lateral and downward displacement of these two limbs of the anatomic arch results in the real flat foot or flattened out foot, and accounts for the convexity on the inner side of the foot in varying degrees. A preliminary stage to the real flat foot is seen where without weight bearing a foot looks normal, but under body weight angulates laterally at the astragaloscaphoid joint as in flat foot. This is known as a weak foot or sometimes as a flexible flat foot. As both the real flat foot and the weak foot under body weight do not maintain the natural shape of the arch, they are useless for active military purposes and considerably incapacitating in civil life. A résumé of the foregoing furnishes these conclusions:

A foot that has only a low arch, but which is able to flex, extend, etc., and which under weight bearing does not abduct at the forefoot, is a good foot and useful for all purposes. A foot that looks apparently normal when off the ground but which shows an inner convexity at the astragaloscaphoid joint with abduction of the forefoot when under weight bearing, is a weak foot and generally useless. A foot which when off or on the ground shows an

inner convexity at the astragaloscaphoid joint with abduction of the forefoot is a real flat foot and absolutely dangerous.

Causes.—Summarized, the causes that tend to weaken the ligaments, muscles, etc., so as to induce the flat or weak foot are given herewith. They are stated generally and not in any particular order: a, a too rapid increase in body weight; b, long confinement by illness; c, occupations requiring standing or carrying heavy weights; d, sudden strain consequent to lack of sufficient exercise; e, pregnancy; f, hard pavements; g, modern arch supports; h, improper standing or walking; i, excrescences, causing faulty weight bearing for accommodation; j, improper footgear; k, traumatic causes as by Pott's fracture; l, constitutional diseases and focal infection; m, paralysis.

General pathological consequences.—It is common military knowledge that the morale of men in active

the anatomical and physiological economies. Frauenthal states (5): "A similar condition is often brought about by the sedentary occupation of men and women, and by the nonuse of the muscles, an atrophy taking place in the anterior and posterior tibial muscles, resulting in a letting down of the arch of the foot, together with pain in the arch of the foot about the external malleolus, the pain often extending to the insertion of the internal lateral ligaments of the knee; we also have pain in the hip joint, occasionally in the small of the back and often between the shoulder blades."

The writer has treated many cases where pain in the lumbar region and hips were occasioned by mechanical deviations at the feet. That these pains were consequent to such mechanical disturbances was attested to, by the promptness with which they disappeared on restoration of the proper support at the arches, and treatment to strengthen the relaxing structures.

Prevention and treatment.—A glance at the previously mentioned causes of flat feet furnishes a valuable index as to some of the necessary safeguards in prevention. Such causes as the widespread sale of improper arch supports, improper footgear, incorrect postures, lack of reliable advice and treatment—all these and other factors, operate to confuse a frantic, footsore and somewhat crippled nation in its search for relief. It is regrettable that sufficient and correct educative propaganda regarding the matter are not available. The public should be taught not to depend on shoe stores or arch supports for a cure, as the results from these sources are such as to almost warrant legislative interference of some kind. Parents should be instructed to take their children to a foot specialist as they do for the other organs. The penalties for the neglect of foot disorders is none the less exacting than for the neglect of the eyes, teeth, or throat. Periodical inspections in our public schools should be provided for as an important preventative measure, and judging by the increasing agitation in this direction will in all probability soon become as much a routine, as examinations now had for other bodily deficiencies. In passing, it is appropriate to say a few more words regarding shoes and arches as factors in preventing and treating flat feet. As to shoes, a prescription for shoes should be as definite as a prescription for medicine. A physician would certainly not leave it to the druggist to prescribe or outline medication after telling the druggist the diagnosis. Yet with feet, the responsibility is shifted to the shoe clerk and the public in time has been taught to regard the shoe clerk's knowledge of the mechanics of the feet as superior to that of the doctor. As a matter of fact, the shoe clerk is not prepared by training, or otherwise, to safely fit a proper shoe or support where needed and he is surely incapable of differentiating between cases of foot ailments of a mechanical nature and those due to constitutional or nervous disorders. These observations are borne out by clinical histories of patients who arrive eventually at some hospital or dispensary for advice after having experimented many years with shoes and arches. In the United States Army, horsemen are required to have a gen-

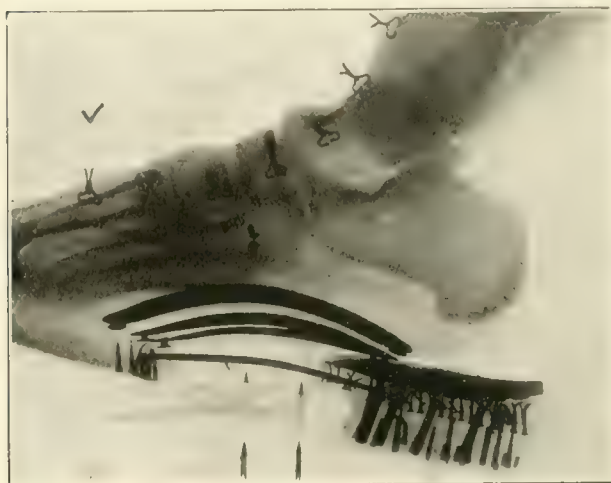


FIG. X ray picture of a typical stock arch support in a shoe. The arrow at the left indicates the highest pressure point of the arch support, at which point pressure is illogical and unsafe; while the arrow to the right indicates the breaking point of the anatomic arch at the astragaloscaphoid junction, where the support should be exerting a lateral and upward pressure.

service whose feet are ailing is unfavorably affected. With the weak or flat foot condition, especially, normal physiological action is limited. This causes anatomic strain to occur at the knees and hips by natural accommodation to the mechanical displacement of the foot. Close observation shows that the sagging of the inner longitudinal arch not only imposes considerable strain on the upper bony and muscular structures, but is also responsible for many cases of knockknee, pains at the hips, at the knee, at the small of the back and also certain forms of spinal curvature. Those with flat feet tire easily and consequently do not indulge in sufficient exercise. This is particularly manifest with weak foot in children, a very common condition, and where the disorder results in such symptoms as stumbling and falling, knockknee, night cries, abnormal pronation at ankle joint, lack of desire to run about, pains in the knees, hips and lumbar region. These pains are often erroneously termed "growing pains," a diagnosis which permits the condition to exist and become worse, with disastrous results to

eral knowledge of the anatomy and physiology of the horses' legs; and shoeing is done with great care. Growing children, however, with many dangerous weaknesses in the feet that could be remedied in time, are recklessly referred to laymen for incorrectly fitted shoes, or arches. Thus the weaknesses are permitted to exist and by perpetuation reflect themselves in various bodily ailments in later life. To any one who has given the subject any consideration, it is easily apparent that the therapeutic action of shoes is a vague subject to many practitioners.

The following is an example of a prescription for shoes to fit a child with a moderate degree of weak foot, assuming the extent of the condition to be the same in both feet:

Name: Miss Jane Doe.
 Address: 333 Liberty Street, New York.
 Age: Ten years.
 Last: Straight inner line, forefoot slightly adducted.
 Sole: One quarter inch inner elevation.
 Heel: One quarter inch inner elevation
 Leather: Soft vici.
 Shank: Flexible.
 Counter: Snug.
 Remarks: Lace Shoes only. For everyday use.

The straight innerline last with forefoot slightly adducted together with the sole and heel elevated on inner margin are intended to provide for the adduction and inversion of the feet so as to offset the existing eversion, abduction and pronation. Soft vici leather here permits proper circulation and prevents a too rigid compression of the delicate structures of the feet. A flexible shank for this case permits the plantar muscles to functionate and, by exercise, to regain their tonicity. A snug counter holds the foot tightly in the rear thus preventing it from sliding forward and thereby maintaining proper stability of the foot in the shoe. The lace shoe is specified because as the leather gives, tighter lacing enables a proper fitting, a factor not present in the button shoe.

Referring to the commercial arch support, we must bear in mind that the promiscuous application of foot plates has been condemned by eminent surgeons. If support is necessary, the flexibility of felt or a similar substance properly adjusted should be used until by this and other proper measures, strength and tonicity is restored to the relaxed structures. The foot must have freedom of action for the complicated structures composing it, instead of fixation. The commercial arch support is deficient and dangerous as the following facts show: In the first place, as sold extensively from stock, it assumes most feet to be almost similar in build and thus cannot meet the many variations existing not only in normal feet, but more so with feet that are defective; even the two feet of the same individual are not alike. Again, it is seriously deficient in that it assumes the sinking point of the arch to be located at about the middle of the plantar surface to which the arch support is fitted, whereas the change that takes place is at the astragaloscaphoid junction which is more to the rear of the foot and pressure should be directed at this point. This is well illustrated in the accompanying x ray picture of a typical arch support taken in a shoe. The arrow on the left points to the highest pressure point of the com-

mercial arch while the arrow to the right shows the actual high point of the anatomic arch where lateral and upward pressure should be had. However, this brings us to the next deficiency of the ordinary arch support, often even where prepared from a cast in that it assumes that a downward displacement has taken place, whereas we have already seen, a lateral and downward displacement of the limbs of arch has taken place, and lateral pressure or measure to force the os calcis up and over are essential to a cure. By mere upward pressure, we do nothing to throw the limbs of the arch under the weight of the body, but accommodate the condition. Then, again, especially with the metal support, periostitis and other inflammatory conditions of the joints are occasioned. Its extensive sale generally is criminal because the public is under the impression that a cure can be effected by such means. The condition is thus neglected until later when cure is still more difficult or impossible. Another serious objection is to be found in that arch supports generally tend to produce muscular atrophy, by preventing muscular action, and are, therefore, from the standpoint of cure, as logical as though one with muscles weakened by lack of exercise should decide to economize on leg strain by using crutches, and then expecting to be able to discard the crutches. In the treatment of flat or weak feet, the number of cases warranting surgical operation is in the opinion of orthopedic authorities few and better results have been obtained by supporting the relaxing structures and proper measures to restore tonicity and strength. In the writer's own experience, he has found the most rational method to be by measures taken to support the sinking arches, thus preventing further relaxation and strain and then follow this up by steps taken to strengthen muscles and ligaments, bearing in mind always to ascertain the etiology as an essential factor in treatment.

It is, of course, desirable that treatment should be instituted at as early a period in the history of the case as possible. We can substitute artificial teeth for bad ones at a deferred date, but this is not a privilege to be had in the case of the feet. Early attention, however, is unfortunately uncommon. The mechanical pathology that confronts the practitioner is the relaxation of the adducting muscles and ligaments of the legs and feet, thus resulting in abduction and eversion; also in corresponding accommodative deviations in the hips and upper frame. The latter fact is given due recognition at the Hospital for Deformities and Joint Diseases of New York City which treats a great many of these cases. Here the Zander apparatus is used which manipulates the hip structures as well as that of the lower extremities. The tibialis anticus and posticus and the extensor muscles are relaxed while the peronei are unduly contracted. Treatment is directed towards stretching the peronei and posterior muscles of the legs and reestablishing tonicity to the weakened muscles; also the securing of the adduction of the forefoot and elevation of the os calcis under body weight. Such treatment, in brief, embraces appropriate footgear, exercises, manipulation, massage, electrotherapeutics by the high fre-

quency, Faradic, rapid sinusoidal and diathermic modes, and instruction in posture and locomotion. The length of time required and the procedure varies in individual cases depending on such factors as age, general health, occupation, cooperation of patient, complicating constitutional factors, and the degree which the condition has been permitted to attain.

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1561 THIRTY-NINTH STREET.

SECONDARY SUTURES IN WOUNDS.

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The treatment for war wounds has been well established by a general method applicable to all wounds; it consists of the excision of the torn edges and debris followed by an immediate or late suture of the wound. The method is first of all a surgical operation: that is, the total excision of the wound; excision of the skin, the aponeurosis, the muscles, in fact, all of the dead or contused tissues; the extraction of all foreign bodies, shrapnel, bullets, fragments of clothing, and finally, the repair of any vessels, nerves, or internal organs, and the placing of any displaced or fractured bones into their proper positions. This procedure is absolutely necessary and should be done as soon after the patient has been wounded as possible, that is to say, within a period of from twelve to eighteen hours. During this time, the wound has been contaminated only on the surface and has not as yet had time to become deeply infected. This is called mechanical or surgical sterilization of the wound.

The second procedure of the operation is the closing of the wound. This may be done immediately after the excision, during the same operation. This, of course, depends upon the conditions to be dealt with in war times as well as the general condition of the patient. This primitive suture is the ideal treatment for war wounds. It was done in France for the first time by the surgeons, Gaudier and Lemaître. When conditions are not favorable, as during large battles when it is necessary to transfer great numbers of wounded back from the firing line, or when the general or local condition of the patient does not permit of an immediate suture after the excision, the suture may be made from three to five days after the wound has been cleansed and kept in an aseptic condition by the dressings. If the excision has been properly made, the wound will remain sterile. This we call a delayed primary suture. Dr. Pierre Duval first instituted this method with excellent results during the battle of Flanders in 1917. In many of the battles of 1917 and 1918 on the French front, these methods of suturing, at times the primary and at times the

delayed primary sutures, were successful in about ninety per cent. of the cases.

Under certain special conditions of the wound, when the patient has come to the surgeon some time after he has received his injury, with a deeply infected wound, and at times, if the infection is very grave, it is impossible to effect a primary suture. In these cases, it is necessary to employ the antiseptic treatment for the wounds, to disinfect them thoroughly, and, finally, close them with secondary sutures. These secondary sutures are usually done in the base hospitals.

It is due to the research work of Doctor Carrel, on the bacteriology of war wounds, that it has been made possible to perform secondary sutures of wounds. Doctor Carrel deserves a great deal of credit for having looked for, and discovered, a rational method of treatment for war wounds. By the use of this method, all wounds may be sterilized and closed as rapidly as possible.

What are the necessary conditions by which a wound suture may be performed with success and without danger. There are two: The first is the anatomical one and consists in the absence of all dead tissues between the two lips of the wound:



FIG. 1. Appearance of a large thigh wound on the date of entrance to the hospital, December 3, 1917.

dead tissue, tissues about to die, and especially bloody exudates, which are a most favorable culture medium for bacteria, and if left in the wound, will cause a failure of the suture. The second condition necessary for the successful suture of the wound is the absence of harmful microorganisms. I say harmful, for a wound, even a surgical wound, is never absolutely bacteriologically sterile, and we have never yet been able to totally sterilize a wound which has once been infected. But our daily experience has shown that we can close these wounds, which contain a few microbes, provided that they are not too numerous, and above all, of a feeble virulence. The quality of the germs is a very important question to which M. Tissier has called our attention. The presence on the surface of a wound of a few saprophytes or *Bacillus pyocyaneus*, even of a few rare staphylococci, does not formally contraindicate the closing of the wound. On the contrary, if it is proved in the laboratory that the wound contains streptococci, the closure of the wound by suture is absolutely contraindicated. Tissier declares that if we can recover streptococci from between the lips of a sutured wound it should

be opened immediately. Without going into the question profoundly, we can say that the streptococcus is a particularly dangerous germ, the presence of which would contraindicate the suture of a wound. It is the same in the case of the anaerobic

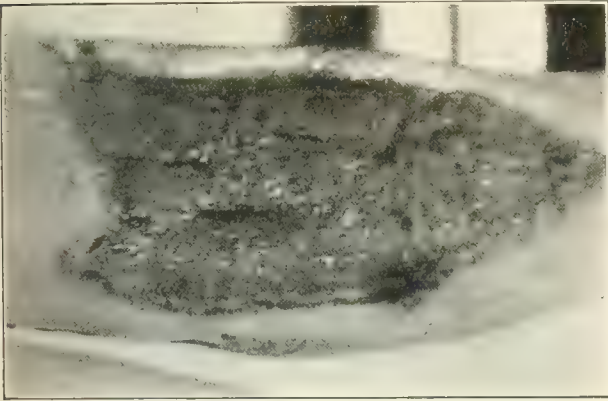


FIG. 2.—The wound shown in Fig. 1 as it appeared one month after Carrel-Dakin treatment.

bacilli, like the Bacilli of Welch. These bacilli disappear rapidly when the wound is carefully treated; and when they are found, the suturing of the wound should be delayed until they can no longer be recovered. In the absence of dead tissues and under favorable bacteriological conditions we are able to close the wounds with safety. How are we assured that these conditions have been fulfilled? By the clinical and bacteriological examination of the wound. By which means are we able to bring a wound to fulfil these conditions? By the disinfection of the wound in the first place and by therapeutic measures, which we will study later. Finally, how do we close a wound which has been prepared in this way? It is by the technic of the secondary surgical suture.

CLINICAL EXAMINATION OF THE WOUND.

For practical purposes the patients who arrive in the hospitals for secondary wound sutures are divided into two classes. In the first class we place recent wounds. When the wound has been completely and surgically excised, it has a characteristic appearance: the skin edges are clean cut and do not show any traces of an inflammatory process. We see the cellular tissues; the muscles are cut in the necessary sections for a complete exploration. They appear bright red and bleed easily. The dressing is moderately adherent and is not separated from the surface of the wound by a layer of purulent material. The general condition of the patient is good; the temperature is 37°C . He has no pain. From this examination it would appear that from every clinical point of view it is possible to suture the wound, but we must now make a bacteriological examination as a control and in order to be absolutely sure of our surgical procedure.

SUPPURATING WOUNDS OF VARYING DURATIONS.

Very often the wounds are over five days old. They suppurate and present an infected appearance. The wound appears mottled, red and white, and with an adherent crust, the suppuration is more or

less abundant, and at times, there is a redness and edema on the skin about the edges. The general condition of the patient is not normal, the temperature will be 38°C . or over.

If the wound is left to the normal evolution of healing and repair it will go through several successive phases; the period of mortification where the dead tissues are eliminated little by little; the period of suppuration, with an influx of leucocytes sweeping toward the surface; followed by a period of repair, which is characterized by the appearance of an exuberant mass of granulations. Their development is followed by a slow regression before the cicatrix, which slowly pushes inward in its growth from the periphery to the centre.

As long as there exist, on the surface of the wound, white or gray patches, cellular or muscular shreds, or an abundance of pus, the wound should not be sutured. On the contrary when the wound is *viré*, following the classical expression, and has a rosy tint, and covered by red granulations, having a living aspect, bleeding easily, giving a serous or seropurulent exudate, then, in all probability, the wound may be sutured, provided the bacteriological examination confirms our clinical findings. We must at this time remove the granulations if they appear edematous, having a whitish aspect or are present in a certain amount of exuberance. If the wound is not doing well, the treatment will have to be modified.

In résumé, the clinical study of the wound gives us very important guides as to the moment it may be closed. In addition to these findings, we must take into consideration the general condition of the patient and make sure that he is in a normal condition as regards his pulse, temperature, nutrition; all should be considered. A patient may present a wound covering a very large surface and yet not be ill, provided the evolution of the wound is normal.

LABORATORY STUDIES.

The laboratory gives us another point of view, a very important one: 1. A complete bacteriological examination of the wound and cultures should be

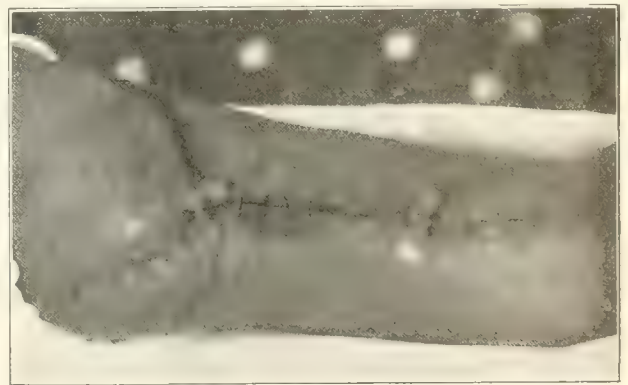


FIG. 3.—The secondary sutures have been placed after the bacteriological examination has shown it safe to close the wound.

made as soon as the patient arrives, in order that we may see whether or not the wound is infected with streptococci. 2. During all of the treatment, a bacterioscopic curve of the wound is established, following the method of Carrel, from the smears

which are made each day. 3. When the bacterioscopic curve does not show more than from zero to five microbes to the field a culture is made, to determine whether or not streptococci are present. If they are absent the wound may be closed with



FIG. 4. The wound completely healed. The skin edges have remained together practically throughout the wound. Where it has become separated a small cicatrix has formed but not great enough in extent to interfere with the flexibility of the tissues.

safety, if they are present it is necessary to wait and prolong the sterilization until this organism has disappeared.

DISINFECTION OF THE WOUND.

Treatment of the periphery of the wound.—A very important point in the treatment is the condition of the skin surrounding the wound. It should be kept absolutely clean. The hairs, if present, should be frequently shaved and the surface cleansed with liquid soap or ether during the dressing. We should not allow any crust to remain, or any accumulation of blood or pus, as these are exogenous sources of contamination for the wound. The same holds good after all operations. The surroundings of an operative wound should be absolutely clean. This is a little point, but one of great importance.

TREATMENT OF THE WOUND.

The surface of the wound should be exposed and visible throughout. We should not hesitate to make certain incisions or remove any unnecessary material which it may contain. If there are any spicules of bone, or foreign bodies within the wound, they should be removed. If the bacterioscopic curve presents oscillations and does not descend in a regular curve, the case should be more closely watched. We have found that the dressings of Carrel have given us the best and most constant results as well as the most rapid for these war wounds. This is the method which I have employed in all of the cases which I present. It is necessary to install a sufficient number of tubes in order to obtain a satisfactory irrigation of the entire surfaces of the wound and to frequently examine and verify the composition of the Dakin solution which is used in the irrigation.

TECHNIC OF THE SECONDARY SUTURE.

When the bacteriological conditions are favorable the secondary sutures are applied. They may be made in two ways:

Superficial wounds.—If we have to deal with a

superficial wound where only the skin and cellular tissue are involved, without a lesion of the muscles, it is not necessary to remove the granulating tissues. The epithelial lips surrounding the wound are excised and the two borders of the wound are brought together and sutured, provided this can be done easily. If it is difficult to bring together the edges of the wound, the edges of the skin are separated from the subcutaneous tissues on either side of the wound and then united by suture. There is no drainage required. The sutures should remain for ten days after they have been placed.

Deep wounds.—In case we have a large and profound wound to deal with, our object is to reconstruct, as much as possible, the anatomy of the parts involved. If it is necessary, in order to accomplish this, to completely excise the epidermic tissues, the granulating tissues, and the adjacent fibrous tissues, these procedures are carried out, followed by the sutures which are placed fastening layer after layer until the final skin surface is reached. These little delicate operations require a minute asepsis and if we wish the operation to be successful, we should not overlook a single detail. We should especially avoid touching the surfaces of the wound with our gloves and the instruments which have been in contact with these surfaces should be set aside and new clean instruments used for the suture.

The following technic should be employed:

1. *The skin* should be made aseptic for a considerable distance about the wound.
2. *Circumferential incision* of the healthy skin for a few millimetres beyond the cicatrix. Incision of the cellular tissue until the aponeurosis is reached.
3. *Excision of the wound.*—One angle of the wound is held up by the dissecting forceps and the edges are cut away either with a dissecting knife or scissors, the fibrous tissue is removed until we reach the adjacent muscles. Ordinarily this may

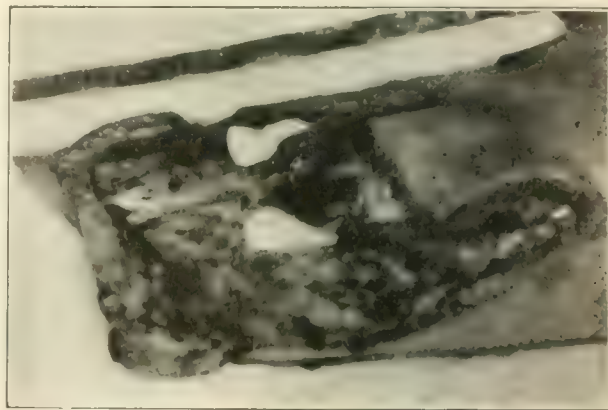


FIG. 5. Photograph of a large wound of the left thigh taken five days after the receipt of the injury, February 27, 1918. Gas gangrene infection.

be done by a single incision. The instruments used should be set aside.

4. *Separation of the skin*, of the borders of the wound, in order to allow for their bringing together. This separates it from the aponeurosis, and is done with the aid of the scissors and gauze.

The skin is separated from the underlying tissues for an equal distance in every direction, the limit of separation on each side being one half of the entire surface to be covered.

5. *Hemorrhage* is controlled simply by gauze or

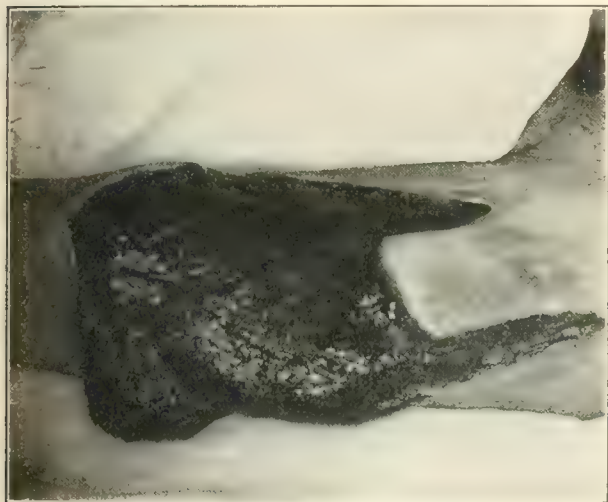


FIG. 6.—The wound shown in Fig. 5 ten days after the installation of the Carrel tubes. No gas bacilli found in the wound.

by gauze saturated with warm saline solution. If necessary, a few of the vessels may be sutured with fine catgut.

6. *Repair of the muscular aponeuritic layers.*—This is the most difficult part of the procedure and we cannot always arrive at a perfect restitution. The muscles which have been cut transversely and subsequently retracted are extremely difficult to bring together. In any event, we can always reconstruct effectually the larger aponeuritic layers. These sutures are made with medium sized catgut and with a needle and forceps which have not as yet been used.

7. *Suture of the skin.*—The sutures which have already been placed in the muscles have sensibly diminished the dimensions of the wound, and the cutaneous borders are easily brought together. The edges of the skin should be brought together with a great deal of care in order to avoid partial separation. Here again we should use fresh instruments. Ordinarily, we do not insert a drain. In the larger wounds which are difficult to bring together, drainage may be installed by means of a few horsehair suture threads which are placed at the extremity of the wound, and allowed to remain for three or four days.

This is the ordinary technic for the closing of wounds by means of secondary sutures. We are seldom unable to bring about a complete unity of the skin. If it is impossible to obtain a total union, we unite at least the major portion of the wound and so obtain an important reduction in the area which is finally covered by a crust and scar tissue.

In many instances we are obliged to graft skin tissues over the wound after it has healed, in order to prevent a hard cicatrix which will often be an impediment to the normal function of a member. Various forms of grafting have been used, but we will not go into the discussion of the various special

technics employed, in this present paper. We do not think it advisable to perform bone grafts or nerve sutures at the time of the operation for the closing of the skin surface. This should be done previously, and when a result has been obtained, we may go ahead with the plastic operation under better conditions.

POSTOPERATIVE CARE.

The procedures employed after the operation are usually very simple. At times we use a dry aseptic dressing and again we may employ a wet dressing of saline solution which tends to alleviate the pain. The patient always suffers during the day following the closing of the wound. The pain is moderate. It is more of a sensation of a constriction and disappears on the following day. A small amount of morphine is very useful to alleviate the suffering of the first day, which should not recur. The temperature will rise on the evening following the operation, but will come down to and remain normal after this time. One should not be disturbed by this temporary rise in the temperature. A progressive rise and one which remains for some time is, on the contrary, a bad indication. The pulse should remain normal. If everything goes well the dressing should not be changed until the fourth day.

If a drain has been installed it should be removed at this time. The sutured surface is cleansed by the use of tincture of iodine, and another dressing is placed over the wound and not removed until the tenth day. At this time, or a little earlier, if the sutures have a tendency to cut the skin surface, I remove half of the two layers of sutures which are replaced by little strips of sterile adhesive tape, and



FIG. 7.—Recovery on April 15, 1918, after the secondary sutures have been placed in the thigh which was infected with gas gangrene.

I do not remove all of the sutures until the fourteenth day, when I replace them by other strips of adhesive tape. During this time the wounded member should be held in a position of immobility.

If, on the contrary, the wound surface is red and painful and the patient has a high temperature, it is

well to remove some if not all of the sutures; but often it is enough to remove only one or two of the threads, and in this way we may yet gain for the patient a considerable period in the necessary time for the healing of the wound.

RESULTS.

Two different series of secondary sutures were made by my assistants and myself. Some at the Base Hospital Eperney and others at the War Demonstration Hospital at the Rockefeller Institute in New York, with the following results: 223 secondary sutures with complete success in 186 or eighty-three per cent.; partial success with a rapid cicatrization of the separated portions in nineteen cases or nine per cent. and failure in eighteen cases or nine per cent.

THE ENDOSCOPIC TREATMENT OF LARYNGEAL STENOSIS.*

BY HENRY LOWNDES LYNNAH, M. D.,
New York.

By the endoscopic treatment of laryngeal stenosis, is meant the treatment of the obstruction causing the stenosis with the aid of direct ocular observation; that is, the study of the condition of the larynx through a direct laryngeal endoscopic tube. Endoscopy, as the term implies, is the examination of the body cavities with an endoscope; the endoscope being the instrument for the examination of the body cavity through a natural outlet. To a great many of the general medical men and internists, the term endoscopy would be immediately associated with some urological examination, but when the laryngeal endoscope is specified or when direct laryngoscopy is mentioned, it means the examination of the larynx through the straight direct laryngeal tube introduced by mouth, and then it is called peroral endoscopy.

Endoscopic treatment of laryngeal stenosis should never be attempted unless everything is in readiness for an emergency, that is, there should be suitable tracheotomy and intubation instruments at hand should direct measures fail in the attempt to relieve the laryngeal obstruction. As a rule it is not difficult to remove an intubation tube and readily replace it through the writer's intubation endoscope, but at the same time we never attempt the examination unless everything is in readiness for the emergency and by being constantly prepared, we have been fortunate in not having lost a single case during the examination. At the Willard Parker and Kingston Avenue Hospitals, Gover, Dickson, Laub, Eberle and the writer have studied hundreds of cases admitted to these hospitals with acute laryngeal diphtheria and tracheobronchial obstruction, and so far none of them have succumbed during the examination.

This proves that direct laryngoscopy in children without anesthesia is harmless and devoid of danger, and it only becomes a source of danger when performed by the inexperienced operator who has not the suitable tracheotomy tubes or bronchoscopes at hand to overcome any emergency which may

arise. The method of examination and the instruments are frequently blamed for the failure in the examination of these cases. In the experience of the writer the cause of such accidents has been invariably due to lack of sufficient instruments on



FIG. 1. Shows the position of the patient for endoscopic laryngeal examination. The nurse holds the patient's head well over the plane of the table, and rests her elbows on the table for support. The bite block is placed on the thumb and is easily introduced into the patient's mouth to keep it open. The head and shoulders can be raised and lowered by the nurse so that the introduction of the intubation endoscope is easily accomplished.

hand, or lack of preparedness on the part of the operator who attempts the study of the stenotic lesion in these emergency cases.

In acute laryngeal diphtheria, with sufficient obstruction to cause urgent dyspnea, and require intubation, endoscopic examination and intubation can be performed quite as easily in the home as it can be performed in the hospital. The writer has made it a rule when called to see a case suffering with progressive dyspnea or croup to make a direct examination on each case to ascertain the cause of the difficulty. The so-called "catarrhal croup" due to other infectious causes may be diagnosed as diphtheria and treated as such when no sign of a diphtheritic membrane is present. Direct laryngeal endoscopy will readily clear up the diagnosis in these cases. As direct laryngeal endoscopy is not practised by the general medical men and pediatricians who see these cases first, they are quite correct in assuming that all cases of croup should be treated as diphtheria by giving a dose of antitoxin. The writer has at all times recommended this procedure, as a dose of antitoxin does no harm to the child. If the case prove to be one of diphtheria the antitoxin already given will cure the patient and save a life; but if time is lost while a speculative diagnosis is being made, the result is frequently disastrous. Therefore, when in doubt give a dose of antitoxin, especially when no endoscopic diagnosis has been made. By so doing one will never be in error, and many of the croup cases which are supposed to die of pneumonia, will be saved from having tracheobronchial diphtheritic involvement.

In making a direct laryngeal endoscopic examination the child should be wrapped in the "mummy bandage" but not so tight as to render the accessory muscles of respiration immobile, for extreme diffi-

*Read at the First Annual Meeting of the Association of American Peroral Endoscopists, Philadelphia, May 31, 1918.

culty with respiration will result. After wrapping, the child can be held by the nurse, who is instructed to hold the head of the patient. (As seen in Fig. 1.) The nurse places her elbows on the table to give her forearms support; then she places her hands under or on the side of the head and extends the child well over the plane of the table so that she has perfect control of the movements of the head and neck. This is an extremely easy position in which the patient can be held even by the inexperienced nurse who has never seen direct laryngoscopy performed. This position of holding of the head was originated by the writer for use in direct laryngeal endoscopy at the Willard Parker Hospital, and it has proven to be very beneficial in the study of these cases. In the introduction of the intubation endoscope the head of the patient should be in slight semiflexion and not in extension. It will be noted that the head and shoulders of the child are raised well above and at an angle to the plane of the table. Hanging the head over the end of the table will be of no use in obtaining a view of the larynx and makes the procedure very difficult both for the child and operator; but with the head held in the correct position the introduction of the laryngoscope is quite easy, and with the instrument held at a slight angle a splendid picture of the larynx is seen. (Fig. 2.) With the child held firmly in this position the diagnosis and treatment of the stenotic laryngeal lesion is readily accomplished.

In acute laryngeal diphtheria the membrane causing the stenosis may be removed and the area swabbed with antitoxin. Intubation is usually necessary with such extensive diphtheritic involvement (Fig. 3), but the membrane can be easily removed before intubation is performed. When there is not such extensive involvement, one can often foretell by the amount of edema of the subglottic region whether or not intubation will be necessary. In the lower left hand corner (Fig. 3) will be seen a

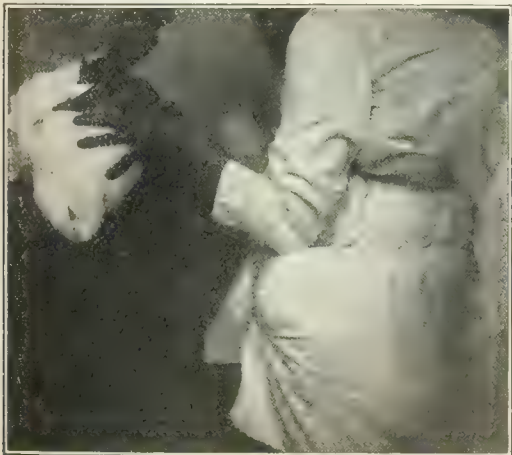


FIG. 2.—Introduction of the intubation speculum preparatory to the removal of an intubation tube. Note the correct position of the head in slight semiflexion. Marked extension of the head is a wrong position and renders the introduction of the speculum and a view of the larynx extremely difficult.

laryngeal view showing subglottic edema, but not of sufficient degree to require intubation. Many cases with extensive involvement of the larynx, trachea and bronchi with diphtheritic casts have been saved

since the practice of laryngeal endoscopy and bronchoscopy has been used in the treatment of these desperate cases. While laryngeal endoscopy has proven to be very successful in the treatment of acute diphtheritic conditions of the larynx, it is also

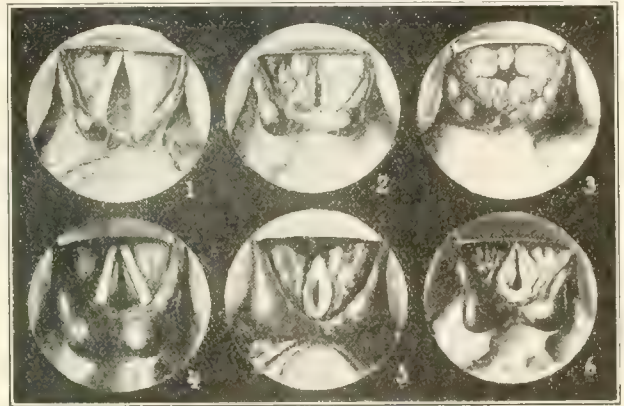


FIG. 3.—These are photographic reproductions of water colored drawings taken from life. From left to right the top row shows: 1. Normal larynx. Note the speculum blade at the top of each of the pictures. 2. Larynx in acute diphtheria. Note the entire cavity of the larynx is filled with membrane. The ventricular bands and vocal cords are completely covered, and there is very little space between the cords for respiration. There is marked swelling of the aryepiglottic folds and arytenoid cartilages. The child was intubated for two weeks and made a complete recovery. 3. The larynx in a child one and one-half years of age. The larynx was completely filled with membrane and there was extension into the trachea and right bronchus. The entire membrane was removed by direct laryngoscopy and bronchoscopy. The child was then intubated with a long tube. The patient succumbed two weeks later to diphtheritic bronchopneumonia. 4. Direct picture of the larynx in a boy of six years. Marked subglottic edema below the vocal cords. The boy suffered with both inspiratory and expiratory dyspnea but the voice was practically normal. Note the enormous tumefaction of the arytenoid cartilages. The boy was not intubated and made a complete recovery after a large dose of antitoxin. 5. The acute diphtheritic larynx in a girl of ten years. The membrane was confined to the vocal cords and ventricular bands and did not extend beyond this area. Intubation was necessary, the tube being worn for four days. She made a complete recovery. 6. Shows a similar condition of the larynx in a girl of eleven years. The membrane has extended well out into the cavity of the larynx. There was no extension downward. The child was intubated, but made a perfect recovery. The diphtheritic exudate was primary in the larynx and showed no sign of extension into the trachea and bronchi except in the very young child recorded as picture 3.

employed in the study and treatment of all of the retained intubational or tracheal canula cases following diphtheria.

Postdiphtheritic laryngotracheal stenosis occurs in about one per cent. of all intubated or tracheotomized cases. In 11,653 intubated and tracheotomized cases treated in hospital practice, there have been 110 cases that have suffered with post diphtheritic stenosis and were unable to remain without the tubes until suitable means were devised to decannulate and decannulate them. The writer feels that the chief factor in the etiology of chronic stenosis of the larynx following diphtheria is the degree of involvement and the duration of the diphtheritic lesion at the outset of the disease. However, faulty intubation and traumatism by instrumental means also adds largely as a contributing factor. The writer has also recorded cases of laryngeal stenosis following tracheotomy for the relief of the diphtheritic obstruction just as frequently as it has followed intubation.

When intubation is indicated, the smallest tube possible should be used and not an over size tube for fear that it may be auto extubated. Frequently, when the acute diphtheritic edema subsides after

a large dose of antitoxin the under size tube will be coughed up and the child remains without the tube permanently. But with the over size tube causing constant pressure on the diphtheritic inflammatory base, the edema tends to increase as the tube is re-

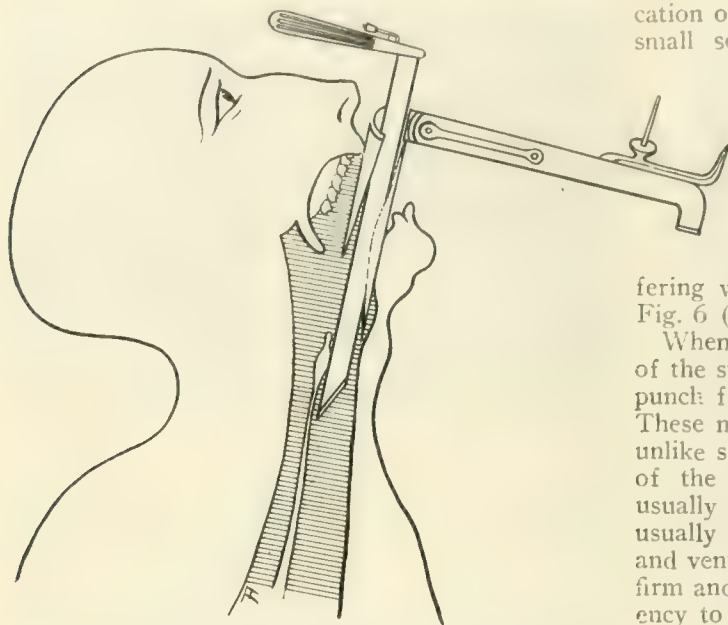


FIG. 4.—The introduction of the direct laryngeal endoscope for the removal of an intubation tube or diphtheritic membrane, and the passage of a tracheoscopic tube to give the patient air and overcome the adductor spasm and subglottic edema. Note the position of the head on introduction of the speculum.

moved, and reintubation becomes necessary in a short time from subglottic edematous stenosis. Persistent auto extubation during the first two weeks of the acute diphtheritic process is one of the most frequent causes of chronic laryngeal stenosis following diphtheria. This is especially so, when over size intubational tubes are used with an endeavor to put a stop to auto extubation. The writer's bulbous tracheal tubes have proven to be very useful in putting a stop to persistent coughing up of the tube in this type of case.

I shall not burden you with the complex pathological findings in these retained tube cases as they have already been published in detail but I may mention that the great majority of the lesions causing difficult detubation and decanulation are due to hyperplastic and cicatricial involvement. The pathologic lesions may be supraglottic, subglottic, or both, and the locality of the obstruction can be definitely determined only by the aid of an endoscope. The supraglottic lesions can be viewed through the intubation endoscope as soon as the intubation tube is removed, while for the view of the subglottic region it is necessary to introduce a tracheoscope through the intubation speculum (Fig. 4). The speculum is always removed after introduction of the tracheoscope. In a certain percentage of cases subglottic edema will close the laryngeal lumen as soon as the intubation tube is removed. To overcome this difficulty a tracheoscope is introduced immediately which relieves the stenosis and gives a free passage of air. Subglottic edematous stenosis at times may be the only cause for the re-

tention of the intubation tube, and when this is found to be the case it can be not only relieved but permanently cured by the direct application of the galvanocautery. A very fine cautery knife is readily introduced through the tracheoscope and the child can breathe quite freely while the direct application of the cautery is being made (Fig. 5). The small scar which follows the cautery application does no harm, nor is there subsequent contraction following after the scar has healed. The writer prefers reintubation of the patient after the cautery application has been made. Tracheoscopic galvanocauterization has been extremely useful in the writer's hands, and it will invariably cure all cases suf-

fering with chronic edematous subglottic stenosis. Fig. 6 (1, 2, 3).

When supraglottic polypoid masses are the cause of the stenosis, the masses should be removed with punch forceps and the polypoid stumps cauterized. These masses become very edematous and are not unlike supraglottic edema in causing the retention of the intubation tube. Supraglottic edema is usually due to an oversize head of the tube. It is usually anterior involving the glossoepiglottic folds and ventricular bands. This form of edema is very firm and seldom boggy in character. It has a tendency to interfere with inspiration much more than



FIG. 5.—Is a schematic representation to demonstrate tracheoscopic cauterization of the subglottic region of the larynx as a very valuable aid in the final detubation of intubated cases in whom subglottic stenosis is the cause of the retention of the tube. The child is able to breathe freely through the tube while the cautery is applied.

expiration. The polypoid masses also cause inspiratory difficulty, as they are sucked in with each attempt at inspiration.

When the head of the tube is the cause of the edema, a flat head tube should be substituted and a few galvano puncture applications will relieve the condition. After the removal of the polypoid masses, intubational dilatation and repeated cautery applications will usually cure this type of case (Fig. 6—4, 5, 6). For recurrent subglottic cicatricial webs with a normal pair of vocal cords and perfect speaking voice above the web, the writer prefers performing tracheotomy and later retrograde dilatation of the web from below upward. After retrograde dilatation of the web the lumen of the larynx can be greatly increased by peroral tracheoscopic cauterization (Fig. 7—I, 2, 3). In patients suffering from supraglottic and subglottic recurrent stenosis tracheotomy should be performed at once to save the life of the patient. Intubation is frequently impossible even by the hand of the most skillful intubator and during the attempt at intubation the life may be sacrificed. Therefore, we never attempt intubation in such cases, but resort to tracheotomy as the safest and best method of relieving dyspnea and saving life in this type of stenosis. After tracheotomy the subglottic and supraglottic edema will be sufficiently relieved to enable the child to breathe fairly well through the larynx a few days later, then endolaryngeal or retrograde methods of treatment may be resorted to for the final cure of the case.

The writer is firm in his belief that all of the cases of postdiphtheritic laryngeal stenosis can be cured, but much time and patience are required before the desired result is accomplished. One of the

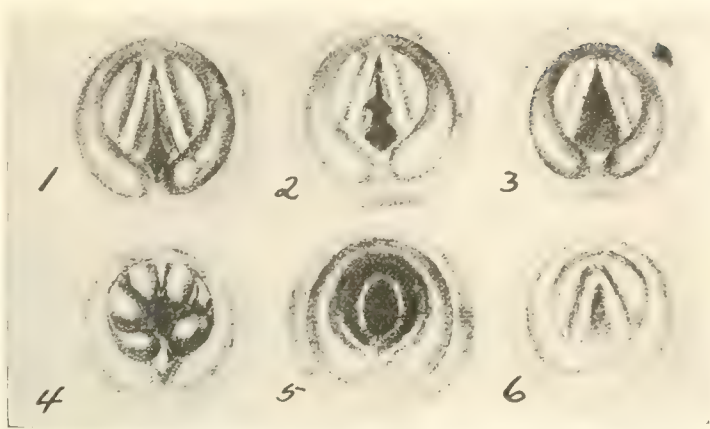


FIG. 6.—1. Shows the subglottic region of the larynx filling with firm edema as soon as the intubation tube is removed. The edema will close the lumen in a short time and require intubation for the relief of dyspnea. 2. Shows what can be accomplished after tracheoscopic application of the galvanocautery. The edema is cut laterally with the cautery knife and leaves a v shaped opening. The writer prefers reintubation after the caustic cautery application. 3. Complete disappearance of the edema after the third application of the cautery. Note that the larynx has returned to normal, and that there is good space for respiration. 4. Direct laryngeal view of masses of polypoid tissue which obstruct respiration as soon as the intubation tube is removed. 5. The cavity after thorough removal of the polypoid masses by punch forceps and galvanocautery. The patient was reintubated with a large head special tube after each application of the cautery and removal of tissue. Note the thin white area well down in the laryngeal cavity which is the beginning of the formation of new vocal cords. 6. The end result with the larynx returning to normal. Note the well formed vocal cords, though somewhat shortened anterior commissure. There is a good voice and no difficulty with respiration. The patient made a complete recovery.

greatest aids in the cure of these cases is, that the lesions can be definitely studied and treated under the direct guidance of the eye by the endoscopic method.

Sunlight Treatment in Laryngeal Tuberculosis.

—Mills and Foster (*American Review of Tuberculosis*, January, 1919) discuss the treatment of laryngeal tuberculosis by the application of reflected sunlight. The method described is used in the Cragmor Sanatorium, Colorado Springs, where remarkable results have been obtained by the use of the direct reflexion of sunlight into the diseased area. They describe an improved method used by them, which proceeds as follows: The patient sits with his back to the sun. Sunlight is first reflected from a concave metallic mirror into the patient's mouth, and upon a metallic laryngeal mirror held in proper position in the throat. A glass mirror is used to view the larynx, to observe that the light is being properly directed. Both the metallic condensing mirror and the glass observation mirror are attached by adjustable joints and supports to a frame which can be conveniently attached to the back of an ordinary chair placed in front of the patient. After a little practice most patients readily learn to observe their own larynges and to direct the light upon the lesions. Beginning with very short exposures, usually thirty seconds daily, these are gradually increased to a maximum total of ten minutes, or, in a few cases, twenty minutes once or twice a day.

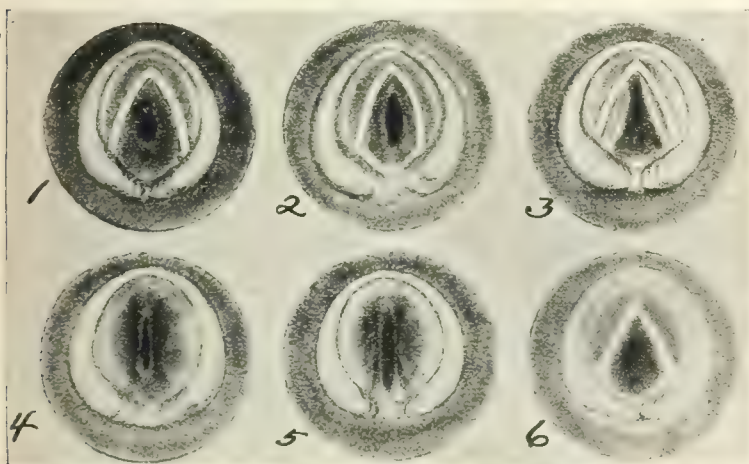


FIG. 7.—1. Is a laryngeal picture of a cicatricial subglottic web with a normal pair of vocal cords and ventricular bands above the web. The patient was tracheotomized and the web was treated by peroral endoscopic methods and retrograde dilatation. 2. One week after endolaryngeal cauterization and retrograde dilatation. Note the opening in the web has greatly increased in diameter. 3. Long anterior cautery knife in making a long anterior commissure. There is still a slight amount of lateral cicatrix present, but the child is able to breathe quite freely with the tracheotomy tube tightly plugged. 4. Photograph of a case with supraglottic and subglottic stenosis. The ventricular bands are swollen, which made inspiration difficult, and the small laryngeal lumen for respiration. The patient was tracheotomized. 5. Shows the larynx after the first application of the galvanocautery. The swelling of the ventricular bands has decreased and there is air passing through the larynx. The subglottic region has also been tracheoscopically cauterized. 6. The final outcome of the larynx one year after cure and decanulation. Note the good lumen for respiration and the normal vocal cords. The boy has a very good speaking voice, and has no difficulty in breathing. Figures 6 and 7 are photographic reproductions of crayon drawings from cases of chronic laryngeal stenosis following diphtheria.

EMPYEMA, ABSCESS AND GANGRENE OF THE LUNG FOLLOWING EPIDEMIC INFLUENZA.

*Results Following Resection of the Ribs, with Report of Nineteen Cases.**

BY MOSES BEHREND, A. M., M. D.,

Philadelphia,

Surgeon to the Jewish and Mount Sinai Hospitals.

The inordinate increase in the number of cases of empyema is directly traceable to pneumonia complicating epidemic influenza. During the rush of work various cases were not recognized until it was found that an abnormal temperature still remained, with a morning remission and an evening rise. In several cases a normal temperature existed, making a diagnosis more difficult, and it required the employment of an aspirating needle to prove to the attending physician that pus existed. Again, the apparent comfort and condition of wellbeing that some of the patients enjoyed added still more difficulties to the diagnosis. In other cases, where large volumes of fluid existed, dyspnea was present,



FIG. 1. Large empyema. All normal signs in the lung effaced.

though this was not the rule in localized empyemas. When the infection attacked the lung itself and abscess and gangrene resulted, dyspnea and general discomfort were prominent symptoms. These patients looked very sick and before operation there was a suspicion of lung involvement. The same degree of invalidism was found in patients with an enormous amount of pus comprising the empyemas. The distinguishing feature in abscess of the lung was the dullness in a localized area, while in the large empyemas the entire chest was flat, usually posteriorly and involving the axillary region. Another distinguishing feature was that in abscess of the lung breath sounds could be heard about the entire involved area, while in large frank empyemas breath sounds and tactile fremitus were, as a rule, entirely absent. These were the findings in the cases which were easy of diagnosis; however, it must be borne in mind that all the sounds heard over a pneumonia may be elicited over an empyema,

the one outstanding factor being the prolongation of symptoms and physical signs beyond the period allotted to a pneumonia (Figs. 2 and 7). The area of the physical signs heard over a localized empyema are shown in Fig. 8).

The difficulties in diagnosis are largely overcome

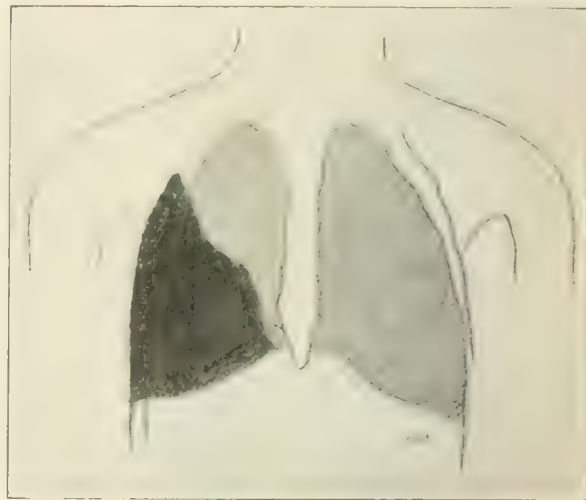


FIG. 2. Medium empyema. Note lung bulging part of ventral and posterior walls; all signs of pneumonia.

by the use of the aspirator or the Luer syringe. The aspirator is the better instrument because it is more positive in action and the danger of causing an acute pneumothorax is avoided, provided the needle is attached to the apparatus before being put into the chest. To my mind, the aspirating set is not being used often enough, for in cases of doubt it is a necessary adjunct. Its use can do no harm if it is employed in an aseptic manner. Even a dry tap has been followed by good results; the reason for this has never been satisfactorily explained. But it has been shown that the symptoms and temperature and general condition of the patient are often improved thereby. The same

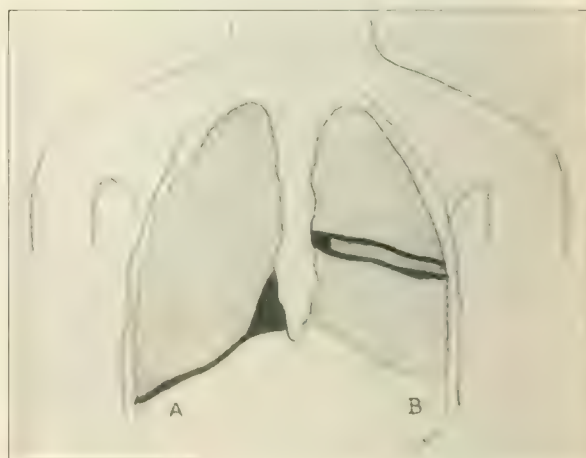


FIG. 3. Supra-diaphragmatic and interlobular empyema. A. Lung adherent to diaphragm; abscess ventral. B. Interlobular abscess of lung; signs were indefinite; pus on aspiration.

aseptic care must be taken in performing this operation as in any other surgical procedure.

The use of the exploratory needle is more im-

*Read before the North Branch Medical Society, November 25, 1918.

portant than the use of the x ray. When great difficulty is encountered in finding the fluid the needle may be inserted with the aid of a fluoroscope. The x ray also aids in locating fluid and distinguishing between its presence or absence, although I consider the use of the exploratory needle more

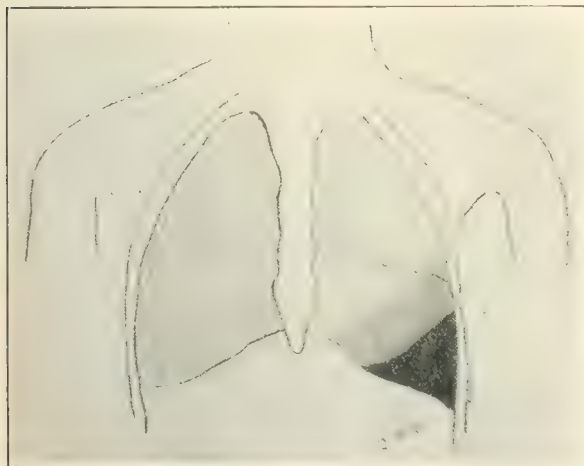


FIG. 4.—Interlobular abscess of lung. Signs were in a localized area.

important. The x ray is, however, not infallible. The conflicting reading of plates makes one a little dubious concerning the findings of the radiologist. In some cases, where no fluid was present, a report was returned that fluid existed, and *vice versa*, cases in which fluid was present were reported as negative. This was not the invariable rule, but it occurred often enough to shake one's confidence in the reading. In one instance, when fluid was diagnosed by the use of the x ray, the aspirating needle was used in different places without obtaining pus; in another instance, with the aid of the fluoroscope, a piece of lead was placed directly over the interspace, which located the fluid and the needle was here inserted without any result. This case had

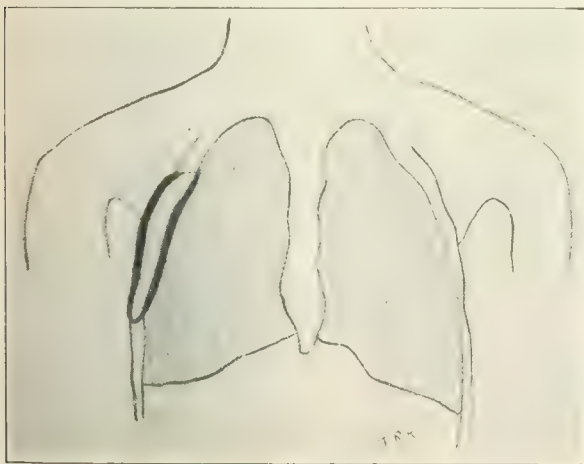


FIG. 5. Parietal empyema. Note thickened parietal and visceral pleura. Pleura removed in sheets; pus sac in middle.

been aspirated six times. In another case a double empyema was suspected in a baby who had been ill for over three weeks. The x ray, taken at various hospitals, gave positive proof that pus

existed on both sides of the chest; yet the case was aspirated eight times without any result. The child was finally discharged as cured without operation. In another case the radiologist was absolutely correct; the finding of a thickened pleura with little fluid being verified by an operation. It is only fair to state that other cases were also correctly diagnosed by the radiologist.

The character of the infection is interesting. In all of the cases which were operated upon a bacteriological examination was made. They usually showed a mixed infection, pneumococci were found in pure culture in three cases, staphylococci, streptococci, *Bacillus coli*, and *proteus vulgaris* comprised the remainder in varying combinations. In addition to the bacterial cause it may be interesting to know that in the twenty-six cases seen twenty-one came from the congested portion of the city, from homes in which two or more families lived. Poor hygienic conditions were therefore an additional factor in determining the prognosis of the case. The writer has witnessed up to the present time twenty-six cases of chest complications following

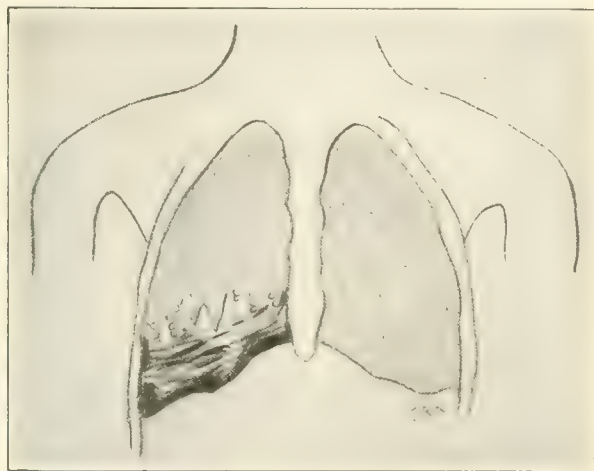


FIG. 6.—Gangrene of lung; diagnosis from odor of sputum; operation revealed lower lobe almost destroyed.

pneumonia due to epidemic influenza; of these, nineteen came to operation. In one case an intra-lobular abscess of the lung was found (Fig 4); in another an interlobular abscess was found (Fig. 3b), while gangrene of the lung (Fig. 6), was present in a third case. The remainder were empyemas of various types, sizes, and situations, as illustrated. In some cases quarts of pus were evacuated. These were desperate cases, because they had been sick for some time, and had passed through a very serious attack of influenza. In others, localized abscesses were found, never containing less than a pint of fluid. These cases always terminated favorably.

An important question and one on which there seems to be considerable doubt in the minds of some surgeons, is the type of operation which should be performed. To the mind of the surgeon there is only one procedure when pus is present, and that is, a free and wide incision for drainage purposes. Repeated aspirations and thoracotomy can only result in greater discomfort on account of the major operations which must be performed later. I know

of one case in which eighteen aspirations were performed and then finally a resection of the ribs was necessary. It is a principle of primary teaching that whenever pus is present in any portion of the body, the more complete and thorough the drainage will hasten the recovery and shorten the convales-



FIG. 7.—Empyema and unresolved pneumonia of lower lobe. Signs of pneumonia heard over this area.

cence of the patient. There is no good reason as to why this dictum should be changed when the chest is involved, especially when we consider the large surface exposed to the absorption of toxic products. The writer advocates a resection of ribs in all cases, excepting in children under two years of age. He has had the best results for many years, from the resection of the ribs. It is advantageous because all of the pus is evacuated at one session which permits the lung to expand at once.

The differential diagnosis between an empyema, an abscess, gangrene or any condition in the lung can be safely made only by means of a resection of the ribs. The condition of the lung at operation, the size of the cavity and the aftertreatment depend on the findings at the operation; for example, in a large cavity containing an enormous volume of pus, the resection may be too high, leaving a pocket below the original opening. It can be plainly seen in this case that a counter opening would have to be made below the original opening to obtain free drainage, which was done in two cases. The best treatment of empyemas while the discharge of pus is still profuse is the Carrel-Dakin solution. After the discharge has practically ceased dichloramine-T is efficacious in healing the sinus. The Carrel-Dakin solution is used every two hours until the discharge ceases or until the temperature becomes normal. It is obvious that no irrigation should be used when the lung is involved.

The operation of thoracotomy is not as simple as it appears and should be done only by a surgeon. Opening of the chest is just as much of a major operation as opening the abdomen. It may be necessary to resect a rib or two and inspect the lung after a thoracotomy has been performed. For example, last winter the writer operated on a child three years old and a resection of the ribs was performed and a little pus obtained. The lung was adherent to the diaphragm (Fig. 3a.), the adhesions between

the lung and the diaphragm were separated and a handful of pus was obtained from the ventral surface of the lung. This patient made a splendid recovery. Thoracotomy is a blind operation and cannot give the same results as that of a resection of the ribs. It may be compared to an incision into an appendiceal abscess without the removal of the appendix. After a resection of the ribs, the lung was inspected and palpated in all of the cases where it was possible. By following this procedure two abscesses of the lung were found. In the interlobular abscess the greatest amount of pus was ventral. A resection is also advocated on account of the rapid recovery of these patients. In one patient, a desperate case, from whom quarts of pus were taken, we were able to remove the drainage tube in three weeks, while in the smaller cavities a few days to a week sufficed.

After the special meeting of the College of Physicians, held early in November, I questioned the representatives of Great Britain as to what the operation of choice was in the war zone and their unanimous opinion was for a resection of the ribs. The anesthetic used in all of the cases, except one, was nitrous oxide gas and oxygen. This seems to be the safest anesthetic to use in chest cases. In desperate cases the anesthesia is stopped and the patient allowed to return to consciousness when necessary and oxygen is substituted for the gas. This cannot be done with any other anesthetic because of the profound effects of ether and chloroform. The writer has seen, and heard of cases dying on the table after the first few inhalations of ether and chloroform. In young children and infants ether may be used, on account of the small quantity required to produce anesthesia. The anesthetic in any event should not be started until the surgeon is ready to operate. The results, following operations for the excision of the ribs have been most gratifying. It is still too soon to give the ultimate re-



FIG. 8—Localized empyema; all physical signs present except in a small area.

sults of this operation, but from past experiences I feel that there will be no disappointment.

Parenthetically I want to state that during the past year the writer was compelled to do several Estlander operations, one a case in which a thorac-

otomy had been performed on a child, six months previously. After the excision of several ribs and the establishment of thorough drainage the wound healed in three weeks; an incredibly short time for such an extensive operation. This illustrates the course of any abscess when free drainage is instituted. The other Estlander operations were performed following a primary excision of the ribs.

In conclusion, the operation which practically fulfils all the requirements of an almost perfect procedure is excision of the ribs. An operative diagnosis can be made differentiating between an empyema or a lesion of the lung. Thorough drainage is instituted which cannot be obtained by any other method. Thoracotomy may be reserved for infants and children up to two years of age, though on the whole, it is an inefficient operation from the surgeon's point of view. There is no objection to aspiration before operation. It cannot be curative but it is beneficial for it allows for the expansion of the lungs and by equalizing the pressure within the thorax before the ribs are excised.

TABLE OF CASES.

Name.	Sex.	Age.	Side affected.	Finding at operation.	Infection.
1. B. R.	F.	25 years.	Left.	Large empyema.	Staphylococci.
2. L. R.	M.	12 years.	Left.	Localized empyema.	Pneumococci and streptococci.
3. J. N.	M.	22 years.	Right.	Large empyema.	Streptococci.
4. H. P.	M.	2 years.	Right.	Medium empyema.	Pneumococci.
5. S. A.	M.	23 years.	Left.	Large empyema.	No report.
6. C. W.	F.	12 years.	Right.	Localized empyema.	Staphylococci.
7. B. A.	M.	22 years.	Left.	Large empyema.	Proteus vulgaris.
8. K. A.	F.	4 years.	Right.	Localized empyema.	Pneumococci.
9. M. U.	F.	27 years.	Left.	Medium empyema.	Staphylococci.
10. B. R.	F.	28 years.	Right.	Localized empyema.	Streptococci.
11. G. K.	M.	13 years.	Right.	Large empyema.	Staphylococci, and pneumococci.
12. M. B.	M.	26 years.	Right.	Large empyema.	Streptococci, staphylococci, and, Bacillus coli.
13. J. W.	F.	23 years.	Right.	Parietal empyema.	Staphylococci.
14. A. K.	F.	41 years.	Left.	Large empyema.	Pneumococci.
15. S. B.	F.	8 years.	Left.	Medium empyema.	Staphylococci, pneumococci, and streptococci.
16. K. P.	F.	1 year.	Left.	Large empyema.	Pneumococci.
17. H. D.	M.	24 years.	Left.	Interlobular abscess lung.	Streptococci, pneumococci, and colon bacillus.
18. J. S.	F.	21 years.	Right.	Intralobular abscess lung.	Pneumococci and staphylococci.
19. D. W.	F.	28 years.	Right.	Gangrene lung.	Staphylococci, streptococci, and pneumococci.

NOTE.—One patient suffering from empyema died from meningitis (No. 4). The patients with intralobular abscess (No. 18) and gangrene of the lung (No. 19) died; the former from a pleuropneumonia affecting the opposite side, the latter from toxemia.

Treatment of Acne Vulgaris.—A. Ravogli (*Ohio State Medical Journal*, December, 1918) advises washing the face with tincture of green soap, cleansing with an alcoholic solution of phenol and expression of comedones and pustules. In simple acne the opened pustules are washed with borax solution and the face covered with Wilson's benzoate of zinc ointment. During the night a modified Lassar paste is applied, made of one dram each of flowers of sulphur and zinc oxide, with half an ounce of starch and fifteen grains of salicylic acid in one ounce of white vaseline.

PERODACTYLISM, SYNDACTYLISM, AND CLEFT EXTREMITIES IN A CHILD.

BY J. EPSTEIN, M. D.,
New York.

The constant and endless reproduction in nature of a vast multitude of different species, each according to its individual type and generic form, and each giving birth to its own kind only, is truly phenomenal. Though every species is an intricate and complex organism, the tendency is always to reproduce a perfectly normal progeny. Occasionally, however, nature deviates from its orderly process, and the newly born comes to this world with some abnormality in shape or form varying from simple malformations to gruesome monstrosities.

This departure from the normal course may be a primary occurrence without a similar defect existing in the ancestry, or it may be a direct immediate inheritance from either parent, or it may also be an intermediate inheritance from a remote parent. The cause of congenital malformations may be hidden in the male or female germ cells, or it may be due to a disturbance in the biological forces which guide and control the normal progression of the fertilized ovum through embryonic and fetal development. As a result of a lawless grouping of cells or a disorderly differentiation of the tissues and organs, a variety of abnormalities may be produced.

The most anomalous type is the double monster. This is a hideous malformation of two individuals, usually of the same sex, united at some part of their bodies. Both may be equally developed, or one may develop at the expense of the other, one remaining stunted or enclosed in the other. The genesis of this abnormality is obscure: either two embryonal anlagen are formed from the same germinal cell and these fuse together to some extent, or a splitting occurs in one anlage giving rise to two individuals partly separated. Another abnormality which produces ghastly looking human forms is a malformation of the cerebrospinal system, or a defective closure of the cerebrospinal canal. This may cause acrania, anencephaly, exencephaly, microcephaly and various other deformities of the brain or spinal cord. An imperfect development of the ventral body wall or a defective closure of the abdominal or thoracic cavities may produce a hernia or an eversion of the internal organs. Facial maldevelopments cause various unsightly features or a condition of harelip and cleft palate. A rare malformation is situs transversus. This is a transposition of the organs of the thorax and abdomen, each being on the wrong side. Defects of the heart giving rise to congenital heart murmurs are not uncommon; much less frequent is a transposition of the great vessels. Displacement of tissues, causing later in life various teratomata and cysts, occasionally occur.

Quite a number of other malformations may be produced, but two groups of deformities are of special interest—one is chiefly characterized by a redundancy, the other by a deficiency. The redundancy group includes the excessive growth of

some organ or part of the body, congenital, unilateral hypertrophy, accessory organs, and supernumerary fingers and toes. To the deficiency group belong the defective development or the total absence of some organ or part of the body. One or more extremities may be maldeveloped or absent, or there may be perodactylism with syndactylism and cleft extremities, as in the following case:

CASE.—H. G., a boy nine years old, the first child of young, healthy parents. Another boy in the same family, six and a half years old, is well and has no malformations. There is no consanguinity in the parents, no history of syphilis or any other chronic



FIG. 1. Perodactylism, syndactylism, and cleft extremities.

disease, and no history of deformities or malformations in either family. Pregnancy, birth, and the later physical and mental development were normal. The patient had some of the usual diseases of childhood. He came under my care for nervousness, extreme restlessness, and irritability. On physical examination the first striking feature was the complete absence of the middle finger of the right hand and the union of the others on each side, thus dividing the hand in two equal parts along a wide cleft. In the right foot one toe was lacking, the outer three toes being united; in the left foot there was an absence of two toes, the outer two being

united. Both feet were cleft. Heart, lungs, and abdomen were negative. One testicle was undescended. The head was unusually high and narrow. A general neurological examination showed nothing abnormal, his intelligence doing full justice to the Binet-Simon test; but he was very restless, could not sit still, and when not observed, talked to himself and indulged in all kinds of grins and grimaces. He was much below his grade in school, from which he was frequently expelled for vicious attacks on his classmates. He delighted in roaming around the streets, and welcomed a fight at every opportunity. A Wassermann test gave a doubtful reaction. The parents' blood for a Wassermann test could not be obtained.

This patient, then, presents multiple congenital deformities, consisting of an entire absence of one finger and three toes, the others being webbed and the affected extremities being cleft, as is shown in Fig. 1. The x rays in Figs. 2 and 3 reveal a tapering and slightly turned middle metacarpal bone in the right hand, a complete absence of the middle phalanx, and a wide separation in two equal parts. The left hand is normal. In the right foot there is a wide cleavage, fusion of two metatarsals, and the absence of one phalanx, while in the left foot there is a total absence of two phalanges and a considerable cleft. In addition to his physical deformities there seems to be some mental deformity, though a neurological examination excludes an organic brain lesion, and his intelligence is normal for his age, but there is some functional disorder which is the cause of his vicious and restless spirit, probably the result of some developmental disorder which affected both the body and mind.

This case illustrates the occasional error in nature in its reproduction of the human species. The malformation usually takes place during the primary stages of intrauterine formation. For very early in embryonic development, between the third and the fourth week, a budding of mesenchyme takes place on each side of the trunk. These projections gradually enlarge and are formed into extremities which are made up of somatic mesoderm covered by ectoderm. At five weeks transverse fissures take place, marking off the arms, forearms, thighs, and legs; at seven weeks, the hands and feet are well formed and the fingers and toes are mapped out; at ten weeks the fingers and toes are completely developed and separated. It is evident that the accident in the formation of this child occurred within the first ten weeks of embryonal existence. Though adhesions between the amnion and the embryo may occur and these adhesive bands may snare off some part of the body, the nature of the malformation in this case seems to be a developmental error and not of later amniotic amputation. The trouble probably arises either from two normal germ cells abnormally united or is due to the fact that either the male or the female germ cell carried within itself a dormant inherited pathological process, and finding a suitable soil in this particular conjugation, the quiescent character of malformation came into active life. It is also possible that the abnormality did not reside in the primary parental germ cells, but for some obscure reason—

perhaps latent syphilis—the cells and tissues assigned to build the distal portions of the extremities have abnormally grouped and separated, leaving gaps and clefts. This primary malformation may then be transmitted to the next generation or to a



FIG. 2.—Right hand shows absence of middle phalanx and a wide cleft. Left hand normal.

distant generation long to come, following certain heritable laws.

Out of the maze of theories which have been constructed on the mysteries of reproduction and heredity, certain facts have been evolved. Every individual is made up of two kinds of cellular material, the somatic or the building material of which the body is constructed and which is useful only during the life of the individual, and the germ cell material which is used for reproductive purposes only, the usefulness of the latter being perpetual. Every being is, embryologically, a duality, made up of two germ cells, the male and the female, and its physical and mental characteristics are wholly derived from these two germ cells. At the moment of union of the two parental cells the fate of the future child is largely determined. It already carries within itself the best and the worst of both parents and the specific, familial, and racial characteristics. The newly born possesses a variety of inherited features, some of which are dominant or evident while others are recessive or submerged. It may only transmit what it has received before birth or has acquired later through prolonged internal or external influences in which the entire body was involved. A gross injury or mutilation of the body occurring during childhood or adult life is not transmitted to the future generation; neither are contagious or specific diseases inheritable through the germ cells. An infection or contagion may attack the unborn through the mother during embryonal or fetal existence. Certain structural and constitutional anomalies are frequently inherited. Functional disorders of the nervous system, visual disturbances, hemophilia, and a group of diatheses which are of considerable importance in the life of the child may be traced to heritage. Many physical and mental abnormalities in children

have been claimed to be the result of inherited unit characters which have been dormant or recessive in the forebears but became dominant or active through a certain mating of the parents, according to the Mendelian law. The etiology of Mongolian idiocy, amaurotic family idiocy, and many other physical and mental deformities have been traced to the Mendelian principle. While this great principle of heredity is of considerable biological importance, its workings are so far beyond the ken of men that for practical and prophylactic purposes a more concrete etiologic reason for congenital abnormalities is much to be desired.

All mysteries and phenomena in nature have created in the human mind various strange ideas and superstitions. The secrets connected with the processes of intrauterine development, sex, heredity, birth marks, and various congenital malformations have given rise to much legendary lore and to the belief in maternal impressions. According to this belief, which is still held by many mothers, abnormalities at birth are the result of the pregnant mother having accidentally looked at some abnormal or deformed person. This curious belief in visual maternal impressions led me to inquire of all mothers with abnormal children who came under my care whether they had seen such an abnormality at any time. Their answers varied. Without discussing the validity or the absurdity of maternal impressions, the history as given by the mother of the child reported here is very interesting. When she became pregnant with this, her first child, the event was hailed with delight, and in order to have a perfect baby, she most carefully avoided looking at anything abnormal or unusual and spent her



FIG. 3.—Right foot shows absence of one phalanx and fusion of two metatarsals. Left foot shows absence of two phalanges. Both feet are cleft. Right foot is wider than left.

pregnant period in almost complete seclusion. The result was the birth of this malformed child. She was heartily disappointed in the traditional belief of maternal impressions, and when she became pregnant with her second child she went about

freely, looking at anything and everything that came her way, and she gave birth to a perfectly normal baby.

It seems that the processes of intrauterine development, the determination of sex, the principles of heredity, and the effects of maternal visual impressions are as mysterious as life itself.

222 EAST BROADWAY.

CASE OF MENTAL IMBECILITY WITH ABSENCE OF THE SELLA TURCICA: IMPROVEMENT BY ORGANOTHERAPY.*

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This case is of interest because of the transitory function of the hypophysis which is manifested correspondingly by both physical and mental traits, at their respective stages, finally leading to dyspituitarism.

CASE.—H. C., female, aged twelve years, was first seen by me in Doctor Climenko's clinic, Mt. Sinai Hospital, September 27, 1917.

Family history.—Father and mother in good health. Father's sister had disturbance of speech during her entire life. Mother has had six children, of which the patient is the fifth born; no miscarriages. There is a history of consanguinity here, the patient's mother and father being niece and uncle. There were no prenatal influences nor accidents antipartum. Normal labor during birth.

Physical examination.—Patient was stupid, did not respond to questions, was not able to dress herself, had cold hands and feet, and was extremely weak. She was easily frightened, bad tempered, and in great fear of domestic animals. The shafts of the long bones of the arms and legs were abnormally elongated, the fingers tapering, the skin dry but did not pit on pressure. Breasts seemed proportionate, but the axillary and pubic hair was scant. Height, sixty inches; weight, sixty-six pounds when treatment was begun. Heart, lungs, and abdominal viscera were normal. Head was asymmetrical and showed a distinct bulging in the right parietotemporal region; face is flattened over the superior maxillary region and showed a characteristic mandibular prognathism. That the adrenals were involved was apparent, in view of her extreme asthenia, together with her low blood pressure. One must of course take into consideration the lack of posterior pituitary extract. There was no pigmentation present. The presence of amenorrhea showed that her primary sexual organs were involved, although she was young. The thyroid was not palpable. There was no marked outline over her precordium to signify an enlarged thymus.

Neurological examination.—Pupils were normal in outline, reacted to light and accommodation, both directly and consensually; showed a lateral nystag-

mus; eye grounds negative. Cranial nerves otherwise intact. Knee jerks somewhat increased; no Babinski, Chaddock, ankle clonus, ataxia, or Romberg present.

Laboratory tests.—Urine free from albumin, casts, or sugar, but, fifty grams of glucose were found. When 100 grams were given the patient vomited; and upon examining the urine, sugar was found. Wassermann examination negative. Blood pressure was seventy-two systolic, sixty diastolic. Blood showed nothing of value.

Röntgen examination.—The report of a stereoröntgenogram of the skull, October 4, 1917, was as follows: "The skull shows absence of the sella turcica, in the place of which there is just a slight indentation; digital depressions in all the bones of the skull, including the parietal; and a slight diastasis of the sagittal suture. This finding is strongly suggestive of intracranial pressure." Röntgen examination of the radius and metacarpal bones showed premature ossification of the epiphysis, but no terminal tufting of the phalanges.

Treatment.—The patient was given persistent treatment with whole gland of the pituitary; two and one half grains were given three times daily. Thyroid and thymus did not have the desired effect. Although the patient was twelve years old when first seen, according to the Binet-Simon scale, she showed a mentality of about four years of age. The improvement was striking in that it was consistently progressive. After about three months' treatment she showed a mentality of about seven years.

Present status.—This patient is showing progressive and marked improvement. Her mother reports that she is livelier than before, also more playful and active. She takes an interest in sewing, and is making an effort to learn; can thread a needle, open the Yale lock of the door, and can execute simple errands. She has grown much stronger, and her mother states she can walk for miles without tiring; she has gained over thirty pounds in weight. Patient began her menstrual periods in August, 1918, at the beginning of her fourteenth year, although her mother and sisters had begun their periods at about eleven years of age.



FIG. 1.—Showing facies of mental defective, mandibular prognathism, and tapering fingers.

*Presented before the Neurological Section, Academy of Medicine, January, 1918.

Conclusions.—This is a case of dyspituitarism coupled with predominant mental defectiveness. The symptoms of hyperpituitarism are manifested by the hyperfunction of the anterior lobe, upon the skeletal growth of this patient, i. e., mandibular prognathism, early epiphyseal ossification, elongated shafts of the long bones. These symptoms are of course past history which have left their indelible impressions. The hyperfunction of the posterior lobe is shown by the lowered sugar assimilation which cannot be correlated with her present status of hypopituitarism, except on the basis of a perverted posterior lobe extract. On the present status of hypofunction of the pituitary, she shows a dry skin, scanty hair over her pubis and axilla, low temperature, cyanosis of hands and feet, asthenia, and a very low blood pressure. There is no question of the low metabolic process showing a lack of katabolism.

The symptoms above described show the lack of function of the posterior lobe, or perhaps an occlusion of the infundibulum, so that the pituitary extract cannot enter the third ventricle and exert its physiological influence. Harvey Cushing puts it very tritely when he states: "We therefore may have combinations of inactivity of the posterior lobe with overactivity of the anterior lobe; a combination of overactivity of the posterior lobe with anterior lobe deficiency; and finally, a combination showing either overactivity of both lobes or deficiency of both lobes. All of these possible states, furthermore, may occur either before or after adolescence, leading to very different clinical pictures."

The outstanding feature however of this case is the patient's mental deficiency. She first sat up when three and one quarter years of age. Unquestionably, something took place in her cerebrum, preventing early development. That her higher cen-

related by a neoplasm in the neighborhood of the superior colliculus which shows irritative phenomena—lateral nystagmus—and leading to an obstructive hydrocephalus, as pointed out by Bailey and Jelliffe (1). Undoubtedly the upper layer of cells in the frontal lobe was affected by the cerebral tension which is shown by the Röntgen plates even involving the bones of the skull. All in all, this patient's mental backwardness is part of the general picture having an endocrine origin as its basis.

I have also been impressed with the fact that this case has many characteristics of the Type Lorain (2), hypophyseal infantilism. However, when one speaks of preadolescent hypopituitarism one immediately thinks of Froelich's dystrophy adiposa genitalis; here, as we know, both lobes are involved, whereas in the former type there is an early pars anterior involvement.

While I do not look for a complete recovery mentally in this patient, nevertheless, with persistent whole gland treatment for a long time, there should be some improvement. We would be amply repaid if we could raise her psychically to the level of a moron type of individual or even to a degree of high grade feeble-mindedness which would in the long run prevent her from being a lifelong dependent.

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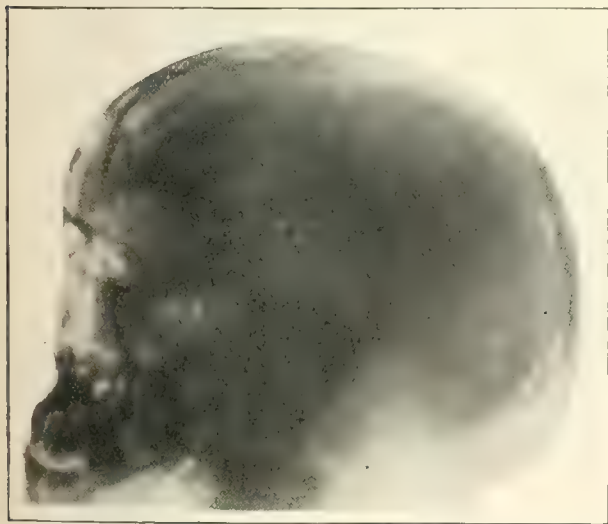


FIG. 2.—The stereoröntgenograms of the skull show absence of the sella turcica, in the place of which there is just a slight indentation; digital depressions in all the bones of the skull, including the parietal; and a slight diastasis of the sagittal suture. This finding is very strongly suggestive of intracranial pressure.

tres in the frontal lobe were involved is manifested by her untidiness, unemotionality, slow cerebration, etc. The whole symptom complex may be cor-

Possibilities of Fractional Gastric Analysis.—

Martin E. Refhuss (*Journal A. M. A.*, November 9, 1918) says that fractional gastric analysis reveals the evolution of gastric digestion, which, whether normal or abnormal, consists of a series of constantly changing phases. Certain of the phases are normal, others evidently pathological. In health there is a regular succession of digestive and interdigestive phases of gastric digestion, while in disease their sequence is seriously interfered with. The digestive phase is the response of the stomach to a definite stimulus, the response being in part chemical and in part psychic. Physiologically active secretion is always present in the stomach, but its characteristics differ in the two phases and the persistence of the digestive secretion into the interdigestive period is pathological. Studies on healthy men show that there is no degree of acidity in disease which cannot be found in health. The total acidity was in excess of 100 in forty-five per cent. of 800 normal persons. Every possible variation in secretory output of the stomach may occur in pathological conditions, and each variety of curve seems subject to several possibilities of analysis. In such cases the circumstantial evidence provided by the protein curve, pus, blood, mucus, bacteria, and tryptic regurgitation must be used to illuminate the study, and extragastric causes must be reviewed in every case. The abnormal variations may occur only at certain points in the curve and to detect them it is necessary to make the complete examination by the fractional method.

Editorial Notes and Comments

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IS THIS COUNTRY TO LAG BEHIND?

Disquieting to those who have the best interest of the country at heart is the almost complete absence of popular discussion of health problems during the reconstruction period now at hand. Through columns upon columns of newspaper comment dealing with the league of nations, Bolshevism, government ownership of railroads, prohibition, labor problems, and the like, one seeks in vain for a sign of wide popular interest in the health of the nation. What an instructive contrast is afforded by England! There, matters of public health have been made part of the program of the various political parties in their parliamentary campaign; one reads newspaper discussions of housing, health insurance, child hygiene, maternity benefits, the health protection of industrial populations, and the like; Parliament and various other governmental bodies consider the establishment of a Ministry of Health. Altogether one gains the impression that England has learned and is intent on applying the lessons taught by the great crisis just passed—that the good health of its people is its most important asset. To our regret be it admitted that a large part of our population grows up with almost no trained health supervision. No wonder, then, that the medical examinations of the draft boards resulted in the rejection, because of physical defects, of over a third of the registrants for military service. A large proportion of the physical

defects represented preventable or remediable conditions. When one sees what can be accomplished by reasonably well conducted health work, it is amazing to observe the apathy with which the general public still views matters of public health. Take, for example, the death rate of infants. In a considerable number of communities intelligent health activities have so improved conditions that at present less than ten per cent. of the babies born die within the first year of life. With this example before them many other communities still look on and do nothing, even though their infant death rate is double that of the alert and active communities. Or look at typhoid fever, the death rate of which in American cities varies from three per 100,000 population to four or five times that figure and even higher. In the face of the demonstrated possibilities of well planned health activities it is almost criminal negligence not to undertake such measures. It is inevitable that the nation which now neglects the bitter lessons taught by the war and fails to make adequate provision for effective public health supervision, will quickly find itself outclassed in physique, in morale, in commerce, and in arts.

IMPORTANT DIAGNOSTIC STUDIES IN SYPHILIS.

Certain valuable studies from the dermatological clinic at Lausanne placed a new and special emphasis upon the examination of the cerebrospinal fluid under the various syphilitic manifestations [Dr. Georges Cornaz: Study of the Cerebrospinal Fluid in the Different Periods of Syphilis, *Corresp. bl. f. Schw. Aerzte*, December, 1918]. The estimate of value of such routine puncture, both before and after treatment, is based upon the findings in regard to the lymphocytosis, the albumin content, and the Wassermann reaction. The author's results from such tests demonstrate that the lymphocytosis first indicates modifications in the fluid even before the albumin content reveals a disturbance or before the Wassermann reaction appears. He also points out, in this way, how frequently there is demonstrated an early extension of the syphilitic infection into the meninges, when as yet the external manifestations of infection, as in the skin and mucous membrane, are absent to other methods of investigation.

In testing in primary syphilis, where the only

manifestation present was a hard chancre, the lymphocytosis exceeded the average, which Cornaz puts at five in only eight per cent. of the cases, when the blood Wassermann was still negative. It had increased to thirty-five per cent. of the cases tested when the blood had become positive. The fluid Wassermann was negative in all but one instance in the fifty-nine patients given this test. The albumin content showed no parallelism with the lymphocytosis, remaining generally normal.

In cases of roseola with or without chancre the blood Wassermann was positive each time and the lymphocytosis was increased in forty per cent. of the cases. The fluid Wassermann was positive in fourteen per cent. of the cases tested for this, and here the lymphocytosis was increased, a phenomenon which showed a parallelism between the positive fluid and an increase in lymphocytes. The albumin was here increased in forty-five per cent. of the cases.

In cases of mucous plaques with or without exanthematous lesions the blood Wassermann was positive in all but one of the cases, the fluid Wassermann but once, while the lymphocytosis was increased in thirty-two per cent, though the average count was lower than in the roseola cases. The albumin was increased in thirty per cent of the cases. In cases showing merely large condylomata the blood Wassermann was positive every time and the fluid Wassermann once. A second test after neosalvarsan treatment discovered the fact that in one instance a negative fluid had become positive. Lymphocytosis was increased in twenty-seven per cent. of the cases and the albumin content in thirty per cent.

In patients with long standing syphilis, some of whom had earlier received treatment, the blood Wassermann was positive in seventy per cent. of the cases and the fluid Wassermann seven to eight per cent. Lymphocytosis showed an increase in forty per cent. and albumin in thirty-five per cent of those examined. Hereditary lues showed no increase in lymphocytosis or in albumin, though the number of patients examined was very small. One exceptional case, a child with hydrocephalus and idiocy, revealed a lymphocytosis of sixty-seven. The blood Wassermann in all these cases was positive, the fluid negative, though it became positive in one instance after treatment.

In gummatous and ulcerative cases, tertiary syphilis, lymphocytosis had increased in thirty-seven per cent. of the cases and the albumin in forty per cent. The blood Wassermann was posi-

tive in seventy-seven per cent. of the patients and the fluid Wassermann in 6.6 per cent. Here in one instance the fluid was positive while the blood was negative. In cerebral syphilis and meningomyelitis, where again there were but few patients examined, the blood Wassermann was positive in sixty-six per cent of the cases and the fluid in 100 per cent. The lymphocytosis reached a very high count, 235 in one instance, where the albumin also showed a somewhat high mark.

In tabes the blood Wassermann was positive in sixty-nine per cent. of the cases and the fluid Wassermann in the same proportion before treatment, but after neosalvarsan or novarsenobenzol it was positive in all the cases, in one instance remaining negative in the blood. Lymphocytosis was increased in eighty-five per cent. of the cases with an average of thirty and the albumin content showed a proportionate increase. In the few cases of general paresis which came under observation the blood and fluid Wassermann were positive each time and the lymphocytosis and amount of albumin were also increased.

The author's observations regarding treatment extend for the most part to cases treated by neosalvarsan and novarsenobenzol. He finds that these produce an amelioration at least of the pleocytosis, especially in the primary and secondary stages. This has been particularly marked in tabes. The quantity of albumin was not equally diminished and was even shown to be increased. It has been seen that the Wassermann reaction becomes at times positive under treatment when it was negative before. This may be explained as a biologic reactivation and goes to show how important for diagnosis and subsequent treatment in tabes at least is the utilization of the other tests to supplement the mere complement fixation test.

GROUND GLASS AND SOME EPIDEMIC DELUSIONS.

It is customary to make a great deal of fun of the older times, and especially the poor Middle Ages, and for the tendency of the people of that time to believe almost anything that was told to them, provided it had a certain sensational appeal. They believed in the existence of the werewolf, a man who at times took on the character of a wolf, and indulged in midnight marauding with an appetite that could only be satisfied with human blood. Then there was the vampire which sucked people's breath until they died from it, and the witch who could, by sticking pins into a

wax image, bring about pains and aches and serious organic disease in the particular part of the body that she selected for her pins. How easy it is to make the greatest possible fun of these poor, foolish, oldfashioned people who knew no better and without the bright light of science were left in the darkness of ignorant credulity and the unfortunate tendency to accept anything that appealed to their imaginations instead of their intellects. It is all very well to laugh, only let us not forget the old proverb that he laughs best who laughs last, and that there are a good many things at the present time very like these old credulities that are just as ridiculous and laughable.

A few years ago we were all agog, even here in New York, in the metropolis of the most enlightened country on the face of the earth, over "poison needles." It was supposed, because of certain flagrant examples of pseudologia fantastica, hysterical confabulation, that men were going around making young women suddenly unconscious, or at least incapable of exerting their own wills, by touching them lightly with a needle, on the point of which there was a minute portion of a marvelous drug which produced the most instantaneous and thoroughgoing results. Talk about the poor medievals for discussing how many angels could rest on the point of a needle or the modern bacteriologist telling how many bacteria can sit comfortably on the point of a pin, though one boy cannot, what are they all compared to this wonderful "poison needle" of the modern time? We all remember what a furore there was with regard to hypnotism and how sure everybody became all at once that hypnotists could just play upon people's wills, not so much like the organist on the organ but rather like the organ grinder on the hurdy gurdy, with the production of whatever results the operator might wish.

Even educated people were so taken in by this that a great many believed thoroughly that Du Maurier's Trilby was to be taken quite seriously and that it was perfectly possible for a hypnotist, if only he had the real power and not some shadowy imitation of it, to take a young woman whose voice was disharmonious almost beyond imagination and turn her into a singer with a divine voice and power to lift the souls of men and make them realize all the marvelous beauties of music as expressed by the human voice. There are a few more things of this kind that might be mentioned, just a few, to say the least, so that some people have been unkind

enough to say that with the delusions of patent medicine and Dowieism and the quacks and charlatans and a few other medical divagations, there never was a time when people were so easily fooled as in our day, all of which is a rather lengthy introduction to a very interesting set of observations that have recently been made.

Ever since the European war began and people's feelings began to be stirred deeply, we have heard of the awful malignities of some of the people in our midst who were intent on destroying just as many good, honest, patriotic Americans as possible, and who therefore were mixing ground glass with their foodstuffs, mixing it into their flour, baking it in their bread, and the like. Many people in this country were very rudely disturbed by these stories; a great many who were afraid that they would wake some morning to find that their digestive apparatus was irreparably ruined by the passage of ground glass. At last it occurred to some one to try what would be the effect of ground glass upon animals at least. Two army officers, Major Simmons, of Philadelphia, and First Lieutenant Von Glahn, of Baltimore, members of the Medical Corps, U. S. A., after having received at the Southern Department Laboratory, Fort Sam Houston, Texas., requests for the examinations of a number of specimens to determine the presence of ground glass, tried a series of experiments with various kinds of ground glass which was mixed in the food of dogs. The average amount of weight gained and lost by the various animals, experimental and control, was the same. There were no symptoms noted. The necropsy findings were negative and the post mortem findings in control dogs were identical except for the absence of glass. Their conclusion is that the ingestion of ground or powdered glass has no toxic effect on the gastrointestinal tract of dogs and produces no lesion, either gross or microscopic. It seems probable that the same thing would be true for human beings. Another modern superstition nailed!

THE MODERN CONCEPT OF MEDICINE.

The period of reconstruction which must follow the war will embrace readjustments in many directions beside the purely political changes involved. Medicine will play an important part in many of these changes. Medicine itself is undergoing a period of readjustment which was inaugurated even before the war came with its revolutionary effects. The old structural concepts have begun to give way

to a new functional concept of medicine, one which considers the body as a whole rather than as a congeries of unrelated parts. The study of structural pathology has given way to a study of function. It is what an organ does rather than what it is that is now the topic of primary interest. It is true that structure and structural changes must be known and understood before we can thoroughly understand function and functional derangements and just as the importance of the findings at an autopsy were over accentuated toward the close of the nineteenth century, there is a danger that they may be insufficiently appreciated under the influence of the new tendency toward the study of function.

While function is the chief object of our studies, structure and changes in structure must not be lost sight of. In an informing introduction to the publishers' announcement of a new system of medicine, about to be issued in looseleaf form by the Oxford Press, these facts are set forth by one of the editors, Dr. Henry A. Christian, who cautions the practitioner against becoming absorbed either in the laboratory or in the clinic as absorption in either is bad for the man who is to be a leader in medicine, while the neglect of either would be equally disastrous to his broadest and best development.

In an informing paper on the future of medicine, by Sir James MacKenzie, which also forms part of this introduction, the author insists upon the urgent need that the clinical investigator shall view his work from a different standpoint from that to which he has been accustomed. He must see disease in its earliest stages. The pathologist at one time was quite content with having an opportunity to examine the structural changes as shown in the autopsy, then came the clinician whose observations were restricted almost exclusively to the manifestation of the disease in its latest stages. Sir James accentuates the necessity for studying the disease in its initial stages so that it may be recognized and aborted rather than cured after having reached the critical stage. It is with these material changes in our concept of medicine that Doctor Christian and Sir James have undertaken the preparation of this new system of medicine with the collaboration of some of the most distinguished leaders, both in England and in America. The first part issued, which embraces articles by Dr. William B. Johnston, Dr. Elmer V. McCollum, and Dr. Henry Sewall in addition to the introduction by the editors, sets a high standard of excellence for the whole.

THE REFORM OF ATHLETICS.

Among the various byproducts of war is a mass of valuable information regarding the physical development of our citizens. We are not an athletic people, but a people of athletic specialists. The athlete has become the king of the college world and success in intercollegiate athletics has become the prime object of hundreds of students. Lieutenant Luby, in *The United States Naval Medical Bulletin* for October, tells of the bad effects which have followed the development of these athletic specialists and insists that a radical reform be undertaken beginning with the primary schools. He wisely advises that beginning in the grammar schools the form of athletics to which a student is assigned shall be carefully studied with due regard to his family history, his personal history, his physical status, and his particular type of physique. He would have every member of every class take part in prescribed athletic exercises. Each student should have a chart which he should carry with him through the grammar school, through high school, and through college on which notations should be made regarding his physical condition and his athletic work. These should form a part of his school record, no less important than that of his mental standing. We should cease to sacrifice the young men of the nation to the grim god success. We should change from a nation of athletic specialists to a nation of all around athletes, for the future of our nation, both political and physical, is at stake.

THE CLOSE OF AN ADMIRABLE CAREER.

The announcement that the American Military Hospital No. 1, at Neuilly, a suburb of Paris, is to be closed and the building returned to the French Government for the use originally proposed for it, that of a school, brings to a close the work of an institution which has reflected great credit upon all connected with it. Long before the United States abandoned its attitude of friendly neutrality, this institution was organized by an American committee which provided the necessary funds to equip and maintain it. Following the French terminology, this was first known as the "American Ambulance." Volunteers from the United States furnished the personnel of the establishment until it was turned over to the United States Government after our entry into the war and became a part of our army service as the American Military Hospital No. 1. It made a notably high record of lives saved and men restored to active service. More than two million dollars was contributed to its maintenance through the American committee, which has on hand sufficient funds to complete its evacuation and close its work. After the United States entered the war, it was devoted especially to the care of the American troops and after the Chateau-Thierry drive, its capacity was expanded from 575 beds to 2,000, as many as 800 new cases having been received in one day. The maintenance of the institution has done much to promote good will between France and the United States.

News Items.

Philadelphia Medical Societies.—Meetings of medical societies will be held in Philadelphia during the coming week as follows: Monday, January 27th, Genitourinary Society, North Branch of the County Medical Society; Tuesday, January 28th, Jewish Hospital Clinical Society, Medicolegal Society, West Philadelphia Medical Association; Friday, January 31st, Medical Club, directors.

Northern Medical Association.—At the annual meeting of the Northern Medical Association, of Philadelphia, the following officers were elected: President, Dr. Irwin Meyerhoff; vice-president, Dr. Louis Jurist; secretary, Dr. Mulford K. Fisher; treasurer, Dr. J. T. Millick; corresponding secretary, Dr. S. Nussbaum; librarian, Dr. William R. Bready.

New York County Medical Society.—At a meeting of the Medical Society of the County of New York, which will be held at the New York Academy of Medicine on the evening of January 27th. Major John A. Hartwell, Medical Corps, United States Army, will read a paper on The Educational Value of the War to the Medical Profession, and Major Robert H. McConnell, Medical Corps, United States Army, will read a paper on the Internal Administration of the Medical Service of a Base Hospital.

National Tuberculosis Association.—The fifteenth annual meeting of this association will be held in Atlantic City, N. J., on June 12th, 13th, and 14th, under the presidency of Dr. David R. Lyman, of Wallingford, Conn. The following chairmen of sections have been appointed: Pathological section, Dr. H. J. Corper, of Chicago; clinical section, Dr. Ralph C. Matson, of Portland, Ore.; sociological section, Dr. R. G. Patterson, of Columbus, Ohio; advisory council, Dr. Hoyt E. Dearholt, of Milwaukee. Doctor Matson has been elected a member of the board of directors, to fill a vacancy caused by the resignation of Mr. W. Frank Persons. Dr. James Alexander Miller, of New York, has been elected a member of the executive committee and Dr. Alfred Meyer, of New York, was elected vice-president.

Disposition of A. E. F. Hospital Cases.—The Statistics Branch of the General Staff has prepared a chart showing the disposition of hospital cases of the American Expeditionary Force. The chart is based upon an analysis of 240,746 cases recorded in A. E. F. hospitals between January 15th and October 15, 1918, this information coming through the office of the chief surgeon, headquarters SOS. *The Army and Navy Journal* for January 11, 1919, contains the following summary of these statistics: For disease cases the number and percentages are: Returned to duty, 158,357—93.3; died, 6,802—4.0; invalided home, 3,730—2.2; deserted from hospital, 626—.4; otherwise disposed of, 117—.1. The totals are: 169,632 and 100. For wounded and injury cases the number and percentages are: Returned to duty, 60,646—85.3; died, 6,223—8.8; invalided home, 3,910—5.5; deserted from hospital, 237—.3; otherwise disposed of, 98—.1. The totals are: 71,114 and 100.

Military Honors for Ambulance Men.—A recently compiled list shows that 322 privates and noncommissioned officers in the Ambulance Corps have been cited for bravery and sixty medical officers in that service have likewise been decorated.

New Army General Hospital in Philadelphia.—It has been decided to establish an army general hospital in a portion of the buildings of the Philadelphia General Hospital. Major Arthur C. Bachmeyer, Medical Corps, has been ordered to command it.

American Proctological Society.—In order to avoid interference with the meetings of the American Medical Association, the American Proctological Society has decided to hold its twentieth annual meeting on June 7th and 9th, instead of on the 9th and 10th as originally announced. Hotel Chalfonte will be headquarters for the society.

The Influenza Situation.—There have been an average of from 500 to 600 cases of influenza reported during the last few days, with from eighty to ninety deaths, and about 100 cases of pneumonia in the city of New York. The latest returns show a decline in the number of new cases reported. The influenza quarantine at the Naval Base on Block Island, which has been enforced for the past two weeks, has been raised. Recent mail advices from India are to the effect that a combination of influenza and famine has caused a rapid increase in the death rate in that country which is said to have reached several times the normal in several sections.

United Hospital Fund.—The annual report of the treasurer of this fund shows that the receipts for the fiscal year just ended were \$183,778, a gain of thirty-six per cent. over last year. It was announced also that the total amount spent in administrative advertising, and clerical work amounted to only six per cent. During the year 161,655 patients had been treated by the forty-six United Hospitals, of whom forty-eight per cent. did not pay anything, thirty per cent. paid in part, and twenty-two per cent. were private patients. It is planned to raise \$250,000 during the present year to keep up the free service to the sick poor and to help meet the deficit of \$391,431 with which thirty-six of the United Hospitals closed the fiscal year. Dr. George E. Brewer was elected a trustee of the fund.

Commissioner Copeland Criticised.—At a meeting of representatives of more than sixty civic bodies, held at the Murray Hill Hotel, on January 20th, a committee was appointed to wait on Health Commissioner Copeland and ask that the full powers as head of the Division of Industrial Hygiene be restored to Dr. Louis I. Harris, chief of the Bureau of Preventable Diseases. Doctor Harris's work in industrial hygiene was much lauded by representatives of the various bodies. Another committee was appointed and instructed to request the public health committee of the New York Academy of Medicine to make public its views regarding the recent changes in the health department. Many of the speakers were severe in their denunciation of the administration of the department and went so far as to demand the resignation of the commissioner.

Soldiers with Respiratory Diseases to Be Sent to Southern Hospitals.—The Surgeon General of the Army has directed that soldier patients suffering from respiratory diseases, including gas cases with persistent bronchial symptoms, are to be transferred to Southern hospitals. It is believed that the warmer climate will hasten their recovery.

Woman Suffrage Hospitals in France.—Another unit has been added to the chain of Women's Overseas Hospitals operated by the National American Woman's Suffrage Association. This unit, which is under the command of Doctor LeFort, has been located at Nancy, where a girl's boarding school has been taken over and has proved to be an ideal building for conversion into a hospital. The children's bureau of the American Red Cross has asked the women to take over the hospital at Foug which has beds for twenty-five women and children. The hospital is completely equipped and is now running in good order. The women's organization has also opened dispensaries in several sections at the request of the local authorities.

Psychological Examination for College Entrance.—The faculty of Columbia College, which is the undergraduate department of Columbia University, has decided to introduce a new system of entrance examination which is intended to determine the mental capacity of the prospective student rather than his scholastic training. The old style of examination will be done away with, the applicant's fitness being determined by his school record, his character, his health record, and his mental capacity as determined by a series of psychological tests similar to those applied to applicants for admission to the Student's Army Training Corps. It is hoped that in this way students will be excluded who are mentally unfit to profit by the college training but who, under the old system, might have obtained admission through cramming.

Personal.—Dr. Henry Dwight Chapin, 51 West Fifty-first Street, New York, has been appointed a member of Governor Smith's reconstruction commission. An appropriation of \$75,000 has been asked to support the work.

Surgeon General Merritte W. Ireland, United States Army; Colonel Walter D. McCaw, Medical Department, and Colonel Alfred E. Bradley, chief surgeon, American Expeditionary Force, have been awarded the distinguished service medal by General Pershing for conspicuous service.

Lieutenant Colonel William H. Walsh, Medical Corps, United States Army, has been made general medical director of the Children's Hospital to be established near Mons, Belgium. The hospital is being planned by the Princess de Ligne and it is she who selected Doctor Walsh as its medical chief.

Brigadier General William S. Thayer, Medical Corps, United States Army, of Baltimore, who has been on active service in France, has returned to America. He will resume his duties as professor of medicine at the Johns Hopkins Medical School. Doctor Thayer succeeds Dr. Theodore C. Janeway, who died a few months ago while serving on the staff of the Surgeon General's Office.

Pneumonia Vaccine for Discharged Men.—Under authority of a circular letter issued on January 10th by Surgeon General Merritte W. Ireland, United States Army, a pneumonia vaccine will be administered to all soldiers who desire it before they are discharged. The laboratory division of the Surgeon General's Office is developing the use of a vaccine to be used as a preventive for certain types of pneumonia, and it is to extend the expected benefits of this preventive measure, and to determine its value more exactly and on a broad scale, that its use among soldiers soon to be discharged, and temporarily among civilians, is authorized and encouraged, on condition that the results be communicated to the Surgeon General's Office for record. Cards will be furnished to all persons treated who are not in the military service, or who are soon to leave it, in order that they may communicate to the surgeon general the results of the treatment.

Meetings of Medical Societies to Be Held in New York.—Meetings of medical societies will be held in New York during the coming week as follows:

Tuesday, *January 28th.*—New York Academy of Medicine (Section in Obstetrics and Gynecology); New York Dermatological Society; New York Medical Union; Metropolitan Medical Society of New York City; New York Otological Society; New York Psychoanalytic Society; New York City Riverside Practitioners' Society (annual); Therapeutic Club (annual); Valentine Mott Society; Washington Heights Medical Society.

Friday, *January 31st.*—Hospital Graduates' Club of Brooklyn (annual).

Saturday, *February 1st.*—Benjamin Rush Medical Society.

Lectures on Medical School Inspection.—A course of lectures and practical demonstrations in the interpretation of clinical phenomena and personal hygiene for elementary and high school teachers, welfare workers, nurses, and others interested in this kind of work, will be given under the auspices of the Department of Education and the Department of Health, at Hunter College, Thursday afternoons, at 4:15 o'clock, beginning February 20th. There will be twelve lectures in the course. The first will be given by Dr. S. Josephine Baker, director of the Bureau of Child Hygiene, Department of Health, her subject being The Effect of the War Upon the Health of Children. The February 27th lecture will be given by Dr. Maude Glasgow on How to Make Practical Our Knowledge of Diseases and Defects of School Children. The next seven lectures will be on the Abnormal Child, the lecturers being Dr. Frances Cohen, Dr. H. C. Ferris, Dr. D. C. Martin, Dr. L. Pierce Clark, Dr. Albert K. Aldinger, Dr. S. Dana Hubbard, and Dr. I. H. Goldberger. On May 1st, Dr. William L. Somerset will lecture on Common Eruptive Diseases of School Children, and on May 8th Miss Josephine Beiderhase will discuss Physical Efficiency. The last lecture in the course will be given on May 15th by Dr. E. Eliot Harris on the Care of the Body; Foods and Their Relation to Energy, Nutrition, and Growth.

Modern Treatment and Preventive Medicine

A Compendium of Therapeutics and Prophylaxis, Original and Adapted

RECENT GLEANINGS RELATIVE TO THE PROPHYLAXIS AND TREATMENT OF INFLUENZA.

By LOUIS T. DE M. SAJOUS, B. S., M. D.,
Philadelphia.

(Continued from page 118.)

That an attack of influenza results in immunity to subsequent invasion has been frequently and persistently denied. Recent experiences appear, however, to suggest that this feature of the infection has been overemphasized, and that while no absolute immunity may be engendered, there is established at least a partial protection which is by no means without utility in warding off further attacks. Chaffard, Marfan, and others have, in the first place, called attention to the relative immunity of infants less than six months of age. The cause of this immunity is obscure, but its existence is not an exceptional clinical characteristic, for a corresponding immunity in infants is noted in eruptive fevers in general. Again, Rénon and Mignot have emphasized the infrequency and relative mildness of epidemic influenza among those over forty-five or fifty years of age. According to some observers this relative immunity in older people is accounted for by their having encountered the disease earlier in life. But this does not exclude the possibility of a relative immunity existing in a certain period—in this instance in later life—independently of any previous attack of the disease, such a relative immunity being, e. g., observed among adults in general in the case of scarlet fever, whether or not they have had the disease earlier in life.

Definite statistical evidence concerning the production of immunity by influenza, at least in its epidemic form, has been obtained by Bezançon in the recent outbreaks in France. The epidemic began in April, 1918, later subsided, then exhibited a recrudescence in August. Many military units of the French Army were affected in each of these outbreaks. Whereas, in one artillery unit, in which but three cases had occurred in April, 114 men were stricken with the disease in August, in another unit, in which 110 men in which influenza had developed in April, there were only three cases in August. In a third unit there were twenty cases in April and fifty-nine cases in August. These figures rather definitely suggest that immunity is established as a result of one attack of the disease. Recent observations in this country have very plainly exhibited a similar tendency. While members of a family who fell ill during the September and October outbreak have regularly—in so far as my personal observations and inquiries have extended—escaped the affection during the December and January recrudescence, the remaining members have not infrequently had the disease develop in the later outbreak. Instances have occurred of whole

families escaping the first outbreak only to succumb in their entirety to the disease, sometimes with a fatal termination in one or more subjects, in the recrudescence. At times the disease during the recrudescence appears to have been introduced into a home by a single member of the family and then to have become transmitted in succession to the other members not previously affected.

As Lereboullet points out, data such as collected by Bezançon is calculated rather to allay anxiety concerning the possibility of further serious outbreaks of influenza in the near future. The rapid propagation of the disease is in itself a circumstance tending toward early limitation of the infection, most, if not all, of the individuals recently or formerly affected with the disease becoming refractory to the latter, extension of which is thus necessarily restricted. Lereboullet believes instances of reinfection actually do occur, but that they are rare. The fact that at least some degree of immunity is established by influenza warrants consideration, of the ultimate possibility of a successful prophylactic vaccination against the disease. As far as the *Bacillus* of Pfeiffer is concerned, Latapie has recently demonstrated that animals can be so immunized with this germ that they afford a serum having very marked specific properties against it.

In influenza prophylaxis, due attention should be paid to the fact that the disease is transmitted directly from person to person, rather through the agency of inanimate objects or through being wafted about by the general atmosphere. Objects recently contaminated with the buccal and nasal secretions of influenza cases are held quite capable of transferring the infection, but the chief route of transmission appears to be either immediate contact between persons or the projection of droplets of moisture harboring the virus from one individual to another. In the latter sense, infection through the air seems paramount, talking, coughing, and sneezing serving to distribute droplets of infected moisture about the patient, with corresponding risk to those in his vicinity. In experiments conducted by Vincent and Lochon, 1918, an agar plate, held ten to twenty centimetres in front of the mouth of an influenza patient who was coughing or sneezing, became covered with bacterial colonies. After two minutes of talking the agar plates averaged 209 colonies. Cough manifestly projects a still greater number of germs; after three or four coughing paroxysms the agar plates showed 250 to 300 colonies. While it is by no means to be denied that the infection may be transmitted by contact of the hands, as in hand shaking, or by the barber's hands or instruments, or by unwashed cooking utensils, infection by exhalation seems to be the chief factor in transmission, and prophylactic measures should be carefully applied with the intention of preventing exhaled moisture, presumably infected, from claiming new victims.

(To be continued.)

Antiscorbutic Properties of Limes and Lemons.

—Harriette Chick, E. Margaret Hume, Ruth F. Skelton, and Alice Henderson Smith (*Lancet*, November 30, 1918) compared the antiscorbutic activity of both fresh and preserved lime and lemon juice and found that fresh lemon juice was about four times as active as the juice of fresh limes, the latter having relatively slight activity at best. The preserved juice of both of the fruits was materially weaker than the fresh, though that of the lemon was sufficiently active to prevent scurvy in man when taken in a dose of about one ounce daily. The historical evidence with respect to the value of lime and lemon juice was also investigated and it was found that the claims for the value of lime juice were erroneous, the juice then being supplied under that name having been actually the juice of the sweet lime, a different fruit from what is now known as the lime.

Pellagra at the Connecticut Hospital for the Insane.

—William C. Sandy (*American Journal of Insanity*, October, 1918) studied five cases of pellagra in the hospital during the latter half of 1917. Four of these were cases of dementia præcox and the other one feeble-minded. Four of these cases had been in the hospital at least two years and the other one five months. In four of the five there was a resistive tendency and a disinclination to take proper nourishment. Only one of the five responded well to dietetic treatment, the other dying; in one case the fatal termination was hastened by pulmonary tuberculosis. In none of these cases did a diet of corn or residence in the South seem to bear any etiological relationship, nor was there obtained any evidence of other members of the family having been affected. In every instance the psychosis had been in existence for some years prior to the onset of the pellagra. The latter indeed seemed more of a terminal condition, owing to the dietetic faults of præcox patients and possibly to some metabolic derangement not yet fully understood.

Feeding Experiments with Raw and Boiled Carrots.

—Minna C. Denton and Emma Kohman (*The Journal of Biological Chemistry*, November, 1918) present their observations on the nutritive value of carrots as a diet for albino rats. In these days of economizing and food substitution, such an investigation is interesting, proving as it does a fairly strong case for one of our humble root vegetables. The use of some of these has been suggested to take the place as far as possible of the cereals, and to supplement the vegetable oils. The practice of dehydrating vegetables is growing yearly. When carrots were supplemented with starch, purified casein, butter or lard, and salts to such extent that fifty per cent. of the caloric value of the diet was still derived from the carrots, the animals maintained normal growth and reproduction. An exclusive diet of carrots, except for the addition of calcium, phosphorus, sodium and chlorine, was borne well by the rats, as they remained in apparently good health for sixteen weeks, although there was no growth on these rations. The exclusive carrot diets produced a constant and considerable degree of diuresis. Ordinary methods of cooking do not appreciably injure the nutritive

value of the carrots, especially when they are a component of a mixed diet. However, apparently a portion of the caloric value is lost if the water used in cooking is rejected. Carrots possess a considerable amount of both the water soluble and fat soluble vitamins. An observation of interest in connection with the relation of diet to dropsy is that the authors ascribe at least equal importance to the protein or nitrogen content of the diet, rather than to a lack of fat, which has been considered a factor in the "war dropsy." A large number of the rats fed on the carrot diet developed dropsy when the proportion of nitrogen was reduced by the addition of some nonnitrogenous food-stuff, such as fat or starch.

The Clinical Value of the Estimation of Kidney Function.

—Edward H. Mason (*American Journal of the Medical Sciences*, December, 1918) says that the nephritic test meal to be of the greatest value must be considered in connection with other functional work, preferably the calculation of the rate of excretion of urea and of chlorides and the phthalein test. In primary hypertension the metabolism of the kidney is raised, resulting in an increased rate of urea excretion and a raised chloride threshold. The nephritic test meal picture in congestion of the kidneys due to an arterial cause closely simulates that due to a venous one. The level of the chloride threshold in diabetes mellitus is usually below the normal of 5.62 gm. per litre. Some cases show a marked tendency for the level of the threshold to become altered at different stages of their condition. As a means of lowering the level of the chloride threshold, digitalis is prompt and efficient in its action, it being most useful when the disturbance is of a cardiac origin.

Closed System of Drainage for Penetrating Wounds of the Chest.

—Marion A. Blankenhorn (*Journal A. M. A.*, December 14, 1918) strongly recommends the use of the Brewer tube, which is selfretaining and which can be made to give an airtight joint by means of a few strips of adhesive plaster, in the treatment of infected war wounds of the chest with penetration of the pleura. Of course, where possible, such wounds should be treated by immediate operation and immediate closure of the chest, but in a considerable proportion of cases the conditions are not suitable for such immediate closure and it is in these that the method of closed drainage is recommended and gives the best results. The Brewer tube is inserted through an opening made by the resection of about half an inch of rib and a stab through the pleura. Its outer rubber flange is sealed to the chest by adhesive plaster and continuous negative pressure is maintained within the chest by connecting the tube with a large, deflated Pollitzer bag, or an automobile horn bulb. This plan of treatment prevents secondary infection, hastens the expansion of the lung, brings the pleural surfaces together and thus permits them to take care of the small amount of infection which remains after the primary operation and cleansing. After two or three days the lung will have become adherent and the small cavity can be irrigated through the tube without fear of causing pneumothorax.

Eczematoid Epidermomycoses due to a Parasite of the Genus *Saccharomyces*.—Hudelo, Sartory, and Mondaur (*Bulletin de l'Académie de médecine*, October 15, 1918) state that since 1914 they have met with forty-three cases of epidermomycoses due to yeasts. The site of the resulting lesions was interdigital, more frequently on the feet than on the hands, or in the inguocrural folds and the perianal region. At these points the epidermis becomes soft, thickened, creamy white, and moist, and is easily detached in large pieces. There is pronounced itching. The yeast found by the authors in these cases is unlike any other described in literature and is believed by them to be a new species. The cells usually bud at one pole only, the two new cells then separating. Asci and ascospores were obtained from this yeast, which grows best on a carrot slant. On microscopic examination of cultures, elongated forms constituting a short pseudomycelium are sometimes found. The yeast did not prove pathogenic upon subcutaneous or intraperitoneal injection in guineapigs and rabbits. Inoculation of a cut on the tongue of a guineapig caused, however, a small tumor to form. Serum from this animal agglutinated an emulsion of the yeast at one in 100. The treatment of the eczematoid yeast lesions in man consists in the application of diluted tincture of iodine; of a one per cent. solution of chrysophanic acid in traumaticin, or of a forty per cent. solution of cresote in glycerin. Improvement is rapid and recovery results in about three weeks.

Influenza.—Robert W. Keeton and A. Beulah Cushman (*Journal A. M. A.*, December 14, 1918) offer the opinion that influenza is essentially a form of toxemic shock. In the fatal cases death is obviously due to the exhaustion of the cardiovascular system, as shown by such signs as the cyanosis, pulmonary edema, weak second pulmonic sound, enlarged and tender liver, increasing dyspnea, and the frequent low blood pressure. In the severe cases, therefore, the treatment resolves itself into efforts to prevent the shock state, or into the treatment of the developed condition. Very satisfactory results are obtained by dilution of the causative toxins by giving maximal amounts of fluids orally, by discontinuous rectal drip, and by hypodermoclysis. When shock develops therapeutic efforts are of very little avail, but certain of the recommended measures deserve mention because of their possibilities of causing distinct harm. Venesection is the worst of these, for while it may theoretically be helpful in removing some of the toxins, it is very dangerous to the heart, which is already enfeebled and failing because of the lack of peripheral resistance and enough blood to maintain its coronary circulation. Thirteen out of fourteen patients upon whom it was performed died, and a severe psychosis developed in the other. The intravenous administration of glucose is dangerous on account of the danger of causing a reaction with very high temperature and fatal outcome. The glucose may wash into the circulation enough of the toxic metabolites to prove very injurious. The most effective drugs seems to be digitalis and atropin, the former for its action on the heart, the latter for its influence on the pulmonary condition.

A Clinical Summary of 106 Cases of Mental Disorders.—E. T. Gibson (*American Journal of Insanity*, October, 1918) reviewed cases from a psychopathic hospital where psychoses had originated in the fifth and sixth decades, nonattributable to organic brain disease or exogenous factors. He found that about sixty per cent. were manicdepressive or dementia præcox. Cases with agitated depression, delusions of unreality and of negation and with catatonic features were relatively uncommon. Delusions of unpleasant content are characteristic and almost invariably present. In a large proportion the prevailing mood is inconsistent with the ideas expressed. Excluding recurrent cases, an absolute recovery occurred in about ten per cent. of all cases with late history.

Fractional Estimation of Stomach Contents.—Burrill B. Chrohn (*American Journal of the Medical Sciences*, November, 1918) thus sums up the results of his experiments. 1. The customary method of administering hydrochloric acid as a single dose is, in most instances, insufficient to relieve the abnormal condition. 2. Small single doses, five to twenty minims dilute hydrochloric acid, *United States Pharmacopæia*, fail completely. Larger doses, twenty-five to forty minims, give better results, though the effects are temporary, lasting usually for the first half hour only after administration. The method of administering small doses at frequent intervals, that is, every half or, better, every quarter hour, is a more efficient one for accomplishing the desired effect. 4. The custom of giving acid before a meal has no advantages. The best results are seen when it is taken during the early part of the digestive cycle. 5. The effect of acid so administered is purely a local chemical one. A resultant physiological stimulation of the mucosa was never demonstrable from the experiments.

Diagnostic and Prognostic Value of Blood Urea in Urology.—Albert E. Goldstein (*Journal A. M. A.*, December 14, 1918) finds this test of the greatest value in prognosis, especially when combined with the chemical and microscopical examination of the urine, the phenolsulphonephthalein test, and the urine urea in a twenty-four specimen of urine. All of these tests should be made upon the admission of the patient and repeated in three to five days while the patient remains upon his customary diet. The test is further repeated at such intervals until the blood urea remains within the normal limits of 0.3 to 0.6 gm. per litre or until its course is determined. The results of the use of these tests in 104 urologic cases, carefully studied and followed, lead the author to conclude that the blood urea test is especially valuable, particularly since it may be employed in all cases. As a prognostic index it is practically infallible in urologic cases when employed as described. It can be used in conjunction with the excretory tests in the determination of relative kidney function. Where the blood urea is above one gram per litre the prognosis is always grave, while it is usually good when the urea is below 0.75 gram. By its employment an oncoming uremia can be diagnosed long before it is indicated by clinical signs and before the excretory tests are positive.

Miscellany from Home and Foreign Journals

Opsonic Studies in Wounds Infected with Streptococci.—Le Fèvre de Arrie (*Presse médicale*, October 24, 1918) found that the presence of streptococcus in wounds caused a modification of the serum of the patients, consisting in the early appearance of thermostabile opsonizing substances. Even after treating of the serum these substances are still present in it. While it has been believed that the spontaneous disappearance of the streptococcus from wounds is due rather to a change in the microorganism itself than in the development of immunity, it is nevertheless apparent that in time the opsonic values of the serums of such wounded subjects increase. It is permissible, therefore, to look upon the disappearance of the streptococci as a humoral manifestation of immunity. The development of this immunity, however, is slow, and the author is not as yet prepared to assert that it occurs constantly or that it is the most important factor in the elimination of the streptococcus.

Synthetic Capacity of the Mammary Gland.—Hart, E. B., Nelson, V. E., and Pitz, W. (*Journal of Biological Chemistry*, November, 1918) in order to determine whether the mammary gland will produce casein and continue a copious flow of milk if lysine, an aminoacid necessary for growth, is absent from the diet, gave female rats zein diets properly supplemented with a complete salt mixture, vitamins, tryptophane, and lysine, as contrasted with the same diet free from lysine. The animals fed on the diet which contained no lysine were unable to rear their young, and a marked improvement in the growth and duration of life, although not a perfect rearing, was secured when lysine was added to the diet. Apparently, then, the mammary gland has not the power to synthesize the aminoacid lysine, but must find it preformed in the blood stream. In other words, as far as the proteins are concerned, milk secretion, like growth, is ultimately dependent upon the quality and quantity of aminoacids ingested with the food.

Aplastic Anemia.—J. P. Schneider (*American Journal of the Medical Sciences*, December, 1918) believes aplastic anemia to be a distinct entity, clinically, hematologically, and anatomically, as well as from pigment studies, which should in no way be confused with pernicious anemia. It may occur at any age. Its nonremittent course varies from two weeks to one and a half years, averaging six months. The skin of the patient is of a pale gray, not straw yellow or waxy as in pernicious anemia; the sclera is never icteric, nor is the urine highly pigmented. There is a striking leukopenia, which may be as low as 140, average below 2000, with a relative increase of lymphocytes only, and an extraordinary reduction in the blood platelet count, often to twenty to twenty-five per cent. of normal, with the consequent presence early of a marked hemorrhagic tendency. Fever is present and frequently reaches a high point. There is no enlargement of the liver or spleen, no painful bone-pressure phenomenon, no megalocytosis marked

poikilocytosis, polychromasia, or basophilic granulation, while there is a practical absence at any stage of erythroblasts. At the postmortem examination characteristic punctate hemorrhages are found in practically all subserous and subperitoneal surfaces, and hyperblastic marrow changes are absent. Duodenal pigment values are subnormal, urobilinogen is absent, urobilin less than normal, and bilirubin reduced in proportion to the degree of anemia.

Mineral Metabolism in Experimental Acidosis.—Kingo Goto (*Journal of Biological Chemistry*, November, 1918) administered twenty-five to seventy-five c. c. of 0.25 N hydrochloric acid to rabbits for one to four weeks daily. Among the effects noted was a reduction in blood plasma bicarbonate, an increase in the phosphoric acid excretion (sometimes followed by a fall), and a marked loss in the phosphorus and potassium of the muscles, and some loss of sodium. Analysis of the skeleton showed a reduction in the fat content, the average for four normal controls being 17.1 per cent. of the dry weight, while the average for the acidified animals was 8.6 per cent., or less than half the normal figure. No loss of calcium phosphate was observed. A definite loss on the average of about one fifth of carbon dioxide was found. The results indicate that next to the bicarbonates of the body fluids the first major reserves of alkali drawn upon in experimental acid intoxication are the alkali phosphates, especially postassium phosphate, of the muscles, and the calcium carbonate of the bones.

Bronchopulmonary Spirochetal Infection in Influenza.—De Verbizier (*Bulletin de l'Académie de médecine*, October 8, 1918), in examining sputa of influenza cases, found, in addition to pneumococci, streptococci, and large numbers of gram negative coccobacilli—probably Pfeiffer organisms—a considerable abundance of spirochetes. Not infrequently five or six of the latter organisms were counted per microscopic field. Morphologically they were of two sorts: First, a large form with its spiral turns broad and less numerous than occur in the treponema of syphilis; secondly, a small form with tightly wound and numerous spiral turns, much more delicate than the first form and in all respects morphologically identical with the specific spirochete. The frequency of these spirochetes in influenza sputa naturally suggests the question whether they may not play a rôle in the propagation and severity of the disease as recently encountered. In this connection it is of interest to note that the bronchopulmonary spirochetosis imported from the Far East, and the symptomatology of which has recently been described by Violle, has proven to be an extremely contagious disease. Confirmation of the author's suspicion of the etiological rôle of spirochetes in influenza might render great service in permitting of the detection and isolation of carriers and also of an inquiry into the therapeutic availability of various arsenical drugs in this disease.

The Early Diagnosis of Lead Poisoning.—George L. Apfelbach (*American Journal of the Medical Sciences*, December, 1918) submits the following conclusions from data collected and studied by him: The manifestations of an intoxication with lead are variable, sometimes presenting only one or two of the cardinal signs, which are colic, constipation, blue line, tremor, basophilic degeneration of the red cells, pallor, and anemia. An early diagnosis of plumbism can be established by the history of lead working, by the presence of constipation, plus one or more of the cardinals, fine tremor, blue line, and basophilic degeneration of the red cells. Constipation with pallor and anemia or with colic presents a suspicious picture which must be worked out by the aid of subsidiary findings. Anemia and fine tremor are very early signs of plumbism. As more lead workers suffer from vague abdominal pains and gastric disturbances than from colic the differential diagnosis of any abdominal pain or colic or digestive disturbance demands the consideration of lead as the possible cause. There does not seem to be a consistent rise in blood pressure in acute or subacute cases of lead poisoning. Over one third of house painters show signs of plumbism. The high incidence of nephritis, arterial disease, and pulmonary tuberculosis in this occupation must also be emphasized.

Tumor of the Mediastinum and Serofibrinous Pericarditis.—Soulié and Benhamou (*Paris médicale*, October 19, 1918) point out that, apart from the hemorrhagic pericardial effusion which often develops in the terminal stage of mediastinal tumor there sometimes occur instances of ordinary serofibrinous pericarditis accompanying such a tumor, yet so pronounced as to dominate the clinical picture and cause the subjacent growth to be overlooked unless special care in the diagnosis is exercised. Serofibrinous pericarditis should naturally bring first to mind the thought of a tuberculous condition, of rheumatism, or of nephritis; but where, as in the case reported by the authors, the area of dullness is of unusual shape and the x ray shadow differs from the pericardial shadow, as described by Vaquez and Bordet, an underlying mediastinal tumor should be thought of. In the authors' case the pericarditis was enveloped by the tumor, which had invaded and irritated the pericardium, causing a symptomatic pericarditis. In the presence of serofibrinous pericarditis, mediastinal tumor should likewise be thought of where manifestations of increased mediastinal pressure have already existed for some time. Persistent or recurring hoarseness, a raucous voice, and a barking, paroxysmal cough, are all early symptoms of such increased pressure. Systematic x ray examination of the mediastinum should be availed of in all cases. Anisocoria, in the absence of aortic aneurysm and of syphilis, is a valuable sign of mediastinal tumor. Tumor should likewise be thought of where precordial pain precedes by several months the symptoms and signs of pericarditis, or where, after paracentesis of the pericardium the functional symptoms of pericarditis, viz., dyspnea, angor, and precordial pain, rapidly recur and the x ray shadow remains practically uninfluenced by

the puncture. Relative youth of the patient does not eliminate the possibility of a tumor subjacent to a serofibrinous pericarditis. The authors' patient was twenty-four years of age. Early diagnosis of mediastinal tumor may permit of surgical intervention. In the authors' case there was intimate adhesion between the growth and the lungs, preventing removal of the growth. Decompressive thoracotomy, where nothing more can be done, may greatly prolong life in cases in which pressure rather than toxemia is the lethal factor.

The Central Canal of the Spinal Cord.—S. P. Kramer (*American Journal of Insanity*, October, 1918) calls attention to the possible importance of the central canal of the spinal cord in the pathogenesis of poliomyelitic disease. This canal is open in animals and young children, but authorities disagree as to its condition in adults. The author examined 206 spinal cords of which sections were made in the cervical, dorsal, and lumbar segments. When the canal was found open in all these localities the whole cord was set aside for study and sectioned at intervals of five millimeters throughout its length. The central canal was found open throughout in fifteen instances, or 7.23 per cent. The author believes that drugs or toxins can very easily be carried upward through an open canal into the central gray matter. This would explain the fact that poliomyelitis is essentially a disease of infancy and childhood, as in this period the canal is probably always open; he thinks that in all cases dying of this disease the cord should be examined, in order that more light may be thrown on this possible route of infection.

Blood Pressure and Kidney Function Findings in Orthostatic Albuminuria.—E. H. Mason and R. J. Erickson (*American Journal of the Medical Sciences*, November, 1918) confirm the findings of Erlanger and Hooker of the remarkable decrease in pulse pressure present when cases of orthostatic albuminuria assume the upright position, and have noted the production of almost as low a pulse pressure when the patients are in the horizontal position with an exaggerated lordosis artificially produced by placing two pillows in the small of the back. They believe that the condition of orthostatic albuminuria is a general systemic disturbance manifesting itself in faulty development, as shown by a general visceroptosis, a "drop heart," a generalized muscular and visceral atonia, known to be associated with varying degrees of vasomotor instability. The symptoms so commonly complained of, such as headache, lassitude, constipation, and loss of weight, are the natural results of physical conditions. The increased lordosis that is usually present they consider to be a symptom due to the faulty muscular development and tone of the lumbar muscles. This exaggerated lordosis is well recognized in many muscular dystrophies and atrophies, and in other conditions involving the lumbar and abdominal muscles. The low pulse pressure they consider to be undoubtedly the cause, rather than a mechanical interference with the venous return from the kidneys. In all of their work the albuminuria varied inversely as the pulse pressure, regardless of the position.

Bacteriology of a Recent Epidemic of Acute Respiratory Infection.—Wyndham B. Blanton and Ernest E. Irons (*Journal A. M. A.*, December 14, 1918) took 357 cultures from the nose and nasopharynx of an unselected group of men at Camp Custer just prior to the outbreak of the epidemic, recovering the usual mouth organisms, and in addition, in seventy-five per cent. of the men, a hemolyzing streptococcus. In only a little over one per cent. of instances was the influenza bacillus isolated. When the influenza epidemic broke out smears and throat cultures were taken in 366 cases uncomplicated by pneumonia and showed: Hemolytic streptococci in thirty-four per cent.; nonhemolytic streptococci in thirty-three per cent.; pneumococci in twelve per cent.; and influenza bacilli in eight per cent. Every one of 140 blood cultures made at various stages of the disease remained sterile. Among the cases with pneumonia 510 blood cultures were made and only eleven were positive, ten yielding the hemolytic streptococcus and one of the *Pneumococcus mucosus*. The only positive cultures secured were obtained from the sickest patients, but usually the cultures remained negative even to within a few hours before death. Seven hundred and forty sputums of the pneumonia patients were studied; 451 showed streptococci, of which only thirty per cent. were hemolytic; type IV pneumococcus was found in 148; types II and III, each in sixteen, and type I in only eleven cases. The influenza bacillus was found in thirty-eight sputa. Cultures were made from the lungs and heart's blood in 280 fatal cases post mortem, the lungs yielding pneumococci seventy-eight times, hemolytic streptococci seventy-six times, nonhemolytic streptococci sixty-six times, and influenza bacilli eight times. The heart's blood yielded pneumococci seventy-seven times, hemolytic streptococci sixty-two and nonhemolytic forty-eight times, and influenza bacilli only three times. Among the other laboratory observations made in the course of this investigation there was the striking preponderance of cases, including those with pneumonia, in which there was a leucocyte count of 8,000 or less. With this there was pathological evidence in the bone marrow of a lack of reaction.

Röntgen Study of Gastrointestinal Tract.—George E. Pfahler (*Journal A. M. A.*, December 14, 1918) says that a röntgen study of the gastrointestinal tract is usually called for only in the obscure cases and it is therefore necessary to make the study complete. Such a study should include the investigation of the gallbladder for stones, enlargement and adhesions; of the stomach, the duodenum and pylorus, the head of the pancreas; of the course of the food through the small intestine; of the appendix and its region; of the colon; and often also of the spinal column and the urinary tract. A complete study of this nature should not be made in a stereotyped and routine manner, but its course should be guided by the findings as they come to light. The general plan for the conduct of this type of complete investigation is given, along with many remarks on the normal and pathological findings in many of the organs, but special emphasis is laid on the question of the form and position of

the stomach because this is often erroneously interpreted. Both the form and position may be of some significance, but neither can be looked upon as of itself pathologic, since the normal stomach varies as much in shape as do noses, and its position is no less variable. The variations found are often characteristic of the type of individual and must be interpreted in that connection in every case. A second field of major importance is that of the röntgen examination of the appendix. This should be made fluoroscopically with the aid of a wooden spoonlike instrument, having a metallic rim, and called the "distinator." Manipulation and palpation of the region of the appendix with this instrument, beneath the screen, combined with the description of the patient's sensations during the examination will yield information not otherwise obtainable. This should be carried out at the eighth, twenty-fourth, and forty-eighth hours after the ingestion of the opaque meal, when the patent appendix will be filled with the meal and is readily visualized. The possibilities, as well as the technic of such an examination, are given in detail. By such a complete examination abnormalities of the organs mentioned can usually be discovered; carcinoma can almost always be diagnosed when present, or its absence proved in most instances; gastric ulcer can be discovered in about ninety per cent. of the cases; duodenal ulcer in ninety-five per cent.; gallstones in fifty per cent.; other evidence of gallbladder disease in twenty-five per cent.; chronic appendicitis in practically all cases; and various other conditions in a large majority of instances.

Irritable Heart or Effort Syndrome.—Thayer A. Smith and David Bovaird (*American Journal of the Medical Sciences*, December, 1918) say that the irritable heart or effort syndrome cases constitute a symptom complex rather than a definite disease; it seems clear that it does not indicate any definite disease of the heart. The affection is not peculiar to soldiers, but often precedes entry into service, though it may be exaggerated, or in some cases produced, by the active exercise or vicissitudes of the military life. Occupation in civil life is as much a result as a cause of the disturbance, in that men who know their weakness usually adopt an employment suited to it. In the great majority of cases no definite cause of the disorder is ascertainable; when such can be found it is most often an acute infection. Tobacco, alcohol, coffee, and tea, though possible causes of aggravation of the symptoms, cannot be regarded as prime factors in the causation. Hyperthyroidism is suggested in some of the cases. From the experience now available in the studies of Da Costa and the British Commission it would seem wise to retain many of these patients in the army in the hope of rendering them fit for duty of some kind; in view of their very limited usefulness in foreign service they should not be sent abroad. For the present at least, the line of treatment must be that of progressive physical training as laid down by the British Commission, which, even if it fails to produce satisfactory therapeutic results, offers the best means of classifying the men as to their physical ability to perform military service.

Repeated Cessation of the Heart.—E. P. Poulton and H. M. Stewart (*Lancet*, November 30, 1918) record a remarkable case of a man, sixty-seven years old, who had been healthy all of his life, but who more or less suddenly developed giddy attacks with marked slowing of the pulse rate. About twelve days after the appearance of these attacks he began to have repeated spells of fainting, which lasted with a few short intermissions until his death three days later. A typical attack would begin with a sudden slowing of the pulse for about a minute, when the slowing would rapidly grow more marked. About a minute and a half from the beginning the pulse would suddenly stop and the patient immediately would grow pale, show slight cyanosis, but could continue talking for a few seconds. He would fall back with a groan and become unconscious, with the prompt development of contractions in the extremities and a marked increase in the depth and rate of respiration. The patient would become livid and the corneal reflexes disappear. After about half a minute the pulse would suddenly resume and become normal in strength and rate within five to ten seconds. Such a cycle would last from 115 to 125 seconds and be repeated so that in about every two minutes the pulse would stop for about forty seconds. Attempts to relieve this condition proved wholly without avail and the patient died in one of the attacks. Post mortem, the heart was found normal except for some hypertrophy and slight mottling, with some thickening of the aortic and mitral valves. There was some arteriosclerosis. The region of the vagus centre in the medulla showed considerable vacuolation of the cells. The cause of the condition was therefore not definitely determined.

Effects of Epinephrin in Irritable Heart.—Francis W. Peabody, Harry D. Clough, Cyrus C. Sturgis, Joseph T. Wearn, and Edna H. Tompkins (*Journal A. M. A.*, December 7, 1918) subjected sixty-five patients with irritable heart and twenty-seven normal controls to the epinephrin test, using the following technic: The patient was made to lie quietly for at least an hour; then his pulse and respiration rates and systolic and diastolic blood pressures were read at intervals until they were constant for several readings. Half a mil of freshly prepared 1:1000 solution of epinephrin was injected into the deltoid muscle and the readings were made every two minutes for ten minutes and then every five minutes for an hour and every ten minutes for a half hour. A positive reaction was shown by a rise in the systolic pressure or pulse rate of over ten to fifteen points, combined with flushing, sweating, increased vascular pulsation, increased tremor of the hands, and often general nervousness. Of the normal controls one man gave a slight suggestive reaction, the others being wholly negative. Of the sixty-five irritable heart cases thirty nine, or sixty per cent., gave positive reactions, ten per cent. suggestive, and thirty per cent. negative reactions. With the injection of epinephrin normal men showed a slight increase in basal metabolism and in blood sugar, as compared with a marked rise in both among the epinephrin sensitive men.

The Clinical Pathology of Mustard Gas (Dichlorethylsulphide) Poisoning.—George R. Herrmann (*Journal of Laboratory and Clinical Medicine*, November, 1918) made laboratory examinations in seven severe cases of mustard gas poisoning, and the clinical pathology of the urine and blood was also studied in a number of mild cases. The latter showed no changes in either the blood or urine. In the more severe cases of mustard gas burns of the skin, with some involvement of the upper respiratory tract, definite changes were noted in the urine and in the blood. There was a diminished output of urine, increased concentration and acidity, albuminuria, and diminished area and chloride output; microscopical examination showed casts, renal epithelium, red blood cells, and an increased number of leucocytes. These changes cleared up on forced fluids. The blood urea was high. Changes in the blood include a slight secondary anemia, well marked polynuclear leucocytosis, a definite eosinophilia, an increase in the platelets, and the appearance of myelocytes and young forms of leucocytes. Bacteriological study of the infected skin lesions and furuncles showed that *Staphylococcus pyogenes aureus* was constantly present. The author believes that the changes are dependent upon the secondary infection and perhaps are partly traceable to the absorption of toxic products from the necrotic skin, rather than to any direct toxic action of mustard gas.

Conductivity as a Measure of Permeability.—W. J. V. Osterhout (*Journal of Biological Chemistry*, December, 1918) considers electrical conductivity as efficient a method of investigating the permeability of protoplasm as that of tissue tension, exosmosis, and diffusion through membranes of living tissue. It offers the additional advantage of being more convenient and of allowing determinations to be made at shorter intervals than is possible with the other methods. The experiments were conducted with a green marine alga and with a marine flowering plant, whose walls were callulose. From the results described it is concluded that while a part of the current flows in the intercellular substance another part flows through the protoplasm itself, and that the variations in conductivity are due to changes in the living protoplasm, and not to changes in the intercellular substance.

Solubility of Certain Races of the Pneumococcus in Dilute Sodium Hydroxide.—Andrew Watson Sellards (*Journal A. M. A.*, October 10, 1918) records several series of observations on the solubility of the pneumococcus in bile, the bile salts, and in sodium hydroxide, and concludes that the presence of the bile salts does not adequately explain the solvent action of the whole bile for pneumococci. The bile pigments do not have any bacteriolytic action for many strains of pneumococci. On the other hand sodium hydroxide in solutions as dilute as hundredth normal has a marked selective power of dissolving certain strains of pneumococci. Several strains of hemolytic streptococci were tested and resisted solution in sodium hydroxide in fifth normal strength.

Proceedings of National and Local Societies

AMERICAN LARYNGOLOGICAL ASSOCIATION.

*Fortieth Annual Meeting, Held in Atlantic City,
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The President, Dr. THOMAS H. HALSTED, of Syracuse, in
the Chair.

(Concluded from page 13.)

The Diagnosis and Prognosis of Hypertrophic Sphenoiditis.—Dr. GREENFIELD SLUDER, of St. Louis, expressed the opinion that the kind of light to be used in postnasal examinations was of the utmost importance. Sunlight would be ideal, were it not for the great heat conveyed which rendered it useless. The light made by Leitz under the name of the Lilliput Arc Lamp was as satisfactory as the sun and was always available. The carbons met at right angles and give a brilliant white light which was condensed into a pencil by a convex lens. It was a different light from that of the arc lamp used in street illumination. In burning, a little white smoke was given off, which condensed to a white powder, indicating that the carbons had been impregnated with a zinc salt which might be the way in which the white light was made. Leitz declined to tell the process of manufacture. The advantages of a proper light were obvious, in that diseased conditions, as also the presence of a small amount of pus, were the more readily recognized. At times the Holmes nasopharyngoscope was of the utmost help, by virtue of the right angle vision. Doctor Sluder presented a clear description of the normal postethmoid phenoid district. It was his opinion that all changes in these parts should be carefully noticed, because a very slight surface change was often accompanied by much more advanced and serious change in the deeper parts, as was often shown by the finding of polyps within the cells at the time of operation, no evidence of which had previously been recognized there. Patches of inflammation might often be found with the pharyngoscope within the cells which were very pernicious and disastrous according to their location, for example, upon the optic canal. He did not believe that the postethmoid sphenoid operation was free from danger in the hands of any rhinologist. He had seen an eye, which it was intended to save, lost for the vision it had at the time of operation, and he had learned of death following a number of these operations. Sometimes a sphenoid sinus makes the inner part of the canal, and sometimes the postethmoid makes it, and there was no way to tell in a patient at the time of operation which it was, hence the sure practice was the combined operation. The distribution of the hyperplastic process here was of great interest. The presence of pus was not the only indication of diseased conditions here, as there might be active inflammatory conditions without it. Doctor Sluder called attention to the appearance of the epithelium under different conditions. With a proper light, when pus was present it was almost invariably greenish yellow or

yellowish green, whereas the opaque epithelium was white or very slightly bluish white. This form of sphenoiditis was rarely unilateral. Anomalous anatomic arrangements of these parts might exist, and failure to bear these possibilities in mind might defeat our best technical efforts. The diagnosis became exceedingly difficult in children.

As to prognosis, the infection "coryza" in these parts might be of grades so slight that the patient was not cognizant of it and still make the ocular or the painful lesions. The acutely inflamed area might, however, be seen with the pharyngoscope after the cells were opened. And for the second class of cases the prognosis was also for relief, but it must needs be slower and less complete, although in the long run the result was preeminently worth the effort it took to get it. These cases had seemed to be less disturbed by coryzas.

The postethmoid sphenoid radical operation, properly performed in the first class of cases, almost always gave a technical result that remained satisfactory—that is, the openings of the cells remained as the operator made them. In the second class they almost always get smaller, and very frequently closed up completely, and so must be made again, often several times. In later life an involution of the hyperplastic changes—rarefying otitis—took place, sometimes beginning about the fiftieth year and sometimes later. Doctor Sluder had seen this in unoperated cases accompanied by corresponding cessation of symptoms (in one case an ophthalmic migraine).

Value of Dichloramin-T Chlorcosane Solution (Dakin-Dunham) in the Treatment of Infections of the Upper Air Passages.

—Dr. D. BRYSON DELAVAN, of New York, said that dichloramin-T, the basis of the Dakin-Carrel fluid so extensively used as an antiseptic in a wide variety of infectious conditions, had an intense germicidal action corresponding to its high content of chlorin. It was difficult to find for it perfectly satisfactory solvents which would yield stable solutions. Doctor Dakin and Doctor Dunham had stated that the best medium thus far found was an oil obtained by the chlorination of paraffin wax, to which the name of "chlorcosane" had been given. Other solvents experimented with were a mixture of eucalyptol and paraffin oil, and a heavy oil obtained by the chlorination of eucalyptol. Eucalyptol had been found to be irritating. Chlorcosane was not irritating and had seemed decidedly preferable. Explaining the action of dichloramin-T in oil, Doctor Dakin had said that antiseptics incorporated with or dissolved in oily substances usually possessed little, if any, antiseptic activity because intimate contact with the infected matter was hindered by the oil. When, however, the dichloramin-T solution in chlorcosane was brought in contact with aqueous media the partition coefficient between the oil and the water was such that a certain amount of the dichloramin-T passed into the water and there exerted its germicidal action. The amount of the dichloramin-T thus passing from the

oil was increased by the presence in the aqueous medium by substances capable of taking up chlorine, so that the oil solution seemed as a store for the antiseptic which was drawn upon to maintain the germicidal activity of the aqueous medium with which it came in contact. The dichloramin-T oil solution might be sprayed upon wound surfaces or poured into accessible parts of deep wounds. It yielded moderate amounts of the antiseptic to watery media, such as secretions from wounds or mucous membranes. It was suitable for sores requiring prolonged antiseptic treatment and for first dressings of wounds which did not require irrigation. The application of the oil was extremely simple, and generally it was not necessary to renew it more than once in twenty-four hours.

Admitting the germicidal power of dichloramin-T, it was desirable to study its value in the disinfection of septic conditions of the upper air passages, regions especially liable to infection, prone to harbor germs of dangerous character, abounding in recesses difficult of access by the ordinary means of application, and often becoming foci of infection threatening extreme danger. This is especially true of the upper nasal region, the vault of the pharynx and the tonsils. The dichloramin-T might be used to advantage in these regions under three different conditions: 1, To prevent the extension of newly acquired infection; 2, to overcome the acute results of infections; and 3, to abolish the bacilli persisting in carriers. The success of the method must depend upon the thoroughness of the application of the disinfectant. Brushing the surface of the tonsil or spraying the lower section of the nasal cavity could not possibly be effective. A spray atomizer must be used which would carry the spray in all directions, upward, downward and sidewise. The crypts of the tonsil must be disinfected to their lowest depths, and the superior half of the nasal cavities must be thoroughly reached. To effect this the following principle must be recognized and carried out: The parts must first be cleansed, and then exposed to the fullest extent by the application of adrenalin or some similar astringent, and finally the dichloramin-T oil sprayed into them until every crypt and recess has been completely reached. This thoroughness was absolutely necessary in order to secure the removal of the most deeply seated germs. Used in the strength of two per cent. or less, the solution with chlorcosane was not irritating, although stronger solutions might be. Suitable atomizers were necessary. The success of this method had thus far been gratifying. Where this method failed, in the presence of hypertrophied tonsils or adenoids, the removal of the latter might be necessary to effect a final cure. It was desired to furnish a method so simple in itself as to be readily carried out by the average practitioner, with the aid of apparatus inexpensive, durable, clean, compact of form, light of weight, and therefore available for use under all circumstances of medical practice, whether civil or military.

The essentials to success were: 1, Recognition of the principle of the necessity for the complete exposure of the centres of infection; 2, the use of a proper spray atomizer; 3, the devotion of sufficient

time and care to the effective carrying out of the treatment.

Dr. JOSEPH H. BRYAN, of Washington, believed that this method of treatment was going to be of valuable assistance in correcting these conditions. He could not understand how the spray could get into the deeper portions of the tonsils, however. He had been using a small dental syringe, by which the solution could be carried into the depths of the tonsil better than by the spray.

Dr. ROBERT C. MYLES, of New York, said that he had been experimenting for several months with these preparations of Doctor Dakin's fluid, although nothing definite had resulted. A great many of the cases seemed to have been relieved, and it seemed theoretically that it was the best thing that had been proposed. He had used it in solutions and mixtures, and the difficulties in reaching the depths of the crypts needed some consideration. Many of us had been trying to swab out the depths of the crypts and had always produced a certain amount of hemorrhage on account of the delicate structure of the parts, leaving a blood clot to be a culture medium for the germs. He had used also the watery solutions in tracheobronchial conditions, and so far the results had been satisfactory. He did not believe that he had a case which apparently was pneumonic that had not stopped. When the oily solutions were used a great deal of precaution was observed in dropping them into the trachea, and spraying came in readily with the watery solutions. He preferred the latter, as he believed that too much paraffin oil going into the lower bronchi might not be brought back again. Not being observable, it was a question what would become of it.

Dr. CORNELIUS G. COAKLEY told of his experiences with chronic meningococcus carriers in the Rockefeller Institute, which he had examined. The conditions found were almost identical in all—a most intense hyperemia, redness, with moderate swelling of the nasal, nasopharyngeal, and pharyngeal mucous membrane. The throats were more red than any he had ever seen, and none had had any other local treatment during the past four days, so that he could not find any conditions there that were the result of local treatment. Of the twenty-seven, twenty-four had perfectly enormous masses of adenoids in the nasopharynx. He had rarely seen such masses of adenoid tissue in adults. They were great big husky men from the Middle and Far West, fine specimens of manhood, yet with masses of adenoid tissue bigger than his thumb, as proved by removal by Doctor Babcock later. In two there were smaller amounts, and in one none was apparent. One patient had a sinus involvement. He thought that neither the dichloramin-T nor any other local disinfectant could have any great bactericidal or germicidal value when such masses were found in the nasopharynx as were present in these twenty-four cases, and believed that this was the cause of continued finding of the meningococcus. The results of operation would be noted later on. Last fall he had a smaller number, about ten, who were sent from one of the cantonments of the South to the Rockefeller Institute for study, and large tonsils and adenoids were found in all. When these were cor-

rected, they promptly cleared up in two weeks, and they were long standing cases. From these observations Doctor Coakley concluded that if there is a smooth surface which can be readily acted on by the antiseptic, dichloramin-T, good results will be obtained, but if there is a rough surface its efficacy was considerably lessened.

Dr. HARMON SMITH, of New York, said that he had more or less success in employing this solution, beginning with dichloramin-T chlorcosane, in February. He believed that the most important point was to have the surface clean and the sinus clear of any invading pus or mucopus found there. In addition, the solution should not only be brought in contact with these rugæ, but it should be forced into them. He had shrunk the tissues down first, and then irrigated with an aqueous solution of some alkalin or normal saline, and afterward instituted suction until there was no evidence of pus in the solution coming away. Then he had employed a syringe, which he had endeavored to impress on some as being efficient. It was loaded as an ordinary syringe, with a two per cent. solution of dichloramin-T; then, by turning the stop cock, he brought about a vacuum in the sinus, after which the cock was turned and the solution forced in, using the vacuum together with the force of the syringe to force in the solution. He had more success with the dichloramin in oil than with the aqueous solution. This method had been more or less condemned by some, but he had met with considerable success. In addition to the treatment of the patient it was necessary for the patient to do something in the interim between the calls at the office. He prescribed a weak solution of adrenalin for spraying the nose first, and later, with a normal salt solution, the irrigation of the nose was advised until the first outpouring of mucopus was over. He also gave patients a bulb that would give, on the Sorenson machine, a ten degree registration on the dial. Employing this at home, they could keep the sinus more or less free from mucopus, which leaves less to get out in the office before employing the injection with the syringe.

Dr. EMIL MAYER, of New York, said that his experience with this solution in oil many months ago was that it produced so much irritation in the cases of otitis that he became rather chary about its use in cases in which there was much sensitiveness of the mucosa. Recently he had been using the watery solution in cases of bronchiectasis and bronchial abscess, washing them out, and at the same time using the suction apparatus, and then throwing in the watery solution. He took a number of the cases that were under observation and, for control, used the old solution of iodine and carbolic acid, and in the others used the chlorcosane. The site of application was in the bronchus. Drawing out the very excessive secretion by means of the suction apparatus, which was attached to a double tube, the irrigation could be continued while the suction was being used. His experience had been of such short duration that he was unable to do more than report a decided amelioration of the worst symptom of the patients, the odor. Whether it was possible to use a solution in oil in the bron-

chus would have to be determined by experimentation.

Dr. ROBERT CLYDE LYNCH, of New Orleans, said that he had used dichloramin solutions, both aqueous and oily—the oily in two per cent, as described. In the sinus cases, especially the antrums, a few of the sphenoid involvements and four bronchosinus cases were irrigated, the sinuses first with normal salt solution, following this by irrigation of the sinus with the aqueous Carrel-Dakin solution. Then thirty minims to a dram of the oily solution were instilled into the sinuses and antrum, frontal and sphenoid. This was naturally followed at first by an apparent increase in the inflammatory state of discomfort which lasted, on an average, about six hours. On the return of the patient the following day, more secretion, apparently, was washed from the sinus, but it was usually changed in character. That is, instead of the secretion showing a tinge of blood or being bloody, there was on the patient's return what appeared to be an excess or an irritation of what would be a normal mucous membrane. In other words, the washing from the sinus lost the peculiar mucopurulent sanguineous type, and was changed to a thinner watery discharge, having a considerable amount of apparently clear mucus. In the cultures taken from these washings there was a notable decrease in the diplococci, but the usual history of the time of clearing up of the sinus did not seem to be shortened to any great degree. In other words, running parallel cases, it was found, as the winter wore on, that almost the same results were accomplished by irrigating the sinuses with a normal salt solution or with a solution of permanganate of zinc. Convalescence resulted in about the same time as with the dichloramin solution. Then simply washing the sinus with a plain tap water was tried, following that with the instillation into the sinus, through the canula, of from one to two drams of two per cent. dichloramin oil, allowing that to remain in for as long as it would stay, requesting the patient to sit upright and refrain from blowing his nose. Patients apparently kept the fluid within the cavity for quite a considerable period of time—so much so that even on washing it out the next day some remaining odor of the chlorin could be distinctly detected. This plan was followed by the same reaction, but the convalescence in these cases was cut down apparently from two to four or five days. After the instillation of the first oil and the washing of the second day, the oil was instilled for the second time. Then, if the symptoms were not too violent, further intrasinus medication was not undertaken. No attempt was made to wash the sinus out, but the oil was allowed to stay in and the sinus given a period of rest of about four days. In these cases the convalescence was shorter, the pain was less, and the patients came through in a most satisfactory manner. The dichloramin oil was used on tampons, in cases of acute suppurative otitis requiring tympanotomy, and it was found that the first reaction was quite marked. The drum would be reddened, the canal would be reddened, but with a period of twenty-four hours of rest, the discharge would change in character from the serosanguineous dis-

charge to one made, not of blood, but of an excessive secretion of what apparently was normal mucus. In some of the acute suppurative cases, it was felt that some of them were aggravated by the use of the dichloramin oil tampons, and their use was discontinued, not being able to accomplish convalescence in any less time than had been done by other means. The dichloramin oil was used in the acute tracheal cases, cocainizing the trachea rather thoroughly and introducing into it, by means of a tracheal canula or syringe, thirty minims to a dram of the dichloramin oil solution. This was followed in one or two instances by considerable spasms of short duration, but by very rapid amelioration of the symptoms, and that peculiar dusky red, that intense redness of the mucous membrane, could be seen to be much less upon the next examination. The cough and distress were diminished, and these cases, diagnosed as acute tracheitis, cleared up apparently very much more rapidly by the use of the dichloramin oil than they did by other means used previously. Regarding its use in the sinus, it was not thought that the period of convalescence had been shortened. In the ear cases, some of them were made apparently worse by the application, and its use was discontinued. In the tracheal cases they experienced decided benefit.

DR. J. PAYSON CLARK, of Boston, said that he had learned that it was important to avoid the use of any metal in the canula or syringe in its application. He reported results in a case of chronic pansinusitis in which all the sinuses had free discharge from them, and in which he used this solution. The antra was washed out with normal salt solution and boric acid, and the left sphenoid was found to be involved. The sinuses—the right and left frontal, the left sphenoid and right antrum—were then irrigated with a Dakin watery solution. The patient went home and had a headache and so much malaise that she went to bed. She absolutely refused to have this treatment continued, although she was better the next morning.

DOCTOR DELAVAN, in closing the discussion, called attention to the fact that formerly, when eucalyptol was employed, that solution was found to be irritating, and for that reason Doctor Dakin and Doctor Dunham had devised the "chlorcosane."

Regarding the important subject of disinfection of carriers, Doctor Delavan knew nothing that had come out on this subject better than the thesis of Doctor Friedberg in the last volume of the *Transactions*. Not only might the crypt of the tonsil contain the offensive germ, but it might penetrate into the tissues of the wall of the crypt to such a considerable depth that even when the disinfectant was brought into contact with the wall of the crypt it did not reach the buried microorganism. The disinfection of the sinuses, too, was a difficult matter. Friedberg believed that when infection had persisted for three or four weeks in spite of treatment, operative measures were distinctly indicated. There may be some cases in which operation, however, did not seem expedient with them. If a reliable disinfectant could be found, a much better position had been attained than without it.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting of Wednesday, January 1, 1919.

The President, Colonel RICHARD H. HART, in the Chair.

Reconstruction Program of the Public Health Service.—Senior Surgeon CHARLES E. BANKS, United States Public Health Service, Washington, D. C.: Whoever writes the history of the present war will find among the most significant of its developments the achievements of our profession in the field of preventive medicine; in the huge army of nearly five millions mobilized in the United States there have been less than 200 cases of typhoid fever. One may safely say that as a result of the remarkable work in sanitation and preventive medicine carried on by the allied medical organizations hundreds of thousands of fighting men were preserved from ignominious death from preventable disease. That which has been accomplished in the military zone under most unfavorable environments can be duplicated in civil life under less complicated conditions. The men whose lives were saved by the application of modern sanitary methods and the principles of preventive medicine understand the necessity for the application of sound sanitary principles to the ordinary daily walks of life. They will not only practise these principles themselves, but demand that those in authority in health matters shall apply them in the interest of the public health. The superficial work which has characterized a good deal of our own health activities in the past will be no longer tolerated. The medical profession must be prepared for a reconstruction of methods in connection with the public health. The saner logic of preventive medicine will supersede the ancient order of attempting to cure disease that has become established. The leadership in this period of reconstruction will naturally devolve upon the United States Public Health Service. The programme with which this national organization intends to meet the emergencies of the situation is comprehensive and far-reaching and for its full success is dependent upon the cooperation of organized medicine. It meets urgent national needs by outlining health activities which are practicable and which will yield the maximum result in protecting national health and will diminish the toll of thousands of lives sacrificed by preventable disease and unsanitary conditions. The programme comprises exhaustive work under industrial hygiene, rural hygiene, prevention of the diseases of infancy and childhood, water supplies (National development of safe water supplies), milk supplies (National development of safe milk supplies), sewage disposal, malaria (National development of measures for its control), venereal diseases, tuberculosis, railway sanitation, municipal sanitation, health standards, health education, collection of morbidity reports, organization and training for duty in emergency of the reserve of the Public Health Service. If this great world war found us unprepared let not the same be said of us in this period of reconstruction.

Dr. J. M. ANDERS: Public health activities have greatly suffered during the war, and this is perhaps especially true of civilian tuberculosis activities for

the reason that many able workers were in the army and navy. Perhaps the most important of the lessons we have learned in the recent world war is the fact that the individual efficiency of the men on the firing line is the foremost factor in modern warfare. The large percentage of rejections, by the local draft boards, of the men called to the colors directs especial attention to the problem of physical education in this country during this reconstruction period. Every individual, it seems to me, should be taught how to promote his or her health and I believe this could be best accomplished in connection with our public and secondary schools as well as in the colleges and universities. While the idea of universal military training should be encouraged, the scope of the plan should be, and the one presented tonight is, sufficiently comprehensive to include the entire American race. I believe that if in the immediate future sufficient attention were devoted to the matter of physical education many of the details in the programme just outlined by Colonel Banks would in due course be found to be unnecessary. All are probably aware of the fact that in England there has recently been formed a ministry of health which will combine and coordinate all the public health activities under one head. Such a reorganization of the public health activities in this country would be a consummation devoutly to be wished for, and it would certainly facilitate that which Colonel Banks has emphasized, namely: the necessity of sympathetic cooperation among all allied agencies having to do with public health work. Moreover, I feel strongly that there could be no more propitious time than the present to set in motion efforts to this end.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

United States Army X Ray Manual. Authorized by the Surgeon General of the Army. Prepared under the Direction of the Division of Röntgenology. Illustrated. New York: Paul B. Hoeber, 1918. (Price, \$4.)

This admirable volume is indispensable to any one using the standard U. S. Army x ray equipment and contains information and practical details of the greatest service to every Roentgenologist. The section on x ray physics describes the production and properties of x rays and especially the Coolidge tube and its use. The proper voltage is the factor of prime importance in all x ray work. This controls the quality of the x ray and the contrast obtainable upon the fluoroscopic screen or upon the photographic plate. It is secured by proper regulation of the resistance of the x ray tube itself. The U. S. Army portable x ray unit consists of an iron table beneath the top of which the opaque tube box may be slid back and forth; a transformer, and a gasoline engine and alternating current generator. The latter also supplies current for the Coolidge tube filament transformer. The radiator type of Coolidge tube is used and is

not intended to stand more than ten milliamperes for not over forty-five seconds.

The U. S. Army bedside unit comprises a transformer designed to run on the current obtained from any alternating current electric light socket, a radiation type Coolidge tube which is self rectifying and a counterbalanced tube stand. When the lighting circuit furnishes direct current a portable rotary converter is required to supply alternating current for this bedside x ray apparatus. Under the head of fluoroscopy is described Dessanes fluoroscope, which can be used in the ordinary way or may be turned back over the forehead, leaving the observer's eyes covered by ruby glass. This is to prevent exposure to the ordinary bright light of the operating room and consequent loss of sensitiveness to the relatively low luminosity of the fluorescent screen in case of frequently repeated fluoroscopic observation as in the localization and removal of foreign bodies. The eyes should be shielded for ten or fifteen minutes before beginning fluoroscopic study. "If one begins in less time there is likely to be unnecessary exposure of patient and operator, and inefficient and unsatisfactory results obtained."

The section on localization is the most important part of the volume. It describes only a few of the sixty or eighty methods which have been devised; but these are the simplest and best, and each method is made perfectly clear. The Hirtz compass, for example, could be successfully employed from a study of the instructions to be found here. Among the very new methods is Strohl's. This, like most of the others, has the tube box under the table and the fluoroscope over the patient. The tube is placed in such a position that the central ray passes through the foreign body and the fluoroscope is fastened where its centre is at the image of the foreign body. Wires a certain distance apart cross the opening of the tube box and their shadows are seen above and below the image of the foreign body. The tube box is moved in one direction until the shadow of one wire coincides with the displaced image of the foreign body, and a metal marker is placed there. Then the tube box is moved in the other direction and another marker is placed where the shadow of the other wire and the second displaced image of the foreign body coincide. The space between the two markers is measured upon a ruler the graduations upon which do not indicate the distance between the two markers but the depth of the foreign body in centimeters. No calculation is required and no reference to a table of depths corresponding to different displacements of the image. The most surprising part is that the distance from the anticathode to the fluorescent screen does not have to be known and that the displacement of the image of the foreign body is the same, no matter what the anticathode screen distance may be. Others are devoted to examination of the bones and joints and of the thorax and gastrointestinal tract. These are comprehensive and accurate. The illustrations are excellent and show exactly what they are intended to. The bookmaking is excellent. The volume is commendable in every way.

Massage and the Original Swedish Movements. Their Application to Various Diseases of the Body. By KURRE W. OSTROM, from the Royal University of Upsala, Sweden. Eighth Edition, Revised and Enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co., 1918. Pp. vi-195. (Price, \$1.)

This, the eighth edition of this handbook, is edited by P. Silfverberg, with some suggestions and modifications, following the death of the author. It is an illustrated reproduction of lectures delivered before the nurses training schools of a group of Philadelphia hospitals. It takes up the general principles and applications of Swedish movements, with their physiology, indications and contraindications, in a very simple, clear, and concise manner. The latter half of the work is devoted to the application of massage and movements to various diseased conditions of the body. For those interested in the subject it will provide an outline of both the theory and technic of application in a convenient and pleasing form.

The Hearts of Man. By R. M. WILSON, M. B., Late Assistant to Sir James MacKenzie, under the Medical Research Committee. Illustrated. London: Henry Frowde and Hodder & Stoughton (Oxford University Press), 1918. Pp. xx-182.

The object of this book, as the author himself says, is to increase investigation into the phenomena of the circulation and nervous system which have not been previously investigated from the purely clinical standpoint. He thus came to identify and explain, in this small volume, two types of breathing, and the analyses of these curves led to results which heretofore had been unexplained and concerning which the author attempts an interpretation. Perhaps the most interesting part in the book is the discussion of the physical phenomenon, related, in some obscure sense, to what the author calls the blood lakes, which is in some way related to the physics of peristaltic of the arteries. We can not, at this time, discuss in detail the entire series of conceptions which the author brings to our attention in such an easily interpreted, concise manner, but at all events, he has given us an extremely interesting and instructive little volume, which, dealing in physical terms, offers a flood of inquiry regarding the problems of the circulation which hitherto have been entirely neglected by the medical professional.

Statistical Manual for the Use of Institutions for the Insane. Prepared by the Committee on Statistics of the American Medico-Psychological Association in Collaboration with the Bureau of Statistics of the National Committee for Mental Hygiene. New York, 1918.

Anyone who has glanced over many of the annual reports of state hospitals is aware of the deplorable situation which exists with regard to the classification of mental diseases. One hospital uses a system in vogue fifty years ago, another is ultramodern, still another puts most of its cases under the head of "unclassified," and so on. Any attempt to collate statistics is thus rendered nugatory. This is one of the reasons for the slow progress of psychiatry, compared with other branches of medical science. With a laudable desire to remedy this state of affairs, the American Medico-Psychological Association and the National Committee for Mental Hygiene collaborated in the preparation of a stand-

ard system of nomenclature which they published in this pamphlet. Its uniform adoption by hospitals for mental disorder, writers on psychiatry, and others, would be a great blessing, even though we may find some features of it at which to cavil. For instance, many psychiatrists would prefer that "involution melancholia" be included under manic-depressive psychoses, that mental deficiency be placed in a class by itself rather than as one of the subheadings under "not insane," and other individual predilections might be found. But on the whole the classification is excellent and we hope will meet instant recognition. There are also included some recommendations for the preparation of statistical tables. In the future, no report of a state hospital for the insane should be prepared without the constant consulting of this manual.

Transactions of the American Otological Society, Fifty-first Annual Meeting. Hotel Chelsea, Atlantic City, N. J., May 28 and 29, 1918. Published by the Society. Volume XIV. Part III. Pp. 364-612.

This meeting of the society was held in Atlantic City, May 28 and 29, 1918, and as is natural to expect in war times, many of the articles are devoted to tests and classifications for men examined in the draft or applying for admission to the aviation service. There is a very complete report of the society's subcommittee to the Council of National Defense, which compiled an index of the availability and qualifications of the otolaryngologists of the country whether affiliated with this or other societies or not. It is interesting to note in an article by Lieutenant Colonel C. W. Richardson, of Washington, D. C., that after exhaustive experiments for the production of suitable ear protectors for the men at the front it was found that the most efficient, as well as the cheapest and easiest obtainable protection was provided by plugs of absorbent cotton saturated with glycerine or vaseline and inserted into the external auditory canal.

Births, Marriages and Deaths.

Died.

AMES.—In Washington, D. C., on Friday, December 27th, Dr. Howard E. Ames, Medical Director, U. S. Navy, retired.

BIRDSALL.—In North Brookfield, N. Y., on Monday, January 13th, Dr. Gilbert O. Birdsall, aged eighty years.

CAREY.—In Elmira, N. Y., on Monday, January 6th, Dr. Clyde L. Carey, aged thirty-five years.

HOLMBERG.—In Whipple Barracks, Ariz., on Wednesday, January 1st, Lieutenant Colonel Carl E. Holmberg, Medical Corps, U. S. Army, aged forty years.

KISH.—In Trenton, N. J., on Saturday, January 4th, Dr. Theodore Kish, Jr.

MIKKELSEN.—In Wells, Minn., on Thursday, January 9th, Dr. Mitchell Mikkelsen, aged seventy years.

SAXMAN.—In Philadelphia, Pa., on Thursday, January 9th, Dr. Nathaniel H. Saxman, aged fifty-three years.

STEALY.—In Charlotte, Mich., on Thursday, January 9th, Dr. Allison B. Stealy, aged sixty-two years.

VAN LENNEP.—In Philadelphia, Pa., on Thursday, January 9th, Dr. William B. Van Lennep, aged sixty-four years.

WADE.—In Brooklyn, N. Y., on Friday, January 10th, Dr. John E. Wade, aged seventy-one years.

WEED.—In Granby, Conn., on Sunday, December 29th, Dr. Alfred J. Weed, aged sixty-four years.

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Original Communications

THE PREVENTION OF MENTAL DEFECT.*

BY H. G. MATZINGER, M. D.,

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In recent years the investigation of social inadequacy and social maladaptation has become focused on mental defect. With this change social problems have assumed an entirely new and different meaning, and it has become more and more apparent that their solution must be sought in previously unthought of ways. It has required much time and patience to educate the interested public in the matter, largely because of the fact that there is an instinctive tendency to regard mental phenomena as more or less mysterious and inscrutable, and perhaps also because there have been so many points of disagreement among those who are recognized authorities. Then again there has been a great lack of statistical and medical data that are convincing. Now, however, reports, surveys, and studies by committees, societies, and laboratories are accumulating so rapidly that we are persuaded to agree with Commissioner Strong's report when it announces that "mental defect is the greatest social problem that confronts the State." If this is true, then it becomes at once important and imperative to study carefully and thoroughly, not only the proportions of this paramount social problem, but also to inquire into its causes, in order that existing conditions may be remedied, and more especially that further increase may be prevented.

The subject seems to imply that prevention of mental defect is possible, and so it is, but it must be stated in all frankness that as yet public opinion is not anywhere near ready to sanction the methods which would have to be employed to secure definite and certain results. Many thinking and knowing people are still far from being convinced that we are right in our estimation of the nature and significance of mental defect, and urge further study and experimentation with methods of relief rather than of prevention. Most of us, however, who come into responsible contact with mental defect, are convinced that since there is no prospect of cure, our interest and our effort should be concerned with prevention. Let us therefore consider what our present day knowledge of the causes has to suggest in the way of prevention.

At the very outset it must be acknowledged that we have only begun to realize how protean the manifestations of mental defect are, and that we really only know and partially understand its grosser forms. It appears from the results of intensive surveys already made, when applied to the State of New York, that we have about fifty-one thousand in our population of the kind that can easily be detected and counted, and who are more or less fit subjects for custodial care. If these comprised all there is of mental defect, it would be comparatively simple and easy to deal with the situation satisfactorily, but it can safely be stated that there exists a much larger number of the higher grades of defectives, whose infirmity is not patent, and who only occasionally become conspicuous by antisocial conduct or failure to measure up to the average standard of performance. It is this larger group who are an ever growing burden to the general public, and who after all constitute the chief menace in that they, much more than the idiot and the imbecile, determine a constantly increasing number of backward, illbalanced, ne'er do well people, people who show a lack of harmony between the intellectual faculties and the moral sense, a lack of judgment, a lack of inhibition, who show impulsiveness, cunning and an inability to resist the greater temptations of life. These are indeed at the present time so numerous that one wonders if democracy can be made safe for the world should they continue to increase at the present rate. We are today expending more time, money, and effort than we appreciate in keeping this group from harm and disaster, and in attempting to correct their mistakes and shortcomings, and safeguard society from the effects of their inability to adjust themselves to the conditions of life in which they find themselves and from the consequent interference with the rights of others. More than this, it is going to cost us still more to make our educational, economic, and judicial systems flexible enough to carry along the ever increasing number of their mentally inadequate descendants.

We are reminded here of a very apt remark made by the late Joseph A. Choate in opening a meeting for the consideration of the mentally defective. He said that the matter presented great difficulties "because there are so many of us." There is as much truth as humor in this statement. Civilization is forever raising the standards, so that many of us, sooner or later, find ourselves among a growing

*Read at a meeting of the American Association for the Study of the Feeble-minded, Buffalo, N. Y., May 31 to June 1, 1918.

number of those who are found to be wanting in some of the essential mental equipment which is required to keep us in the normal class. Take, for instance, Dr. David Starr Jordan's definition of adult feeble-mindedness, "the man who cannot make a living under competition." Many who fail in making a living today would have experienced little trouble thirty years ago, when competition was not as keen. The normal standard of performance should always be the best average performance of the group at the present time.

Human progress involves the development of certain mental powers with their corresponding higher cortical centres, and something over which we have at present no control determines individual limitations in this process. In other words, for some it is possible while for others it is not possible, though all may have the necessary anatomical brain centres. In our day, as Professor Patrick put it, voluntary sustained attention, concentration, specialization, have become the subjective correlate of progress. Very few are able, for many good reasons, to inhibit the functioning of a number of centres long and often enough to specialize in any other one of them, so as to determine progress. Thus it happens that most of us attain only mediocrity, and many will not even reach average development. Nor is it desirable that such specialization should become common, because the average individual is and will always be the most useful member of society. The unfortunate result, however, is that such performance immediately advances the standard applied to everyone. Such individual accomplishment depends more on chance environmental conditions and training than on any other thing. It is rarely a family characteristic, nor is it handed down to the descendants. This is not surprising since Weissmann proved long ago that acquired characteristics are not transmitted, and so there is always room in the upper seats. Modern standards of education have done much to make things worse, because they are planned on these high achievements. Not so very long ago illiteracy was no great handicap, but today the consequent personal and economic loss and waste are enormous.

The census of 1910 shows that we had at that time five million five hundred thousand persons, above the age of ten years, who could neither read nor write in any language. Fifty-eight per cent. of these were white people, and of these one million five hundred thousand were native born. We have today nearly seven hundred thousand men of draft age who can neither read the English language nor sign their names, and so are not supposed to be taken into the army. Something must be wrong with the American public school system, or this could not have happened, unless these persons were all lowgrade detectives. That this is not the case is proved by the fact that the government has let down the bars and has already taken some forty thousand of them into the service.

It is fair to assume that the proportion of males in this group is not greater than that of females. A great many of them are undoubtedly more or less defective, mostly of the high grade types. For these the public school has done and can do nothing, ex-

cept to bring out their inadequacy for intellectual training, and to take them from the assets of the nation and place them among the liabilities. It must in fairness be stated that in some States an effort is being made in the schools to meet the needs of the backward and defective child, and that there is a growing and promising recognition of the need of special methods and special schools for the unusual child. But so far the ungraded classroom in the public school is merely a haven for the very defective child of school age, who should be in institutional care. Much salvage could be effected here, and hopeless mental defect prevented, by suitable training. The good results obtained in cases of low grade intelligence in the better institutions for defectives are the best kind of guarantee that proper methods employed earlier in the formative period of the individual's life would not only prevent deterioration, but would develop the faculties present in such a way as might result in fairly good citizenship. We have then, first, in the elimination of illiteracy, and, second, in the early recognition of the need of special training with well planned methods, one of the very important ways of preventing serious mental defect.

Let me call your attention now to another matter which should receive serious attention—the pregnant woman. Do not for a moment think that the popular conception of prenatal influence is worthy of any serious consideration. Any one who will inquire into the claim of mental influence as such upon the fetus, determining abnormality either in physical or mental makeup, will soon come to the conclusion that it is an afterthought. Some popular explanation must always be made by the parent, the friend, or the family physician, to account for the birth of an abnormal child. But the physical health of the pregnant woman is a matter of considerable importance. Serious chronic disease, as well as acute diseases and infections occurring during gestation, may and often does so disturb the nutrition and the orderly development of the fetus that marked defect results. Even the mental state of a woman, if it is disordered long enough to affect her general health, may have untoward results. It is equally true, however, and commonly observed that insane women will bear apparently normal children, and that women who are ill treated and misused, or poorly housed and fed during pregnancy, very commonly give birth to normal children. In general, however, it is very important at the present time to make the environment of the pregnant woman as free from anxiety and hardship as possible, and to manage in the most careful way any acute or chronic disease which she may have.

Much more apparent are the defects resulting from the accidents of abnormal parturition. Though the head of the child can bear much distortion from gradual and not too prolonged pressure, the limit of tolerance is easily reached in abnormal labors, with consequent hemorrhages on or into the brain. Very minute extravasations of blood and lacerations of brain substance may result in cerebral palsies and in abnormal mental development. Every one of these children who sustains a hemorrhage, no matter how small, will show some mental defect as he

grows up. Too much stress, therefore, cannot be laid on the importance of expert management of labor as a prevention of mental defect.

The serious diseases of early infancy as well as prolonged malnutrition, due to difficulties in feeding, such as often obtain whether the mother can or cannot nurse the child, may determine disturbances of evolution which first appear as backwardness and later as mental defect. Here much is already being done by the pediatricist in preventing delayed and disproportionate development, which so commonly determines a discrepancy between the mental and the physical age of the child, and which quite as often results in mental as in physical defect. It stands to reason that insufficient and improper food supplied for a long period of time in those early years of life, when the brain as well as all the body is growing so rapidly, must result in subnormal development with consequent defective function. Serious disorders of nutrition and metabolism are well known to leave a lasting mark on the individual.

A very important addition to the understanding of the nature and prevention of a certain group of mental defects was made when medicine demonstrated the possible and probable function of the internal glandular system or the endocrine system, as it is technically called. This group of ductless glands is now known to control metabolism, tissue growth, and most of the important functions of the body. It also determines the epochmaking changes of different periods of life. Some of these glands are active all through life, while others function only through a certain period, when their control ceases and is assumed by others with very different action. At all times there is absolute need of a fixed balance of interaction of control by these separate glands. If this balance is not properly maintained serious disturbances develop which may become permanent defects of growth and function. They are collectively known as the endocrinopathies. Gigantism, infantilism, cretinism, and myxedema, are among the more marked and striking effects of endocrinal disorder, and all of these are associated with mental defect.

At no time in life is there anything like the phenomenal evolution of development of mind or body as in the period of infancy and early childhood. It is easy to see how, if in this period of rapid growth any organ or tissue falls behind, harmonious development is interfered with in such a way that the rest of the organism must in some way accommodate itself to a lower and less symmetrical type of further growth. The important endocrine glands operating in this period of childhood are the thymus, the pineal, and the thyroid. When any of these functionate abnormally disturbances of evolution are certain to occur. Just which of them determines a given disorder is as yet impossible to say, because they are so closely related in their action, but it is quite certain that a mentally and physically backward or defective individual will result. If the pineal gland, which is part of the brain, ceases to functionate too early, the individual shows precocious sexual development. The breasts enlarge before their time, also the other

sexual organs. Body hair, which belongs to a later period, begins to appear, and often early menstruation. If, on the other hand, the pineal gland fails to atrophy at the proper time, infantilism results, with backwardness of growth and mentality. If the thymus gland continues to act beyond the normal time the infantile appearance of face and body persist, the bones do not harden, the muscles remain weak, and yet there is some growth. Together these conditions give the appearance of precocious ageing with the corresponding mentality.

Fortunately nature often manages to compensate at least partially for failure of one gland by increased action of another, or by a combination of several, and so typical and very marked results are not often seen. Still some traces of defective evolution are bound to remain as permanent physical and mental defect. It is altogether likely that temporary and less marked disturbances of endocrinal control occur very often, especially in early life when there is such tremendous growth of tissue and function. Any break in orderly evolution must leave traces which in the nature of things cannot be entirely overcome, and which later on, when growth is completed, manifest themselves as defects. Many of the more marked endocrinopathies have been favorably modified by treatment with gland extracts, and some day, no doubt, we shall be able to detect these disorders early enough to prevent much mental defect of this origin.

Another means of prevention, and one which presents great possibilities of good results with a fair prospect of successful application, is the control or, better still, the abolition of the use of strong alcoholic beverages during that period of life when procreation is possible and natural. Everyone has observed that the children of the drinking man or woman are very commonly defective in mental development. It seems to happen oftener in the family of the so called moderate but steady drinker than in the family of the periodical or excessive drinker. Alcohol is one of the poisons not easily handled in the body; in fact it is not possible for the average normal adult to oxidize more than two and one half ounces in twenty-four hours under the most favorable circumstances. Any excess remains in the tissues and has the peculiar effect of so modifying the chromatin of the germ cell nucleus that it can never recover, and so forever after it bears the stamp of defect. If fertilization with such a crippled cell occurs, the resulting individual bears the mark of defect. This in itself would not be so serious if it was confined to the one individual, but the cells produced by this cripple carry the stamp of the parent cell, and cannot again be made whole. Therefore, the defect becomes hereditary.

Very convincing proof of this came a few years ago in a series of experiments made by Stockard and Papanicola. They carefully selected true breeding guineapigs and subjected them, in specially arranged cages, to an atmosphere saturated with the vapor of alcohol. After becoming accustomed to living in this atmosphere, the guineapigs were allowed to breed, and as soon as they became pregnant were removed to the best possible normal surroundings. Note what happened. The litters were

smaller and more of the young died soon after birth. Almost all of the young showed difficulties in nursing and obtaining food and also in the assimilation of food, as was shown by indifferent growth and frequent signs of illness. Almost all of the animals which survived showed some abnormality, as compared with the parents. There was asymmetrical development, paralysis, blindness, peculiar markings, and other defects. The most significant result, however, was this, that when these defective animals were bred to normal mates who had not been treated with alcohol, they invariably transmitted their defect. This continued through five generations, which was as far as the observations had been made at the time of the report. Of course you will say "pigs is pigs," but is there not in this a significant parallelism to what we so often observe in the families of alcoholics and in the perpetuation of mental defect in their descendants?

There are no doubt many other chemical poisons which may and do modify the germ cell, but this one we know and can manage, at least we should make an attempt to do so. Some of the toxins produced by bacteria and other pathogenic organisms which invade the body may also have a deleterious effect on the developing germ cell, but we know less about them. We do know something of the disastrous effect of the toxin elaborated by the *treponema pallidum* of syphilis. Here the effect is in the way of producing sterility in the descendant, and so the line ends soon. This is not true of alcohol. Indeed, it is not overstating the facts, as they are known, to say that of all the causes of mental defect alcohol is the chief one. A little reflection will suggest that syphilis is most frequently acquired during the inhibition of judgment produced by alcohol. The same is also true of illegitimacy. Fortunately we are now in the way of getting popular aid, through national prohibition, to assist us in eliminating this source of mental defect.

We now have to face another aspect of the question of prevention of mental defect. Much that has been suggested thus far has to do only with the individual himself; some forms of mental defect are no doubt congenital or acquired, and so have little to do with heredity. We are all well aware of the bad effects of hybridization in animals and plants, but we are not quite as ready to believe that the indiscriminate mixture of races and different strains of blood are potent factors in producing defect in human beings. No one who has any practical knowledge of the matter will deny that it produces stock deficiency which is more than likely to show up all manner of abnormality, and which sooner or later ends in sterility. This is in accordance with Morel's law, that defect tends to become more marked with succeeding generations.

In all probability this depends upon some disturbing effect in the mitosis of the germ cell. It is fairly well demonstrated by studies in cytology that the chromatin of the germ cell nucleus regularly arranges itself into a definite number of pairs of rods or chromosomes when it divides to form new cells. The well grounded presumption is that each order, species, and family has fixed and definite chromatin and pairing characteristics, so that with sufficient

knowledge it would be entirely possible to tell by the kind and number of chromosomes in a cell what kind and variety of animal it came from. In addition there are so called determiners in this chromatin material which have to do with sex and other individual characters. It does not require a great effort of imagination to see how chance mixtures of chromatin material by hybridization must disturb the mitosis of the cell in such a way that not all the cells will have the same amount or the same proportion of chromatin constituents, and so abnormalities result when fertilization occurs.

Nature has no use for the hybrid. The mule, who, as some one put it, has neither pride of ancestry or hope of posterity, is a striking example of this. Hybridization does not occur without the intervention of man. In nature different species and families of animals and plants live together in the same locality for unnumbered generations and always remain pure. If mixtures occur they must disappear quickly, for they are never found. Man has changed this for the domestic animals and plants. Civilization has changed natural selection for man, so that the native instincts are no longer a controlling factor in the choice of a mate. Thus it happens that we have become a hybrid people, who, making a virtue of necessity, pride ourselves on having all kinds of blood in our veins—the more the better. The inevitable result has been, just as in the domesticated animal and plant, the determination of stock deficiency. No intelligent dairy man will undertake to run a dairy farm with ordinary cows, of whose antecedents he knows nothing. He knows well that they will neither earn their board, breed well, take care of themselves, nor keep well, and so he stocks his farm with cattle of as near pure strain as he can. Moreover, he breeds them to the best specimen of that family which he can find. We have much to learn from the cattle breeder.

Hybridization with pure stock does one thing which has been very misleading, in that the next family usually shows, to a surprising degree, the dominant characteristics of the stronger parent. These, unfortunately, are again lost in the third family, as is so clearly shown in the mendelian experiments. With mixed stock, on the other hand, it does another thing which has been quite as misleading. It occasionally determines the appearance of what the botanist calls sports, or very unusual descendants. In the human race the sport is the genius, who, like his analogue in the plant family, can hardly maintain himself and usually is sterile or almost so. Unfortunately the genius has been regarded as marking the high point of human development, but in fact it is not so. He is a defective and a very helpless one sided individual. We must carefully distinguish here between talent and genius. Talent belongs to pure breeding stock and can always make good under any circumstances, while genius belongs to mixed stock and can accomplish results only under inspiration and when conditions are entirely favorable. Of course we can use the genius as we can many other byproducts, but he is not essential, and is undesirable in race propagation.

Stock deficiency is the background upon which physical and mental defect develops. Both are hereditary and both may and do result from hybridization. Too close inbreeding is quite as productive of undesirable results, though of somewhat different kind, because it determines only stock inferiority. We have a remedy for this condition. Infusion of new blood from a different strain of the same family or kind will rehabilitate the stock. Here the germ cell has not been changed in character or kind of chromatin material, but for the results of hybridization there is no possible hope of improvement, and if left to nature will die out.

There is a natural law which we know little about but which we try to define by saying that birds of a feather flock together. This law, if allowed to take its course with humans, works, with Morel's law, to the certain extinction of hybrid stock in a few generations. In the United States hybridization is unquestionably a big factor in the development of defect as it is in the appearance of genius. Any attempt to better the race must take into consideration the fact that mixed stock can never be made pure, and that undesirable traits if they disappear in breeding, are only repressed, to reappear sometime in a future generation. Eugenics therefore has no place here, since breeding for a purpose is scientifically and practically impossible with mixed stock, and can only result in further disappointment. We thus arrive at the inevitable conclusion that heredity is after all the one important factor which must be successfully met in order to make any great change in the incidence of mental defect. It is granted that acquired mental defect may exist, but if so it must also be admitted that such defect is not likely to be transmitted, because the germ cell is not necessarily damaged through any accident sustained by the individual, and so the trouble ends with that individual. We must learn to think of the human body as merely a carrier or a convenient housing of the germ cell and its needs, and that nothing matters so long as this cell, which insures the perpetuation of the race, remains normal. The vitiation of the germ of life becomes, in the light of this, the greatest possible crime against nature, and well deserves the certain punishment of final extinction, which she administers.

The only way of preventing mental defect that is scientific and offers any prospect of relief from the inherent dangers of the present state of things, is *the absolute and certain prevention of descendants from the mentally defective. There is no alternative.* How this can be accomplished is another question. The unfortunate victim has, however, every right to a happy and successful life, and this we must endeavor in some way to supply or to make possible, but let us have done with the sentimental delusion that environment and training, no matter how they may improve the individual, can in any way change his heredity. You might as well expect a sour apple tree to bear sweet fruit because you have carefully reared it, and have patiently sprayed, pruned, and fertilized. There will be more and better fruit, of course, but it will always be sour. Moreover, every seed matured in

this fruit will when planted grow into a sour apple tree. Just so the characteristics and the heredity of the child are determined long, long before it has a separate existence. The possibilities as well as the limitations of its life are fixed in the microscopic germ cell by the inflexible laws of nature.

SYMPTOMS CAUSED BY GRANULAR CATARRHAL CONJUNCTIVITIS.

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A most important determination in the routine examination of the eye is the condition of the conjunctiva. Because of its prevalence and troublesome symptoms the dry, finely granular catarrhal conjunctivitis is seen more frequently here than any other conjunctival affection. It is not confined to the poorly housed and those subjected to dusty and irritating atmospheric surroundings because it is found to occur frequently among those whose living conditions are above fault. The conjunctiva appears slightly redder and drier than normal and on close inspection collections of minute raised points can be made out on the palpebral surfaces, particularly marked on the upper lids. Secretion is found only in the advanced stages and then consists of a dry hard crustation at the inner canthi in the morning. The margins of the lids in many instances become reddened, the result of the disease extending over them and are then very unsightly. Occasionally the palpebral fissure is narrowed (ptosis) because of the tendency on the part of the upper lid to be quiet and escape the irritation produced by movement of the lid over the globe. A marked imbalance of the vertical muscles is not uncommon.

The local symptoms are itching, burning, and pain. The itching is variable. The burning sensation is very annoying and is worse in the afternoon. Pain, when it exists, is sharp and cutting occurring in the back of the eye and frequently reflected to the occiput. The general complaint, most frequently heard, is drowsiness that occurs in the afternoon, especially in those whose eyes are employed at close work. Headaches are usual and occur as a rule above the eyes and are reflected to the occiput, although they may simulate the headaches produced by certain errors of refraction or extrinsic ocular muscle imbalance. As a matter of fact many who have applied for relief had thought they required glasses, but examination determined the cause to be this type of conjunctivitis. Vertigo, malaise, insomnia, and the so-called dyspepsias are not uncommon concomitants and it is surprising to note these distressing conditions disappear when the conjunctiva has been polished by a course of treatments. The usual dry finely granular catarrhal conjunctivitis responds to applications of nitrate of silver solutions to the palpebral conjunctiva every other day and at home a zinc solution is dropped into the conjunctival cul de sacs three times daily following a warm water lavage.

SOME AFTER THE WAR PROBLEMS OF
MEDICINE.*BY IRA S. WILE, M. D.,
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For the ordinary military man the war is over, although peace terms have not been defined and months will elapse before signatures will confirm the adoption of a treaty which is to ensure peace and justice for the recently warring countries. The battles of medicine, however, are still being waged, and the struggles against diseases and disability will be continued after the last delegate has, with happy or with heavy heart, departed to dwell again as a citizen in the country he represents.

Reconstruction is the keyword of the day. In the reorganization of social and economic institutions made necessary by the vital, social, and economic alterations throughout the world, medicine will be subjected to various contractions and expansions, to transformations in methods and readjustments to meet the newer ideas created and fostered by martial exigencies. Without seeking to preserve a logical order, or to justify my position by heaping up evidence or by presenting accumulated statistical data, I am venturing to point out some of the problems in medicine which are already looming up as a result of the experiences of the profession and the nation in the serious work of war.

Team work has been a characteristic in the military medical organization. Doctors have been released from the spirit of competition and their energies have been directed along cooperative lines. Individuals have offered their complete diagnostic skill in the interest of the patients who have received the benefits of a combined and balanced judgment. The surgeon, the medical man, the neurologist, the laboratory worker, the röntgenologist have cooperated to establish diagnosis and to determine the methods of treatment. It scarcely seems possible that these men are to return to their communities charged with their wonted individualism after a splendid experience with the value of social or group effort. Will there not be as a result an increase in the development of the so called diagnostic clinics and a marked advance in the practice of group medicine? While commercialism will undoubtedly remain, the tendency will be toward competition among groups working as a unit rather than among isolated units competing for favor, stimulated by jealousy, dichotomy, and strongly individualized efforts.

Hundreds of men have gone from their general practice in moderate and small sized communities into fields of special work, into the mysteries of which they have been inducted at the cost of the Government; while on the other hand, specialists have been turned aside from their particular field of superior work and interest to perform types of service in which, previously, they had had little interest, and, possibly, less skill. As a result, the general horizon and standard of medical knowledge has been raised, and, similarly, a better understanding of the importance of all phases of medicine has evolved. Is specialism to become more general in

smaller communities? If so, there will be developed a higher type of medical practice in villages with a probable organization of small well equipped hospitals supported by cooperating physicians, county medical societies, or under the auspices of some larger unit of the body politic. Thus the rural population may have the benefits of a higher type of medical care than was possible before the war. Large cities, on the other hand, may find a surplus of specialists whose readjustment will become difficult, unless adequate means are provided to enable them to continue their special activities or they will revert to a type of practice in which their special knowledge may be wasted. The reassimilation, then, of the medical officers constitutes a real problem even though no special consideration is given to those who return with the handicaps due to disease or disability resulting from their military experiences.

The urban specialist will encounter fewer difficulties in reestablishing himself in practice than will the doctors who gave up general practices which in a sense have become distributed among their colleagues who remained at home. The unscrambling of practices is by no means a simple matter, because, after all, patients have the right to choose and select their medical attendants, just as physicians possess the right to accept or reject patients. The specialist possesses a medical clientele rather than an established practice among the laity, and his return to a normal status is more likely to be rapid than that of the general practitioner. There is a great doubt in my mind as to the completely satisfactory adjustment of fees and emoluments received by physicians who agreed to return a share of their financial rewards to those whose patients they were treating, and who, indeed, agreed not to accept patients of men who had gone into service during the year following their return to practice.

The injured physicians afford a speculative problem because the nature of the readjustment to be made depends upon the character of their handicaps. Every opportunity must be made to deal fairly and justly with them so that their handicaps shall in no way interfere with their ability to achieve financial independence. Preference should be given to such physicians in appointments to positions in which they can function most satisfactorily in the interest of communal health. When imperative reeducation and rehabilitation in nonmedical service will be afforded under the splendid plan outlined by the Government through the War Risk Insurance Bureau, the Federal Board of Vocational Education, and the Surgeon General's Office. The multiplicity of special hospital organizations promises a readjustment in the entire scheme of hospital development with a greater recognition of their service and importance and a fuller measure of public support for their establishment and financial administration. The extension of clinical facilities will, of course, be of particular value, but no less so than higher standards of equipment and personnel which a greater modernization of medicine demands.

The national recognition of occupational therapy

*Read before the Hunterian Medical Society, December 17, 1918.

and physical therapy as applied to the cure of physical disabilities and the prevention of mental and physical handicaps will exert considerable influence upon the internal adjustments to be made among general hospitals which hitherto have given inadequate attention to these branches. A greater consideration of the psychological factors entering into the cure of the sick and the crippled will mark the solution of some of the difficulties which have been pointed out in the extension of social service work in various sections of the country. The problems of rehabilitation of soldiers, sailors, and marines will be transferred to the rehabilitation of all who suffer in the war for existence. There is a growing understanding of the difference between a clinical cure and a return of function and the complete restoration of patients to their potential capacity. The development of special and general dispensaries, cooperative hospitals, special institutions, under county, State, or national auspices, for the care of specific conditions, insufficiently numerous in any single district of the country to warrant a small hospital, will give the general public the benefit of advantages which national solicitude provided for citizen soldiers. Medicine will seek to offer to the citizens in time of peace all the benefits of medical science recently provided for citizens at war.

The shortage of physicians in Europe, and, in fact, the decrease of the available supply of medical men throughout the world constitutes a serious problem. Quackery, sectarian medicine, and pseudomedical cults have taken advantage of the shortage of physicians to advertise themselves. Unless wise counsel watches over new legislation the profession which was called upon to bear the brunt of activity during war will be besieged by unscientific propagandists seeking to curtail their opportunities and attempting to restrict their progress and the advancement of the sciences of which physicians are the best exponents. A large number of American physicians will undoubtedly remain abroad or return there to take advantage of the remarkable opportunities which exist. There is a particularly unfortunate lack of medical men and women in the countries which, while at war, were so shortsighted as to break up in large measure their medical institutions with a consequent diminution of the output of medical licentiates. There is a danger also that many doctors, having secured a more specialized training, will feel it their duty to seek large cities instead of returning to their rural practices. The redistribution of medical men may not be great, but it at least merits consideration, in the light of the recent experience of sparsely populated sections of the country during the epidemic which took its deadly toll throughout the world.

There are some definite tendencies evidencing the high position which public health now assumes in the minds of the general public. There is a greater recognition of the increased value to the community that results from the organization and cooperation of larger units. It is difficult for one doctor to be effective in public medicine. Municipal, State, and national organizations have demonstrated their capacity for accomplishing marked reforms in

every line. The establishment of district physicians, public health nurses, dental hygienists, dispensaries for whooping cough, tuberculosis, venereal diseases, ambulance stations, communal hospitals, and similar public clinics, directed by paid medical inspectors, or paid sanitary officers is most suggestive of the growing tendency towards the socialization of medicine. There will be a marked increase of public health officers, functioning as fulltime officials, possibly, as has been suggested, as part of a careful organization of health workers under the ultimate direct or indirect supervision of the United States Public Health Service, or a new National Department of Health. Individualized practice will decline as a result of the growth of socialized medicine. The greatest problem that arises in connection with this tendency is that of securing a type of legislation or a growth of public opinion which will warrant the appropriation of funds adequate to supplying the needed medical officers with salaries commensurate with the work they are called upon to perform.

The great mass of labor of the country has at last awakened to the financial and social value of health. With due and proper conservatism and some degree of suspicion they have hesitated to accept various projected plans for the improvement of their physical welfare. At last, however, labor has recognized the advantages of annual medical examinations, industrial hygiene, safety first efforts, and is desirous of securing the economic and social laws which will make possible a healthier and happier existence. It is most probable, therefore, that among the pressing problems growing out of the war, there will appear a renewed interest in health insurance, pay clinics, and cooperative medical organization under the auspices of trade unions or under the direction of united trades or large corporations.

Industry has sought to decrease the amount of morbidity and disability due to inherent hazards of employment, and industrial hygiene has advanced remarkably in the past four years. Undoubtedly, corporation hospitals with paid staffs will become part of the industrial machinery as a result of legal mandate just as certainly as first aid packages are now obligatorily supplied and adequate first aid attention is provided in establishments employing many workers.

A new value has been given to human life and the questions of repopulation and eugenics are receiving increasing attention, as, indeed, are all factors that tend to advance the physical, mental, and moral welfare of the growing generation. The future will see the extension of prenatal care, improved obstetrical attention, increased convalescent care, infant and child welfare stations, or health centres, examination of children during the pre-school age with a program for following up the children so that the remediable defects may cease to exist before school work is begun. The medical inspector of schools, the school nurse, the dental hygienist, the mental hygienist, the industrial hygienist, the specialist in accident prevention, the organizers of preventive work against tuberculosis, venereal disease, accidents, and similar matters relating to public welfare will be fostered and en-

couraged. These phases of activity will be demanded, not merely by public health officials, but, because of the impetus of war time efforts, by the great mass of the general public, who have awakened to the menace of indifference and carelessness where human life is concerned.

In a sense, public medicine is coming into its own. This does not, however, mean doing away with a competitive system of medical practice. It involves a recasting of our attitude toward public health. The socialization of medicine merely provides an opportunity for adequate medical care for all the people. It accentuates the prevention of disease and accident rather than its cure. It is founded upon a recognition of the worth of the human body and mind as a national asset. It seeks to preserve assets rather than to offset liabilities.

Among problems there must also be considered the complete change which in all probability will attend medical service in institutions. The theory that the medical experience of medical attendants at dispensaries and other institutions is sufficient reward for services rendered is fallacious. In a sense the medical profession has willingly sponsored a large charitable enterprise, which in fact is a communal responsibility rather than one to be assumed by the profession. The future will find medical services remunerated in proportion to the time given, the character of the services performed, and the relation of the individual achievements to the public weal.

One more phase of the problem. Medical education will undergo sundry changes to make the adjustments that war has proven necessary. Intensive study has demonstrated how much can be accomplished. There must be an elimination of the wasted time in education. The years of elementary school are all too long, and six years will suffice instead of eight without loss of educational worth. The secondary school studies may be accomplished in three years in place of four, and collegiate work combined with medical college should not embrace more than seven years longer. This would enable the man beginning his education at the age of six to be graduated in medicine at the age of twenty-two, ready for postgraduate instruction in hospital, research laboratory, or in pursuit of special facility in any one of the specialties. The medical curriculum will undoubtedly be readjusted to accord with what experience has deemed necessary in order to overcome its demonstrated shortcomings. One might well ask whether medical schools should not be in session all year round with eight or nine months devoted to didactic and clinical studies, and with three or four months of each year spent in training, under supervision, at hospitals, clinics, and special medical institutions. By these means a regular graduate at the end of four years would have had his thirty-two or thirty-six months of medical instruction, plus twelve or sixteen months of training in clinical, laboratory, and other practical lines. From the standpoint of organization and administration four three month terms would be advantageous. Many of the specialties are to receive less attention in their details, while a greater measure of importance will attach to the varying

and growing number of topics in preventive and sanitary medicine, in relation to all the branches now deemed essential in general medical education.

It is manifest that out of war will and must come a higher rather than a lower educational standard for medical men. Compulsory hospital training can no longer be put off. The improvement of the medical profession has gone on apace, but the past two years have given an impetus that could not have been achieved during the days of peace within a generation. The standards of premedical and medical education and training must be adjusted rapidly to meet the needs of the immediate future. Of considerable importance is the institution of a uniform medical practice act for all States. The standards of practice should be such as to provide for the acceptance of graduates in medicine in any and every part of the country. A national examining and licensing board, such as the National Board of Medical Examiners, is imperative, possibly working through State Boards of Education, or State Boards of Health. A system of international certification of physicians also merits consideration.

In brief, the after-the-war problems of medicine are those which tend to improve the organization of medical systems for developing public health and public health officers. Every physician of the future in his private capacity may attend individuals, but in his public capacity as a citizen doctor he will be an instrument to preserve the public health. All the problems that have developed from the war are those which contemplate making possible and tangible medical cooperation rather than individual competition. Attention is to be focused upon the mass rather than upon the unit. Private personal health will be appreciated as a constructive phase of that great abstraction, public health. The medical profession, in contemplating the enormity and variety of its problem, has an opportunity to rise to a higher plane of activity and service than it has ever known. It is safe to conjecture that the opportunities will not be cast aside, nor will the end results be dissonant with those claims for service which have been the basic principle of a profession that claims its origin in divinity and first functioned through a priesthood.

230 WEST NINETY-SEVENTH STREET.

Multiple Skin Metastases from Cancer.—Nobuyoshi Suzuki (*Journal of Cancer Research*, October, 1918) analyzes 110 cases of this rather rare condition, which he has collected from the literature, and to which he adds five of his own cases. In four of these autopsies were made. Among the facts brought out by this study may be mentioned the following: The site of the primary tumor in more than one half of the cases was the digestive organs; adenocarcinoma and medullary cancer most often metastasize. The skin metastases are mostly in the nodular form, and diffuse infiltration is rare. The abdomen and thorax are the favorite sites of the skin metastases. The prognosis is unfavorable, as most of the patients die within three months from the first appearance of the skin metastasis.

THE INFLUX OF VENEREAL DISEASES THROUGH THE MERCHANT MARINE.

BY WILLIAM MOORE, M. D.,

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Surgeon, S. S. Minnesota.

As a ship's surgeon my attention has been drawn to the increasing number of cases of venereal disease among both crews and passengers since the outbreak of the war and to the almost total lack of precautions taken, either in home or foreign ports, to prevent those afflicted from landing and spreading these diseases broadcast. Our crews are composed of men from all parts of the United States, and its possessions, including many from the Philippine Islands, with a fair sprinkling of European born. On one voyage just completed eleven nationalities were represented in our crew. No examination is made of the crew prior to signing on, this omission being necessary to preserve peace between the contracting parties. Among a crew of 250 at least ten will have venereal disease on sailing day. During the voyage of two weeks, five new cases will develop. Regardless of the foreign port of destination, fifteen new cases will be added for the return voyage to the United States. Some of these cases are concealed from the surgeon, often those of most virulent character, but such news travels swiftly on shipboard and unless the patient is unable to perform duty—in which case he is "logged" two days' pay for each one off duty—he pursues his way infecting as he goes.

Upon arrival at the home port, those patients who have been cared for by the ship's surgeon are ordinarily under control, and sufficiently recovered to encourage them in indulging in venereal and alcoholic excesses, thus multiplying at a fearful rate these diseases in cities along our coast, and still worse, carrying it inland to previously comparatively healthy localities. These conditions apply especially to our Navy Guard and "Shipping Board" men, many of whom are making their first voyage and through inexperience fall easy victims to the allurements of foreign cities.

The use of prophylactic treatment in ship service has given such satisfactory and positive results that it would appear easy to reduce to a minimum the number of such patients capable of transmitting disease. The means of accomplishing the elimination of this addition to our already unnecessarily large class of the "venereal" might be placed under the following heads:

First: Compulsory examination by a surgeon, by order of the shipping commissioner (and certified by him as competent) of the crew immediately before signing articles.

Second: Compulsory treatment, until return to home port, of any case sufficiently well to be permitted to sail, the surgeon's fees to be deducted from wages of patient.

Third: Refusal by port authorities of permission to aliens to land during detention of ship in port.

Fourth: Detention of all American citizens, in quarantine, until cured.

Fifth: A penalty, by logging, for failure to re-

port for prophylactic treatment, daily, after shore leave in foreign ports.

Sixth: A thorough examination by ship's surgeon of all members of crew, not sooner than four days before arrival at home port.

It is not uncommon to find members of the crew whose duties require preparation, cooking, and handling of food, dishes, and bedding, affected with contagious venereal disease, thus exposing passengers and other members of crew. These men frequently have no scruples about continuing on duty. Especially during the war, the tendency has increased for crews to "strike" for trivial reasons, often on sailing day, thereby delaying despatch of ships and mails, therefore such examination and regulations as above suggested cannot be enforced except by official order. Does it not seem necessary that concerted action be taken to change this serious menace to national health?

SOME CLINICAL ASPECTS OF THE RECENT INFLUENZA EPIDEMIC.*

BY AUGUSTUS A. ESIENER, M. D.,

Philadelphia, Pa.

The epidemic through which we have recently passed was noteworthy for the relative rapidity of its invasion, the wide extent of its distribution and the comparative suddenness of its decline. It seemed comparable to a conflagration that burned fiercely until it had consumed the inflammable material within its sphere of action. I should judge that about eight per cent. of the population was attacked by the disease, with a mortality of between eight and ten per cent. Many mild cases were given scant or no attention. As with infectious diseases in general the prevalence was greatest where congestion was densest and human intercourse most intimate. It seemed as though adults between twenty and forty suffered most, although children by no means escaped, while old persons were attacked in smaller number. Negroes appeared to exhibit little susceptibility to the disease. The number of pregnant women attacked was striking, although the proportion may not have been excessive. The association was not a happy one. The exact nature of the disease will have to be established by the bacteriologists. By reason of the dominance of pulmonary symptoms and the hemolytic manifestations and the character of the lesions, the clinicopathologic picture was suggestive of the disease reported from our military camps in the autumn and winter of 1917-18.

Clinically the disorder took the form of an acute infective process of which the respiratory apparatus bore the brunt in the vast majority of cases. The onset was in general insidious rather than abrupt, with chilliness, commonly repeated in the course of the attack. Backache, headache and general pains of varying degree of severity were early symptoms. The temperature course may fairly be described as erratic, and did not always bear a direct relation to the severity of the other symptoms. Sometimes it was high (105°) in an apparently mild case, while it might be moderate in the presence of conditions

*Read before the Philadelphia Clinical Association, December 2, 1918.

that seemed grave. Again it would fluctuate widely in the course of even a few hours. As a rule it subsided within a few days, to rise again after an afebrile interval. Not rarely it ascended again from several to many days after the attack had apparently come to an end, eventually declining by lysis, sometimes over a protracted period.

In some cases there was coryza. Nosebleed was not uncommon and at times profuse and repeated. In almost all cases there was cough, although not always at the beginning. Often this was most obstinate and distressing, interfering with sleep, at times from its violence productive of severe pain in thoracic and abdominal muscles, and in some instances inducing vomiting. In many cases there was persistent complaint of a sense of rawness of the throat and behind the sternum. Expectoration was often difficult, yielding a small amount of tough mucus. Quite generally the sputum was blood-tinged, often resembling watermelon juice, at other times being rusty, and in some instances consisting almost wholly of pure blood. Not rarely there was sharp pain in the chest, aggravated by breathing or other movement. Frequently there was dyspnea, at times of great intensity and occasionally attaining to the degree of a veritable airhunger. Cyanosis was common and in some instances quite pronounced. The appetite usually was impaired, at times wholly lost. Nausea was common and vomiting frequent. Usually the bowels were constipated. As a rule sleep was disturbed, often to a marked degree.

In most cases urinary excretion appeared to be normal, but in a number of instances the amount voided was markedly diminished and in some instances there was total anuria for as long as twenty-four hours and more. There was little opportunity to examine the urine during the course of the attack, but examinations made at later periods failed to disclose evidences of nephritis. In one case there was hematuria.

Sweating was a noteworthy and almost distinctive feature, and it could not always be attributed to the medication. In some cases it appeared early and was repeated throughout and even beyond the duration of the attack. Not rarely it was quite profuse and patients frequently were literally drenched in the transudation. Delirium occurred frequently and sometimes was quite active. Some patients in this state got out of bed despite attempts at restraint and walked into the street in their bed-clothes and thus precipitated a fatal issue. One case presented symptoms of meningitis and after apparently responding to treatment the patient died finally after many weeks. In some cases depressive psychoses followed in the train of the disease. Naturally there was, as a rule, considerable loss of weight, and the ensuing debility lasted for a considerable period of time. In mild cases the disease came to an end in from three to five days. Sometimes this period was followed by a remission or intermission, upon which a second febrile period developed. In this interval many patients were tempted to get up from bed, with resulting intensification of the previous symptoms and aggravation of the general condition. Also this period not

rarely marked the onset of symptoms of pneumonia.

The physical signs with reference to the lungs were extremely variable. In some even when the sputum was bloodtinged the physical evidences of pneumonia were not conclusive beyond peradventure of doubt; nor did the subsequent course of the disease bear out the suspicion of pneumonia. In many cases there were slight or more extensive areas of impaired resonance in one or both lungs, with roughened or bronchial breathing, while in a smaller number there were the percussion dullness, the bronchial breathing, and the bronchophony of lobar pneumonia, often associated with the friction-rub of pleurisy and at times with the egophony of an effusion. In some cases the two forms of pneumonia appeared to be associated. I saw one desperate case in which extensive empyema developed. This was successfully operated on and the patient eventually recovered. In two cases the pneumonia was complicated by left sided parotitis, in one attended with suppuration. Recovery ensued in both. Tinnitus aurium and impairment of hearing were observed in a number of cases, in some apparently unrelated to medicamentous origin. In two cases perforative otitis media developed. The absence of articular and cardiac complications, endocardial and pericardial, was noteworthy. The foregoing statements are based on observations made in some 400 cases, all seen in private practice.

1019 SPRUCE STREET.

DOGS AND CATS AS A SOURCE OF EPIDEMIC CORYZA.

By H. H. ROBERTS, M. D.,

White Sulphur Springs, W. Va.,

The recent epidemic of influenza which has swept over practically the entire world with such disastrous results, causing dismay and consternation among the inhabitants as well as the medical profession, has caused the physicians of this country to more closely investigate what we might term the minor ills of humanity. I have made a special investigation of the recent severe epidemic of coryza or so called colds which seem to have followed in the wake of the epidemic of influenza. This investigation has been made with great care because of the increased number of mucous membrane disorders which have been more noticeable in those persons who are associated with or come in contact with dogs. Careful investigation of a great number of cats and dogs has demonstrated that ninety per cent. of these animals are infected with a specific bacillus producing a distemper or contagious form of nasal catarrh. I have found in a number of instances where persons have been troubled with a stubborn rhinorrhea of many months' duration, there is present the specific organism which is characteristic of the disease as found in dogs and cats.

In one instance the woman gave a history of having a catarrhal affection of the mucous membrane of the nose with inflammation of the sinuses for a number of months. Examination revealed the specific bacillus of distemper or contagious catarrh which is present in the nose and throat of small

dogs. One special feature of this case was that, this woman had been to a number of specialists and had received all kinds of treatments, with only temporary benefits. The growth in the incubator of the culture taken from the nasal passage of the dog not only revealed the specific bacillus of distemper, but various mixed types of streptococcus. This woman stated that she not only had the dog constantly in her company, but had him sleep with her in bed. She stated, with pride, that she was in the habit of kissing the dog many, many times a day. How any self-respecting woman could so lower her sex refinement as to caress a dog with kisses is beyond my imagination. Upon further investigation I find that many infections are brought about by the association of dogs and cats with children as well as adults. I am quite positive, after serious study, that dogs and cats are largely responsible for the epidemic of colds and chronic catarrhal rhinorrhea which infect great numbers of the populace.

This habit, or craze, of the women of our land in the selection of dogs as pets, is becoming alarming, and I feel that it is time that the health boards of the country should give more careful attention to this matter. Many of our States have passed a law compelling the population to wear masks to prevent the spread of influenza. At the same time dogs are allowed to mingle with the people in the streets, to occupy their homes, to sleep in the bed with women and children, sneeze and cough and scatter disease broadcast, without any attention being paid to this course of infection.

There is not another source of disease which is infecting the human race more alarmingly than the caressing by children and women of the small dogs, all of which carry a specific bacillus which is communicable to the human race. I am quite sure that some drastic measures should be taken by the health authorities to prevent the spread of this disease, which is not only of a serious nature but very intractable of cure. I have no doubt but that many of the cases of the recent epidemic of influenza as well as the present epidemic of coryza have for their specific source, the specific bacillus and other microorganisms which are present in the nose and mucous tract of the small dog and cats. There should be some law enacted to prevent people, who are so shortsighted as to be unconscious of the laws of hygiene and modern sanitation, from kissing and nursing dogs to the detriment of public health.

Electrical Conductivity of Living Tissues.—

W. J. V. Osterhout (*Journal of Biological Chemistry*, December, 1918) has originated a method for measuring the electrical conductivity of living tissues or of intact organisms, which consists in placing the tissues between two electrodes and measuring their electrical resistance by means of a Wheatstone bridge. The apparatus, a drawing of which is included in the paper, is described in detail. The method seems as accurate as can be reasonably expected in biological work, for under favorable conditions successive readings on the same material did not vary more than one per cent. from the average.

THE DANGERS OF ARTIFICIAL PNEUMOTHORAX.

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Those who administer the pneumothorax treatment will undoubtedly admit that the occurrence of collapse during the operation, although comparatively infrequent, is most distressing to both the patient and physician. The uncertainty as to the etiological factors responsible for this symptom complex, the acute onset, and the doubtful prognosis, all tend to discourage the operator, for a time at least, from promoting the application of the most useful method yet brought forth in the treatment of certain types of pulmonary tuberculosis. The literature on the subject is replete with descriptions of such and similar occurrences, but attempts to ascertain the *modus operandi* have met with but little success, and explanation of cause and effect have carried but little conviction.

Distressing symptoms immediately following the inflation of the pleural cavity with air or nitrogen have been reduced to a minimum in the experience of all those operators who adhere to the later advice given by Forlanini and others, never to inflate more than 300 c. c. under low pressure at the first sitting. Careful observation of the manometric oscillations and their proper interpretation has done much toward the prevention of high intrapleural pressure, sudden displacement of the mediastinal organs, and spontaneous pneumothorax, due to rupture of tightly stretched adhesions which may bind the lung tissue to the chest wall. Of more urgent importance, is the consideration of acute distressing symptoms occurring either during the process of inflation or during the anesthetization of the parietal pleura. In the following discussion an attempt will be made to show that such symptoms are due to pleural shock more frequently than to any other cause usually described in the literature on the subject.

AIR EMBOLISM.

Air embolism, the most dreaded of all complications, is said to be the condition existing in most instances wherein such symptoms as dizziness, pallor, rapid, weak and irregular pulse, dyspnea, stertorous breathing and unconsciousness, and tonic contractions of a part of the body musculature, make their appearance, after the inflation of the pleural cavity had been started. The occurrence of air embolism in such cases has not been proved conclusively, and a critical review of the subject will dispel most of our fears of this complication. In 867 cases treated by nineteen American authors (1) this accident was not observed at all. In 191 cases reported by three other authors this accident is said to have occurred three times but in none of these was the diagnosis unquestionable. Woodcock (2) did not see a death due to this cause in 3,000 punctures at Armley and Killingbeck. Beggs (3) did not see a case of air embolism in over 100 cases treated. Tashman (4) did not observe the occurrence of this accident in 500 initial and subsequent inflations. Minor (5) reviewing 100 cases

treated with artificial pneumothorax cites one instance of air embolism which may as well have been diagnosed pleural shock, inasmuch as similar symptoms were apparent in one case reported by Lyon (6) and in another by McKnight, Gammons and Knowell (7), which the respective authors ascribed to pleural shock. Forlanini encountered the accident but four times in 10,000 inflations with two fatal results. Brauer (8) records a fatal accident during the induction of pneumothorax due to the entrance of no more than fifteen c. c. of nitrogen into a punctured vein, but on autopsy the diagnosis could not be confirmed.

The air causing embolism is said to come from the gas reservoir after the flow has been started, and either from the manometer tubing or punctured alveolar spaces when the air had not been permitted to flow through the needle. While it is possible to cause embolism by inflating a vein with the air from the reservoir it can be prevented by careful observation and intelligent interpretation of the manometric oscillations when the needle is inserted into the supposed pleural space. But it is hardly conceivable that the air aspirated from the manometer tubing would be sufficient in quantity to cause embolism. Forlanini introduced from two to three c. c. of nitrogen into the carotid artery of a dog, and from six to eight c. c. of nitrogen into the left ventricle of another with no ill effects on the animal. Granting that the aspirated air would expand when subjected to a negative pressure and higher temperature it is doubtful whether the coefficient of expansion would create a volume of gas sufficient to cause symptoms of embolism.

Air escaping from the punctured alveolar spaces may cause air embolism when a nearby vein is simultaneously injured but this has not been observed practically. Minor (5) reports six patients in whom the lung substance was injured during attempts at pneumothorax to the extent of slight hemoptysis but no other symptoms developed. We are satisfied that this has happened as frequently in our early experience without cause for alarm. "My own observations," says Woodcock, "have inclined me to the opinion that sudden catastrophes have been ascribed to gas embolism without sufficient proof or even sufficient thought . . . and many occurrences have strengthened my feeling that the escape of alveolar air is not often a source of danger." Moynihan has recently asserted that no deaths from injection of gas into the tissues occurred in the base hospitals of the Expeditionary Forces in France. Furthermore, since gun shot and stab wounds of the chest and fractured ribs are very rarely followed by air embolism it is reasonable to suppose that air escaping from ruptured alveoli is not a potent factor in producing air embolism.

Gas embolism is possible but not probable if due precautions are taken to avoid it, say Kendall and Alexander (9), and "We can repeat with Forlanini," says Rist (10), "that cerebral embolism belongs to the historical period of pneumothorax." Riviere (11) and Simon (12) agree that air embolism gives rise to a series of symptoms which are usually indistinguishable from those caused by pleural shock. Undoubtedly pleural shock may

have been the *modus operandi* in a great many cases presenting symptoms ordinarily attributed to air embolism. "A large number of supposed cases of air embolism will not stand critical investigation," says Blumer (13), and although sudden death from this cause is possible, experimental investigation has not been confirmatory of this theory, and clinically symptoms of embolism have been observed most frequently in cases wherein no air could possibly have entered a punctured vein.

The occurrence of shock or collapse in such cases must therefore be attributed to causes other than air embolism. Cocaine poisoning, puncture of the heart, spontaneous pneumothorax and pleural shock are to be considered as possible etiological factors.

COCAINE POISONING.

Although the smallest quantity of cocaine known to produce fatal results is 0.08 gram (14) it is a fact that cases with definite idiosyncrasy have gone into shock from the application of two drops of a four per cent. solution to the conjunctival sac, but such cases are exceedingly rare, and inasmuch as shock during the operation occurs as frequently during attempts at refilling as at the initial operation, it is evident that cocaine is rarely if every responsible for this accident.

INJURING THE HEART.

Injury of the heart muscle with the pneumothorax needle or puncture of the ventricle is of rare occurrence. In fibroid cases where the heart is markedly displaced, this has happened. Minor (5) reports such a case and one similar to his has occurred in our experience, a short description of which is presently given.

M. S., age twenty-two, admitted in May, 1917, family and previous personal history irrelevant. Present trouble began with cough, expectoration and slight fever about one year ago. Loss of weight and strength soon ensued. She improved under treatment only to relapse a few months later, and in view of her constitutional symptoms and the progress of the disease, a pneumothorax was induced on the left side. The first inflation was given April 13, 1917, subsequent inflations were given until September 23, 1917. The last inflation consisted of 650 c. c. of nitrogen with initial pressure of -9 -4 and final pressure of -3 -1. On November fourteenth fluoroscopic examination showed the heart to be in normal position on account of pleuropericardial adhesion. Refilling was then attempted at the fourth intercostal space, in the midaxillary line, which was the site of all previous punctures. A Floyd-Robinson needle was introduced and the manometer turned on. The patient gasped, blood shot through the manometer tubing and almost displaced the water. The needle was quickly withdrawn. Pallor was marked, breathing shallow, pulse imperceptible but patient did not lose consciousness. Stimulation was given and the patient slowly recovered, but blood streaked sputum followed for a few hours. The patient recovered slowly and was out of bed on the sixth day. Refilling was not attempted.

SPONTANEOUS PNEUMOTHORAX.

Spontaneous pneumothorax has long been known to occur in the course of artificial collapse of the lung. This is said to be due to laceration of the lung tissue by the entering needle or rupture of adhesion binding the layers of the pleura together after the air has been introduced. Fishberg (15) quoting W. Parry Morgan states that spontaneous pneumothorax is more often produced while inducing artificial collapse of the lung than is generally appreciated. He bases his claim on the facts that, at times, after a futile attempt to introduce air into the pleural cavity on account of adhesions, a skiagraph will reveal the presence of pneumothorax and that fluoroscopic examination after the first inflation reveals a larger pneumothorax than would be expected from the small amount of air introduced. We cannot share the views of this observer in their entirety, since in our experience fluoroscopy after the initial inflation reveals a degree of pneumothorax expected, bearing in mind that the air introduced will have its coefficient of expansion directly proportional to the increase in temperature and to the degree of negative pressure existing in the space created. Forlanini reports nine cases of spontaneous pneumothorax complicating artificial pneumothorax. Webb (16), Floyd (17), Walgren (18) and Krause (18) quote such cases from their experience. Marshak and Craighead (20) in a thorough review of the subject have collected thirty-one cases to date; but an analysis of the cases reported discloses the fact that symptoms due to spontaneous pneumothorax occur in the vast majority of instances many hours and even days after the last inflation. It is apparent, therefore, that with the exception of few cases the complicating pneumothoraces were not due to the direct injury of the lung by the pneumothorax or anesthetizing needle, but caused by the rupture of tightly stretched adhesion, or, as Beggs (3) suggests, by cough or strain rupturing a weak spot in the lung now supported by a flexible body (air) instead of the firm and more or less rigid chest wall. It is interesting to note that spontaneous pneumothorax is exceedingly rare even in such cases of severe injury of the lung as gun shot wounds, etc. Biach (21) reports twenty-one cases of penetrating wounds of the chest with no instance of pneumothorax. Otis (22) states that pneumothorax was a troublesome complication in less than six cases among a vast number of chest wounds during our Civil War. It is also worthy of note that spontaneous pneumothorax in the tuberculous occurs more often when no attempt at artificial pneumothorax is made than when artificial collapse of the lung is resorted to. In 1,122 cases reported by twenty-four American observers spontaneous pneumothorax is mentioned as a complication but twelve times, which is a little more than one per cent (1). The frequency of accidental pneumothorax in cases not operated in is given as follows: Weil (23), ten per cent.; West (24), five per cent. of fatal cases; Drasche (25), 198 cases out of 10,212 of pulmonary tuberculosis or 1.93. Fishberg (26), about four per cent.; Powell and Hartley (27), six per cent. of fatal cases at Brompton Hospital. It

is therefore apparent that spontaneous pneumothorax following the introduction of either the anesthetizing or pneumothorax needle is very rare indeed, and we must disagree emphatically with Ferrera (28), who insists that spontaneous pneumothorax is the most common and dangerous accident in this operative procedure.

PLEURAL SHOCK.

Pleural shock is one of the most frequent accidents complicating the operation of artificial pneumothorax. The symptom complex, also known as pleural reflex or pleural eclampsia, is very often mistaken for slight air embolism, or fainting spell, in its milder form, and is the next most frequent complication in artificial pneumothorax to pleural effusion. Zesas (29) was able to report fifty-four cases of serious pleural shock occurring during various surgical manipulations of the pleura. Of these twenty-one were fatal, eight of which occurred during ordinary exploration. In forty-five cases of pleural shock he reports clonic and tonic contractions as having occurred immediately when the pleura was irritated. In three cases it recurred on several occasions and in some cases merely touching the pleura was sufficient to induce collapse. Saugman, in seven and one-half years of experience, had twenty-two such accidents, six of which were mild and two fatal. It occurred twenty-two times in 1,122 cases treated by twenty-four American authors (1) and twelve cases of the 134 treated by Forlanini and in one case out of sixty-five by McKnight, Gammon and Knowell. Beggs (3) reports a few instances in 100 cases treated. In our experience it has occurred three times, twice in one patient.

ETIOLOGY.

The mechanism of production of pleural shock has not, as yet, been well defined. Simon (12) claims that the introduction of air below body temperature causes pleural shock, but as a matter of fact, pleural shock makes its appearance most frequently before the inflation is begun. Saugman suggests that the application of blunt instruments may cause it, but clinically pleural shock appears most frequently when sharp instruments are used. Reviere states that it has been proved in animals, at least, that mechanical irritation will not cause pleural shock, but the introduction of certain chemicals such as phenol, alcohol, acetic acid, into the pleural cavity will be followed by symptoms described under pleural shock. Russel (30) claims that pleural shock is caused by "afferent impulses conveyed to the medulla along the distribution of the vagus nerve whose terminal fibres, rendered unduly sensitive by compression of inflammation, are irritated by the needle." Some authors, however, claim that pleural shock occurs most frequently in early cases wherein the pleura is not much affected. Anesthesia of the needle tract through the skin underlying tissue and pleura is urged by some authors as a preventative of this complication, and yet this incident was absent in groups of cases (145 and seventy-four) treated without any anesthesia (31) and the cases of pleural shock observed by many authors followed careful anesthetization of the pleura.

SYMPTOMATOLOGY.

In mild cases nothing but slight inconvenience, such as short fainting spells, may be experienced. In moderately severe cases, however, the circulatory, respiratory and nervous systems both motor and sensory are usually involved. The pulse, heretofore normal, may become rapid, feeble and irregular and sometimes even imperceptible; the apex beat faint and irregular, dizziness, marked cyanosis and dyspnea or shallow stertorous breathing usually appear. Rigidity of a part of the body musculature, ordinarily of the upper extremities and neck, as well as clonic contraction of these muscles is frequently seen. There may be temporary motor aphasia, amblyopia, sensory aphasia and unconsciousness. All of these symptoms are said to be caused by spasm of the cerebral and cardiac vessels. The following is a description of a typical case of pleural shock which occurred at the initial operation for artificial pneumothorax:

H. S., aged twenty-two, carpenter, admitted July 3, 1917. Family and personal history unimportant. Present trouble began nine months ago, when the patient claimed to have caught cold, which was followed by cough and expectoration and pain in the chest. A few weeks later slight fever and chills made their appearance. Loss of weight and strength soon ensued and four months after the onset of the symptoms bloody expectoration and frequent night sweats made their appearance; but it was on account of the distressing cough that the patient sought admission to the sanatorium. On physical exploration of the chest the right upper and middle lobes were found to be markedly infiltrated and signs suggesting cavity formation could be easily discerned beneath the clavicle. The left apex was slightly involved. On February first, under cocaine adrenalin anesthesia, one of the soft fibromata was removed from the left forearm for microscopic examination with no ill effects in the patient. Patient remained at the sanatorium until February fifteenth and in view of the marked constitutional symptoms and progress of the disease in the right lung Dr. Alfred Meyer suggested that a pneumothorax be induced. Accordingly on February 20th after a hypodermic injection of one eighth of a grain of morphine the skin and pleura at the fourth interspace anteroaxillary line were anesthetized with one and a half c. c. of a three fourths of one per cent. solution of cocaine and one in 8,000 adrenalin. But before the needle was withdrawn patient collapsed and expressed a desire to vomit, pulse became very rapid and almost imperceptible, pallor was marked, breathing stertorous, slight rigidity of the right arm and agonizing pain in the region of the heart and marked photophobia were complained of. Stimulation was quickly resorted to, and in about one half hour the patient was quite comfortable and wanted to sleep, and a few hours later he had completely recovered from the effects of the attempted operation.

On February twenty-second a similar attempt to induce pneumothorax in the same interspace resulted in profound shock immediately after the pleura was anesthetized and the needle withdrawn. The patient was seized with agonizing pain in the

region of the heart, pulse was imperceptible, heart beat very rapid, weak, and distant, respiration stertorous. Face markedly cyanotic, marked rigidity of the left arm and both lower extremities, pain also extended over forehead. Speech was inco-ordinate, followed by temporary unconsciousness. Amblyopia was complained of. Stimulation was resorted to, hot coffee, per rectum, strychnine by hypodermic. Pulse became perceptible but somewhat irregular. Immediately after consciousness returned patient complained of complete blindness. On ophthalmoscopic examination the retinae were found to be normal, as well as the pupillary reflexes, and when sight did return four hours later, color identification was poor but fields of vision were normal. Rigidity of the muscle described subsided when unconsciousness came on. Photophobia persisted for about twenty-four hours. Two days later the patient had completely recovered from the effects of shock, and five days later patient was permitted to be out of bed. No other attempts were made to induce artificial pneumothorax in this case.

SUMMARY.

Sudden collapse during the operation for artificial pneumothorax is very infrequently due to causes other than pleural shock. Air embolism, puncture of the heart and cocaine poisoning are very rarely met with, and spontaneous pneumothorax, although it may occur, is easily diagnosticated and can usually be prevented. Pleural shock occurs as often after careful anesthetization of the pleura as when no anesthetic is used at all. It is impossible to foresee it. When it occurs in a severe form it may be fatal but the vast majority of cases recover more or less promptly. Amblyopia, aphasia and other distressing symptoms subside very rapidly. Attempts at refilling, according to Forlanini, are contraindicated if the attacks reappear in subsequent sittings.

I wish to express my indebtedness to Dr. Alfred Meyer and Dr. M. Taschman, from whose services the case reports have been obtained.

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SOME PATHOLOGICAL CONDITIONS OF THE MOUTH AND THEIR TREATMENT.

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The subject of pathological mouth conditions is one of tremendous proportions. It is one that has been given too little attention in the past, by the general practitioner. It is a lamentable fact that in the examination of the mouth, as made by the average dentist, the discovery of carious teeth is uppermost in the dentist's mind and his examination is completed when the tooth surfaces have been explored. The thought of making an examination of the mucous membrane, tongue, tonsils, pharynx, and salivary glands, is not usually considered. Blair (1) says "until the much desired cancer specific is discovered, it is mainly to the educated dentist grounded in general oral pathology, who makes a complete survey of the whole mouth that the medical profession and the public must look to reduce the now increasing death rate from cancer of the mouth."

The writer wishes to call to your attention some

of the pathological conditions of the mouth and their treatment and to emphasize the great responsibility that the educated dentist must assume in his respective community. Making a judicial dental diagnosis is not always a simple procedure and very often the skill and ingenuity of the operator is taxed to the utmost in working out the chain of evidence upon which he must base his decision. A clear understanding, by the dentist, of the value of symptoms of disease which he sees and of those described by the patient is of vital importance in making up this chain of evidence. One of the advantages of the dentist with long experience, over the younger men, is the ability of the older man to grasp the essential details of the condition at once. Much of this ability is gained by a gradual process through years of practice and observation. It is true that in recent years the x ray has aided us materially in our diagnostic work of the mouth: yet, too many men in our profession are depending entirely upon the radiograph in making a diagnosis. While we concede that the radiograph is indispensable in dental practice today, yet it should form only one link in the whole chain of evidence in formulating the diagnosis.

The history of present and past illness, signs and symptoms are very important in determining the diagnosis. It has been the observation of the writer that the best diagnosticians, in both medicine and dentistry today, are those men who have been trained to objectively and subjectively differentiate the pathological from the physiological and use the x ray only as a further means of arriving at a definite conclusion. Do not misinterpret the meaning here. The use of the x ray must not be depreciated. Yet the plea which is made is that we must not overlook the fact that the radiograph is not the picture of the pathology, but only a record of the shadow of the tissues and the extent of the pathologic involvement which appears upon the film will depend largely upon the angle from which the radiograph was taken. This, you will readily agree, is not sufficiently definite to wholly rely upon in forming a judicious and conservative diagnosis.

PAIN.

One of the most perplexing problems that confronts the general practitioner is obscure pain localized in the jaws. These pains are frequently referred from some lesion distant from the point of manifestation. Many times healthy teeth are sacrificed in the endeavor to eliminate the possible source of so-called neuralgia, when the source of irritation is remote from the seat of pain, but misinterpreted by the patient. Goldschider has put forth a theory that in the Gasserian ganglion there are certain nerve cells performing a dual role. These cells have either split fibres or two separate nerve fibres, one running in one division of the fifth nerve and the other in one of the other divisions of the same nerve; thus pain may be manifested in the region of an upper cuspid or incisor tooth when the source of irritation is in a lower molar. A short time ago the writer had a patient with pain in an upper cuspid tooth when the source of irritation was found to be in a paratonsillar abscess, or on a branch of the lingual nerve and referred to the upper cuspid

on a branch of the maxillary nerve. It is not an uncommon occurrence to find referred pain from impacted or unerupted third molars. How frequently do we find headaches relieved after the removal of impacted teeth? The practical lesson to be derived from this is that the dentist should be on his guard against a number of sources of error in diagnosis of pain and that these cases demand of the dentist a most thorough knowledge of the anatomy of the field in which he labors. A slight derangement of nervous function may produce the most unexpected consequences in the most unexpected places. With our present methods of nerve blocking, if the source of irritation is in either the second or third divisions of the fifth nerve, a definite diagnosis can usually be made by blocking off a section of each branch at a time and observing the results. In cases of severe *tic douloureux* often the teeth are needlessly sacrificed by the dentist in the endeavor to give the patient relief. This practice is so common that a large majority of the patients seen in the hospitals of the University of Michigan, who have suffered with *tic* for any length of time, have edentulous jaws. Our knowledge of dental and oral pathology should be of such a high order that teeth should not be sacrificed unless we are reasonably sure that the patient is going to be benefited.

Hutchinson says: "The extraction of teeth with a view of relieving or curing true epileptiform neuralgia or *tic douloureux* is a pernicious and useless practice" (2). There exists no valid evidence to regard trigeminal neuralgia as a spreading neuritis of dental origin. It is contended by many able brain surgeons that the etiology of *tic douloureux* is of central origin and the removal of the teeth would in no way be of any assistance in the relief to the patient. Our experience in the past has been that injections of alcohol or even neurectomy for *tic douloureux* is of little more value than extraction of the teeth in offering permanent relief. It is the writer's opinion that operation on the ganglion itself, though attended with all of its dangerous sequela, is the only means of permanently relieving the patient.

Another type of referred pain in the inferior maxilla that is often perplexing to the general practitioner is that arising from an old syphilitic lesion. This is a referred pain from syphilis of the heart or aorta and is probably referred through the sympathetic system. It is not an uncommon condition and must be taken into consideration in running down these obscure pains. Such conditions improve under antisiphilitic treatment. In the opinion of the writer, syphilis is a greater curse to mankind than tuberculosis. There is probably no disease that is as insidious in its progress with as far reaching effects as this disease. At the present time our one bright hope in the control of this disease is in the army and in the segregation of those afflicted. Syphilis is due to the infection with *Spirochæta pallida* and is only transmitted by contact. Consequently, it can only be controlled by segregation. A favorite site for the primary lesion or hard chancre is on the lip; it is also frequently found situated on the tonsils. The primary lesion is sel-

dom found on the cheek or tongue. In its incipient stage it appears as a crack in the lip or an abrasion surrounded by a thickening of the tissues, which is later destroyed by ulceration. This can be differentiated from certain forms of stomatitis in that the chancre is painless and usually causes enlargement of the lymph nodes.

Secondary syphilitic manifestations of the mouth are usually of an erythematous or ulcerative type, commonly seen on the oral pharynx as an inflammatory area, attended by little or no pain. The mucous patch may be observed on the edge and tip of the tongue, and on the dorsum of the tongue uvula and fauces. These mucous patches are frequently found on the inner surface of the lips. They appear as large or small, either round or irregular plaques of a grayish white color, covered by a sticky secretion. These can be differentiated from the plaques of leukoplakia buccalis in that those from the latter can be traced as arising from a local irritation. Secondary manifestations of syphilis in the mouth may be differentiated from certain forms of stomatitis, Vincent's angina or other acute mouth lesions, for the syphilitic lesions are not accompanied by pain.

Tertiary syphilitic manifestations are frequently seen in the mouth as gummatous ulcers. These may be mistaken for carcinomata if on the cheek or tongue. On the tongue they will usually appear over the whole upper surface, while carcinomata would be confined only on the edge and involve only one side of the tongue. Carcinoma of the mouth is frequently the site of an old syphilitic lesion. Jonathan Hutchins, Jr., informs us that in thirty per cent. of patients suffering from epithelioma of the tongue a history of former syphilis can be obtained; twenty per cent. of the epitheliomata of the tongue have their site on syphilitic inflammation. Diagnosis of syphilis from mouth lesions is not a simple matter. The history of the patient is usually not reliable, for in the large majority of patients the knowledge of the presence of venereal disease is denied. The Wassermann test is the most reliable one at our disposal today. While all syphilitics will not give a positive reaction, yet it is very rare that a positive reaction cannot be obtained in the presence of active syphilis.

What is the dentist's responsibility in regard to syphilis? When this disease is so prevalent today; when its sequelae are so far reaching; when it is so easily transmitted to others, is it sufficient for us when examining mouths of patients to simply look for carious teeth? There can be but one answer to this question. A few weeks ago a bright, fine looking young lady of fifteen presented herself for mouth examination. When she opened her mouth the writer was amazed to find that the whole palatal vault was missing, together with central, cuspid, bicuspid and one molar tooth on each side. The condition was at once recognized as syphilis. In so healthy appearing an individual the presence of congenital syphilis was dismissed. In obtaining the history, this syphilitic condition was found to have been induced by vaccination about four years previously. The only answer for the presence of this condition is that unclean instruments were used at

the time of vaccination. This same unfortunate result might easily occur from unclean dental instruments after operating upon a syphilitic patient. Today you say we all sterilize our instruments. Yes, but how about the hands? Do we use rubber gloves in these suspected cases, and how about those patients whom we operate upon that do not excite our slightest suspicion? Yet if a blood test was made some of them would show a positive reaction.

The point the writer wishes to leave with you is that more careful survey of the mouth should be made on every patient and if a suspected lesion is discovered follow it up until it is identified. In the more suspicious cases refuse to do anything until a Wassermann test is made. It is now a matter of routine in many of the best hospitals of this country for a blood test to be made of every patient who enters. It is only by the strictest vigilance on the part of the practitioners in all branches of medicine that this disease may not get beyond our control. Will dentistry do its part?

MALIGNANT DISEASES OF THE MOUTH.

When we consider the invariable outcome of a malignant tumor of the mouth, when not treated, with its attendant horrors, not only to the victim, but also to his family; when we consider the improbability of successfully treating these cases in the advanced stages, then we can clearly conceive the advantages and importance of making an early diagnosis. The dentist usually sees these precancerous conditions long before the surgeon, because the average patient does not present himself to the physician until physical discomfort compels him to seek aid. At this time the disease has progressed to such a stage that makes the condition inoperable, or at least the probability of successful treatment is greatly reduced. The dentist has the opportunity of observing these mouth conditions in the early stages, and Blair places the responsibility of early diagnosis upon our profession in his well delineated statement expressed in the beginning of this paper. The writer believes it to be the moral duty of every dentist, not only to examine the teeth of his patients, but to make a thorough examination of the mouth, lips, tongue, pharynx, and tonsils.

Any rough surfaces on the teeth which are producing a constant irritation should be removed. In cases of small chronic ulcers or sores in the mouth a complete history of the case should be obtained. If the history should lead to the assumption of former syphilitic affections then it should be looked upon with grave suspicion. One of these precancerous conditions with which the dentist will come in contact is leukoplakia. This is invariably caused by excessive use of tobacco. It is characterized by the formation of white patches on the mucous membrane of the tongue and may spread to the cheek. In tobacco chewers an outline of the quid of tobacco in a white patch is sometimes observed on the buccal mucous membrane of the gums and cheek in the vestibule of the mouth. Leukoplakia is an idiopathic disease, insidious in its progress, which begins with an opaque or white spot. The most common site is the dorsum of the tongue. These spots may ulcerate and coalesce into larger ones. In their

incipiency these cause little or no inconvenience and if discovered at this stage, usually the removal of the cause will eradicate the disease. As their growth progresses they become painful and the tongue, lips, or cheeks, as the site may be, become indurated and slight hemorrhages may occur. At this stage we invariably have beginning carcinomatous degeneration.

The similarity between leukoplakia and secondary syphilis is often confusing. The syphilitic plaques usually appear on the border and back of the tongue and at the same time other patches may be observed on the gingiva, palate or tonsils. The syphilitic spots are soft, while those of leukoplakia are hard. In the diagnosis of precancerous conditions of the mouth we must ever keep in mind that any constantly continued irritation may predispose to malignancy. We must ever keep in mind that there is no part of the body that is so subjected to continual traumatism as are the mouth, lips, and tongue. We must not forget the fact that a large number of patients seeking dental services beyond the age of forty-five present mouths with teeth that are broken down with sharp edges or the surfaces abraded through the process of mastication, leaving knifelike edge surfaces which may abrade the soft tissues, giving rise to a chronic ulcer which may ultimately lead to malignant disease. Many of the precancerous conditions can only be correctly diagnosed by microscopical examination. It is clearly the duty of the dentist when a lesion is present in the mouth that cannot be diagnosed as ordinary dental diseases to direct the patient's attention to it and, if possible, have a microscopical examination made. In obtaining a section always obtain normal as well as pathologic tissue in the section.

DENTIGEROUS CYSTS.

This condition is frequently mistaken for a tumor or an alveolar abscess. It is frequently seen in mouths of men and women under thirty years of age. It usually takes the form of a cystic growth connected with teeth or tooth follicles when eruption is retarded. In the light of our present knowledge the explanation for the formation of these cysts is largely theoretical. Thomas has given what seems, to the writer, the most plausible theory. He states that when the development of the enamel of the tooth is completed its outer surface becomes perfectly detached from the investing soft tissue and a small quantity of transparent fluid not uncommonly collects in the interval so formed. This fluid is ordinarily discharged when the tooth is erupted, but when from some cause the eruption is prevented it increases in quantity and gradually distends the surrounding tissues, causing a resorption and disintegration of the adjacent osseous structures. The cyst may go on developing until a large portion of the jaw is involved.

It may be differentiated from an osteoma, in that with the cyst, fluctuation and crepitation can usually be elicited. It may be differentiated from an alveolar abscess from the fact that the cyst is very slow in its formation and is not accompanied by pain. Sometimes a history of several months in its formation will be obtained. The absence of any of the permanent teeth with the associated lesion

suggests the possibility of a cyst. An amber colored fluid may be aspirated from the cyst by means of the ordinary hypodermic syringe in completing the diagnosis. The x ray will show a definite cavity with a limiting membranous lining. The method of eradication consists of widely opening the cyst, removing the unerupted tooth or tooth follicles, removing entirely the cystic lining and treating the same as any other wound in the mouth of the same extent. It has been the writer's experience that packing the cavity with iodoform gauze and irrigating with five per cent. salt solution every twenty-four hours will yield good results. The most serious sequela of a dentigerous cyst is the absorption of the bone against which the cyst exerts pressure. A large portion of the maxilla or mandible may be destroyed by pressure resorption resulting therefrom.

Epulis occurs most frequently in childhood and in young adults. In a series of 167 cases Scudder reports forty-nine of them were in men and 118 in women. Thus it would seem that women are more susceptible to these mouth tumors than men. The irritation from a carious tooth may start an epulis, or a tooth root may serve as an irritation which will encourage its development. Calcareous deposits on the teeth may also be looked upon as a possible etiological factor. Bloodgood states that epulis stands between the really benign, slightly malignant, and the malignant connective tissue tumors. There are two varieties of epulis—the fibrous epulis and the giant cell epulis, the giant cell epulis being the more common. The fibrous epulis is ordinarily of small size, projecting between two teeth and spreading somewhat over the alveolar border. This type may become calcified extensively or in limited areas throughout its substance. The fibrous epulis is smooth and quite firm on the surface, not very vascular and does not bleed very easily, while the giant cell epulis is soft and irregular and contains many vessels and bleeds easily when disturbed.

This growth is slow at first, but becomes rapid as it progresses and many times will cause the teeth to spread apart with consequent loosening. As these tumors enlarge they may remain attached to a small stalk. At first these tumors are benign, but later may become malignant. The importance of early treatment cannot be overestimated. They should be removed as soon as identified and subjected to a careful microscopical examination. The portion of the periosteum or alveolar process to which they are attached should also be removed. This may necessitate the removal of one or several teeth in order to remove the tumor in its entirety, and unless it is completely eradicated the effort to obtain a cure will be fruitless.

There is a greater tendency to do an insufficient amount of cutting than there is to perform an operation that is too radical. After the complete removal of the tumor and its source the actual cautery should be used to sere over the wound. Another very important and not infrequent pathological condition of the mouth which is of vital interest to the dentist is Vincent's angina. The lesions are associated with a mixed invasion of

fusiform bacilli and *Spirochetes Vincenti*. The Fusiform bacillus was first described by Miller in 1883, who found that the infection occurred in clean as well as in unclean mouths. During the decade following 1896 Vincent, a physician in Paris, wrote extensively on both the organism and the clinical findings. He gave the disease the name of Vincent's angina. It is defined as an infectious disease of the mucous membrane of the mouth, throat, and bronchi. This disease, or one simulating it, is prevalent among the troops of the armies of Europe and is referred to as "trench mouth" or "trench gums." The disease probably has no connection with trench life excepting the conditions made possible by the collecting together of large numbers of young men. The one condition which favors the development of the disease is oral sepsis. Vincent's angina is a very infectious disease and when it makes its appearance in the army it soon becomes an epidemic. The disease is characterized by a deep tissue necrosis, covered by a whitish gray membrane. This membrane is easily removed and when rubbed off leaves a granular, raw, bleeding base. This leads to craterlike ulcers with irregular edges.

Barker and Miller (3) classify the symptoms as follows: Objective signs,—insignificant constitutional disturbances, as a rule the patient is not very ill; absence of fever, the temperature rarely rising over from 100 to 101 degrees; heavy and offensive breath; enlargement of the cervical and submaxillary glands, moderate as a rule; they are tender and never suppurate; the lesion itself; and swollen, spongy, and bleeding gums, suggestive of scurvy.

Subjective symptoms:—The patient complains of extremely bad taste in the mouth; tenderness of the gums, so that the use of a tooth brush is impossible and mastication is so painful as to preclude eating; pain in swallowing; looseness of the teeth, with salivation, which is common, resembling mercurial ptyalism; anorexia, or loss of appetite; painful joints; lassitude—"lack of go"; and the most serious constitutional symptom, and one always present when the teeth and gums are affected, is severe depression.

The prognosis is usually favorable. Most cases run a benign course. If seen early the case can be controlled easily. Internal medication has little or no value. The care of the mouth is the first essential step in prosecuting the treatment. A solution of one-half of one per cent. potassium permanganate used as a mouth wash every three hours will yield good results. The application of seven per cent. tincture of iodine to the pockets around the teeth and touching the ulcers with silver nitrate (concentrated solution) is recommended. Emrys-Roberts (4) recommends a lotion of hydrogen peroxide, five fluid ounces; wine of ipecac, three drams; glycerine, five drams, and water sufficient to make eight ounces. Local applications of arsphenamine in concentrated solutions or dusted over the surfaces are regarded as one of the best therapeutic measures obtainable. The mouth and teeth should be made as clean as conditions will permit before resorting to local treatment.

DISEASE OF THE ANTRUM OF HIGHMORE.

What is the dentist's responsibility relative to the treatment of these cases? The writer believes that greater good and more satisfactory results can be obtained by cooperation of the rhinologist and the dentist in these cases. It is a matter of making a correct diagnosis. When the disease is of purely dental origin then the responsibility should fall upon the dentist to handle the case. If the accessory sinuses are the etiological factors in producing the disturbance then the responsibility must rest upon the rhinologist. There are just three principles that we must keep in mind in the treatment of empyema of the antrum:

First remove the source of irritation, then drainage must be established, and finally ventilation must be maintained. In other words, treat it as any other abscess in the body is treated, with the addition of maintaining ventilation.

The writer wishes again to emphasize the importance of making a correct diagnosis. This is more important than the character of the operation. It is not of so much importance as to whether drainage is established through the nasal or oral cavities as it is that the source of irritation be removed. Too often dentists open into the antrum in the attempt to effect a cure when the source of irritation is in the frontal or sphenoidal sinuses or ethmoidal cells. In these cases only two of the three principles are carried out, viz., drainage has been established and perhaps ventilation maintained, but the antrum still discharges because the source of the trouble is still present. It is such cases that have led to the criticism of the Caldwell-Luc operation, or opening the antrum through the canine fossa. A criticism that is frequently made is that the opening will not close. Of course, it will not close if pus is continually discharging through it. If the source of irritation is removed, it has been the writer's experience, and in this he is sustained by many others, that it is difficult to keep the antrum open long enough to treat it. This whole proposition can be reversed if the source of irritation is of dental origin, then opening through the nasal fossa will not avail a cure. It merely establishes a drainage. Again, the method of operating is of secondary importance.

In cases of empyema of the antrum, when the source of irritation is of dental origin, the writer prefers opening into the antrum through the canine fossa, making the opening large enough to explore the antrum with the forefinger, thus septi may be discovered and cut away if necessary. The antrum is then irrigated with a five per cent. salt solution and packed with iodoform gauze for twenty-four hours. The gauze is then removed and not replaced, but a gutta percha button is fitted to the opening to keep out food debris, etc. The antrum is then irrigated every twenty-four hours for three or four days; then the irrigations are made less frequent. The gutta percha button is cut down each time of treatment until it is reduced to five mm. in diameter, when it is left out entirely and complete repair takes place.

• We shall now consider briefly a phase of one of

the most common pathological conditions found in the mouth, viz., those morbid conditions involving the pericemental membrane. The writings on the subject of mouth infection have been voluminous during the past five years, and in this discussion we shall confine our thoughts to the eradication of those infections found at the ends of the roots of the teeth.

Dental and medical science (5) have made it clear that pathological conditions of the pericemental membrane and diseased ends of the roots of the teeth are a contributing factor to, and frequently the primary cause of, general systemic disturbances. The physician and the laity are looking to the dentist to eradicate these conditions. This can be done by the extraction of the teeth followed by curettage and by surgical interference at the focus of infection, mechanically removing the morbid condition, leaving the healthy tissues to go on functioning.

It is a well known fact that with our present methods of root canal therapy, few of these morbid conditions can be so corrected that we can conscientiously assume that the area is free from infection, and will remain so. By what steps then are we to decide whether extraction of the tooth is indicated or whether the greatest service to the patient can be rendered by root resection? No hard and fast lines can be drawn as to just when root resection is indicated and when extraction of the tooth should be the operation of choice. Here again we come to the great question mentioned in the first part of this paper, viz., diagnosis. A correct diagnosis of each case is not a simple matter. The first question to determine is: Are general conditions favorable to normal repair of bone? To determine the answer to this question, there are several vital factors that must be taken into consideration. First, the present state of health of the patient; second, the past illness, and the possible recuperative or reserve force of the patient. The lowering of the vitality through chronic alcoholism or such diseases as tuberculosis, syphilis and diabetes which lead to a state of constitutional dyscrasia will have a profound influence in preventing repair, and redevelopment of normal tissue.

Age is another factor which should be considered. In the aged, the process of repair is slow and the prognosis for home regeneration is not so good as that in the young or in middle life. In the aged the operation of root resection is not undertaken without considerable hazard. The condition of the circulation of the blood is still another factor that plays a very important rôle in making up a judicial diagnosis. It is an established surgical fact that without a certain definite blood supply to a part, repair of tissue will not take place. Notwithstanding the fact that the teeth and surrounding structures have a very rich blood supply, in certain types of individuals, and under certain pathologic disturbances, there is not sufficient blood supply to the apical area to insure repair of the parts after the operation of root resection. The clever diagnostician will discover this condition before making his final decision as to the character of his operation.

THE X RAY IN DETERMINING THE OPERATION
INDICATED.

The proper evaluation of x ray findings is very important to correct diagnosis. If the case is one of an alveolar abscess of long standing, or a case of imperfectly filled root canal with granuloma showing in the apical area where all of the evidence points to disease and death of the pericemental membrane in the apical areas, it is the opinion of the writer that surgical procedure rather than dental therapy is indicated. The character of the surgical procedure may be root resection in favorable cases and extraction of the tooth in the unfavorable ones. It is a lamentable fact that many men are resorting to root resection as a short cut method for curing an alveolar abscess over a beautiful crown or bridge attachment without first removing the same and sterilizing and filling the root canals. If the canals and dental tubules are not previously sterilized and the canals thoroughly filled, a reinfection will occur from the tubuli exposed when the resection is made.

It is not permissible to leave a crown on an imperfect foundation because it is a masterpiece of art. If it is not worth while to remove it and sterilize the canal and tubuli then it should be extracted. Too often, root resection is resorted to for the purpose of saving a nice piece of bridgework, and the patient's health is jeopardized. We are not doing good surgery when, as a matter of routine, we do not insist that the canals be sterilized and filled just previous to the operation.

The question of sterilizing and completely filling canals in multirrooted teeth for the eradication of an infection, is a very doubtful procedure and in the writer's opinion the patient's welfare will be better taken care of by extraction followed by curettage of the bone. In no cases should this operation be resorted to when the bone and pericemental membrane are diseased beyond the apical third of the root.

The technic for the operation of root resection will vary with the individual operator. The welfare of the patient should be the first consideration; a hasty diagnosis will often lead to failure, and the patient will consequently suffer from the operator's misconception of conditions.

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Vitamine Studies.—R. Adams Dutcher and Ferdinand A. Collatz (*Journal of Biological Chemistry*, December, 1918) using three different vitamine extracts, attempted to determine whether these produced any direct stimulation in catalase production. They concluded that watersoluble vitamine B does not act as a direct activator of catalase, but rather on account of its physiological properties probably stimulates the organism to greater production of catalase.

THE TREATMENT OF CRANIOCEREBRAL
AND CORD INJURIES OF WARFARE.

BY CHARLES GREENE CUMSTON, M. D.,
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In this paper I will discuss the question of the treatment of craniocerebral and cord injuries of warfare as formulated by the second and third Interallied Surgical Conferences and also to refer to certain interesting features of this branch of surgery which have recently been studied, thus bringing the subject up to date as far as possible. One subject which has not been much talked about, but which is of great import, is wounds of the cauda equina. At a certain neurological centre twenty-two lesions of this portion of the spine were found out of a total of 225 cases of wounds of the cord received in the hospital during six months. Of these patients fifteen were transferred and seven died. One of the fifteen transferred ultimately died. It was found that lesions of the cauda equina give a mortality of thirty-two per cent. and therefore are far less serious than those of the cord which have a death rate of about sixty-four per cent. Lesions of the cauda from exploding shells were more common than from bullets or shrapnel and likewise far more serious as would naturally be expected. Lumbar spine wounds are less serious than sacral injuries. It is interesting to note that of the fifteen patients who improved, the dura was intact in nine, while in the seven fatal cases it had been opened. The clinical picture of wounds of the cauda equina differs from that offered by wounds of the cord. It is characterized by the immediate appearance after receipt of the injury of pain and paralytic phenomena. The pain extends in part or throughout the lower limbs, and may be of great intensity, but often it becomes ameliorated in a few days. The paralysis may be complete or incomplete and varies according to the roots which are involved. Its intensity is of no prognostic value. A complete paraplegia is not an index of the gravity *quoad vitam* and a simple weakness of the legs is not an indication of benignity. These paralyzes often regress quite quickly, in a few days or weeks, and occasionally disappear completely.

The tendon reflexes are absent in the paralyzed area and their study is important in order to diagnose the height of the lesion. The plantar cutaneous reflex was absent in fifteen out of twenty-two cases and normal in six cases of sacral injury. The cremasteric reflex is occasionally absent in lesions high up. The so called "defensive" reflexes are *nil* or on the contrary they may be very sharp when meningeal infection exists. The disturbances of the sensibility are characterized by an anesthesia for all types of sensibility, but particularly the superficial type. All of the clinical varieties are possible. In certain cases there is a simple hyperesthesia or hyperalgesia. Regression of the sensitive disturbances is often slower than that of the motor disturbances. Sphincteric disturbances are met with in most cases. Retention of urine exists from the beginning and later on there may be either incontinence or voluntary normal micturition. Retention or incontinence of feces occurs with equal fre-

quency. Hematuria has been noted though when the catheter has not been used.

Finally, I would mention circulatory and thermic disturbances. All of these disturbances, following lesions of the cauda equina, frequently improve in the following order: motor recuperation, decrease in pain and, lastly, favorable changes in the sphincteric disturbances. Surgical interference is directed against the complications and since these arise between the second and tenth day it should be done as soon as possible. If the dura is found intact it should be let alone, even if it is certain that an intradural blood collection exists, because this will be absorbed. Wounds of the spine or cord have a high mortality and the majority of patients who came to the ambulance die from meningeal infection, while others who survive ultimately die from renal infection. Although some of these unfortunate men escape death, they remain paralyzed and are always exposed to urinary infection.

Many surgeons, especially the English, are of the opinion that a primary interference should be resorted to in every case where there are reasons for supposing that the spine and cord are involved. The operation is not a laminectomy in the strict sense of the word but should merely consist in enlarging the superficial wound and exploring completely the underlying structures. Usually all that is necessary is to remove the fractured laminae but occasionally a normal lamina may have to be removed in order to give a larger operative field or to follow up a missile or bone splinter in the spinal canal. When the dura is found intact it should be left alone, but if there are signs of medullary compression puncture should be made but at another spot. In these circumstances a primary suture of the wound can safely be made. But if, on the contrary, the meningeal space is open the wound in the dura should be explored and missiles and bone splinters lodged in the cord must be removed but in these circumstances the wound must never be sutured.

Secondary or late interference fulfils divers indications. The operation may be complete paraplegia, where a total division of the cord exists, with the object of putting an end to the sharp persisting pain due to the missile which compresses one or several roots. But most commonly the interference will be decided upon when it is clear that the conductivity of the cord is not completely interrupted, the operation being resorted to for removing anything that may compress or irritate the cord or roots, such as the missile, bits of bone or other foreign bodies. This seems to be the guiding opinion of many eminent surgeons today. Let us now give the conclusions for the treatment of wounds of the spine and cord adopted by the Inter-allied Surgical Conference at its second session. Let me point out, however, that in the present case there seems to be an atmosphere of the Academy of Medicine of Paris surrounding these conclusions, an antiquated body which represents the greatest impediment to the development of modern medicine and surgery in France, and which still survives upon its brilliant reputation of the first and second Empire, when Ricord, Trousseau, Laney, and other great minds composed its membership. At the

dressing station the ordinary dressings are to be applied and the shock frequently present in these lesions treated. When the patient arrives at the ambulance the dressing is to be changed and an expectant treatment followed when a punctiform entrance aperture is present. If a wound resulting from an exploding shell with a large entrance aperture exists, the wound shall be treated according to usual principles without dealing with the medullary lesion. The patient is removed in a Bonnet wire splint.

From the viewpoint of treatment, there are two quite distinct types of wounds of the cord. First, those where a complete division of the cord exists and which are beyond the possibilities of surgery. Second, cases of compression from a missile, bone splinter, or meningeal hemorrhage. Intolerable pain may also be an indication for surgical interference. In the majority of cases primary operation is to be rejected. In Italy, the surgeons have adopted, in cases of bone compression or the presence of the missile in the spinal canal, the wise principle of operating as soon as possible in order to remove the missile, clots, bone splinters, and other debris and thus freeing the cord and spinal veins from any pressure. The mortality of these primary operations is very high and in order to decrease the operative trauma, as well as to respect the static of the spine, the Italian surgeons prefer to resort to a unilateral laminectomy. The secondary interferences will be carried out after the decubitus has healed. As to the ultimate prognosis an absolute distinction is to be made between lesions of the cord itself and those in the cauda equina.

Traumatic epilepsy is frequently observed following craniocerebral wounds of warfare when these have been of some importance and have left organic disturbances of the nervous system in their train. They are present in about twenty per cent. of the cases and it would seem that generalized epilepsy is more frequent than the Jacksonian type. The generalized form is more prone to develop following traumata from exploding shell than after bullet wounds. One cannot foresee from the site of the injury that in a given case of head injury epilepsy will ultimately develop. However, the wounds near the sagittal line are more apt to be accompanied by general convulsions (possibility of lesions to both hemispheres). Traumatic lesions are in themselves enough to give rise to accidents in otherwise healthy soldiers, but the question of predisposition only exceptionally comes up in wounds of warfare. In its clinical aspects, generalized traumatic epilepsy recalls ordinary epilepsy with, as peculiarities, a greater frequency in the aura whose type is often governed by the site of the initial injury and the occasional very marked predominance of the convulsions on the side of the body opposite to that of the injury. All of the transitional forms exist between generalized epilepsy and partial epilepsy. Limited convulsions may also arise in the intervals of the generalized paroxysms. The treatment of traumatic epilepsy is above all preventive and medical. If the primary surgical interference has not prevented the development of epileptic accidents these may be happily influenced

by bromide medication. It is as yet premature to offer an opinion on the results of cranioplasty applied for the treatment of traumatic epilepsy. Briefly summing up the conclusions adopted by the second and third Interallied Surgical Conferences in reference to the treatment of craniocerebral injuries. At the relief station wounds of the skull or brain should simply be occluded by an aseptic dressing. In the case of extensive loss of tissue with serious general symptoms the patient should be sent to the nearest ambulance, but if the lesion appears to be less serious and if the general symptoms are not marked, the patient should be transferred to a hospital centre where a special neurological service exists and where he may remain for an extended period. Cranial operations should be done as soon as possible after the injury and the patient should not be sent to a base hospital until at least three weeks have elapsed following the operation. The skull should be examined radiologically and missiles and bits of bone carefully located. The indications for trepanation are still discussed when the fracture of the skull is not manifest and when cerebral symptoms do not exist.

Local anesthesia should be employed for the operation and the sitting position has the advantage of decreasing the hemorrhage, but it is especially of use in late or secondary operations. The borders of the wound should be resected, while if it is to be enlarged this will be accomplished according to its site, direction and shape of the bone lesions. The opening into the skull should be enlarged just beyond the limits of the cerebral contusion with the cutting gouge, occasionally with a trephine, and never with hammer and chisel. If the dura is intact it should be left alone, and in favorable cases the scalp wound may be closed and primary union obtained. If the dura is torn the edges should be trimmed and the wound enlarged as far as the limits of the focus of the cerebral lesion. Clots, diffuent cerebral substance and superficially situated foreign bodies are to be washed away with an irrigation of a hot saline solution, while deep seated bone splinters and missiles easily accessible are to be removed with the greatest precaution. Very small, deep seated missiles difficult to reach, larger missiles located at the base of the skull or in the ventricles, as well as those embedded in the hemisphere opposite the side of the injury should be primarily respected. In bipolar wounds each aperture should be treated on its own account and the underlying track left alone. No drain should be inserted into the brain.

The craniocerebral wounds may be dealt with by primary suture after sterilization. However, more data will be required to decide which of the two methods better offset the immediate, secondary or late septic accidents. When the patient has recovered from the shock of the operation he should be placed in a semisitting position. Early cerebral hernia, without deep seated infection, is to be treated by enlarging the opening in the skull. Thin cicatrices with extensive loss of bone substance and those giving rise to cerebral disturbances are to be dealt with by plastic operations. Secondary accidents are treated according to their origin (cerebral abscess, foreign bodies, adherent cicatrices, etc.) by appropriate

operations after consultation between a neurologist and a surgeon.

At the third session (1918) of the conference, the following addendum was added to the above conclusions. Wounds of the brain are to be disinfected mechanically after trepanation by removing the brain pulp with hot salt solution and the removal of missiles easily accessible. A bacteriological control, as is done in all other wounds, will indicate the feasibility of complete closure of the wound. When the foreign body cannot be removed, primary or late secondary closing of the wound should be undertaken with extreme prudence. The greatest circumspection should be observed in the use of plastic operations.

RECENT GLEANINGS RELATIVE TO THE PROPHYLAXIS AND TREAT- MENT OF INFLUENZA.

BY LOUIS T. DE M. SAJOUS, B. S., M. D.,
Philadelphia.

(Continued from page 164.)

The recognized fact that influenza is transmitted mainly by droplets of moisture from the mouths of patients, as well as by objects contaminated with infected buccal and nasal secretions—when these objects are touched with the hands and the latter then carried to the mouth or nose—suggests in itself that the incidence should be greatest where numbers of individuals dwell in close, promiscuous association. Small groups of persons, it would seem, may escape infection far more easily than larger aggregations living in common, exposure of a single member among the latter being necessarily more likely to occur, owing to the very number with which he comes in contact, than among smaller, e. g., family, groups, yet being equally capable of transmitting the disease to the entire number of individuals with whom the person exposed lives. That such considerations as these are of great significance in relation to the incidence of the disease has been strongly suggested by the recent experiences with epidemic influenza in the army camps and, in general, in institutions in which considerable numbers of persons live together. According to Soper, no less than twenty per cent. of the soldiers in the U. S. Army camps were attacked by the disease in the pandemic of 1918. While definite data as regards incidence in the civil population are not available, it appears very unlikely that as high a percentage as prevailed in the camps was here reached.

Again, actual figures can be cited to show that, without reference to the incidence, the death rate was much higher among large aggregations of individuals than among smaller groups. For the troops in barracks, generally fifty to 150 sleeping in a room, Heiser, 1918, has estimated the death rate for the period of the epidemic at eleven per thousand. In Boston, one of the cities of the United States most severely afflicted by the disease, the death rate among the male age group of from twenty to thirty years was but seven per thousand, while in Chicago, the death rate among the same group, corresponding in age and sex to the troops in camps,

was but four per thousand, or approximately one-third of the army rate.

The unfavorable influence of housing large numbers of individuals together is further strikingly shown by observations in the Students' Army Training Corps and among college students dwelling in various grades of aggregation. The more nearly the housing, eating, and congregating conditions in the Students' Training Corps approximated normal college conditions, the lower the death rate (Heiser) while the more they approximated army barracks, the greater the ratio of deaths. Among 3,100 students at the University of Wisconsin, of whom but few were in barracks, the death rate was only 3.8 per thousand, i. e., approximately that of the twenty to thirty age group in the whole city of Chicago. Among 600 vocational students at the same university, however, housed in approved army barracks, the death rate was ten per thousand, while among 4,000 vocational students at the University of Minnesota, where the men lived in common in even larger groups than exist in the average army barrack, many hundreds sleeping in a single room, the death rate was no less than eighteen per thousand. Heiser calls particular attention to the fact that high death rates such as these occurred in barracks in which the air space and square floor area approximated the generally approved standard of 500 cubic feet of air space and fifty square feet of floor area per person. Ventilation, moreover, was generally good in the buildings in which these high death rates occurred.

As a matter of fact, the relatively high mortality from influenza among men quartered together in considerable numbers is only to be expected, experience having long ago shown that such aggregation tends to produce a high death rate from respiratory disease as a class. Laboratory research in United States Army hospitals has indeed proved that in large wards the bacterial flora in the throats of the various patients tend toward an equalizing readjustment, whereby any individuals newly admitted convey their throat flora to those quartered with them. From this it may be presumed that whatever highly virulent strains are introduced by newcomers more readily extend to the entire mass of individuals present than they could have had these individuals been living apart.

That close aggregation increases in particular the incidence and death rate of complicating pneumonia rather than the incidence of influenza *per se* appears to be indicated by a comparison of figures relating, respectively, to barrack camps and tent camps occupied by American military forces. In the first place, in the tent camps, in which the men were obviously less crowded than in the barracks, the epidemic appeared about one week later than it did in the barracks—though when it was once established, its progress was as rapid among the tent camps as among the barracks. But while the proportion of influenza cases among the tent and barrack troops was approximately the same—in each case somewhat over twenty per cent.—the percentage of cases complicated by pneumonia was but 13.9 per cent. among the tent dwellers as against nineteen per cent. among the barrack men,

while the case fatality of pneumonia was likewise lower among the tent dwellers, viz., 30.1 per cent. instead of thirty-five per cent. Multiplying these percentages together in each instance, we obtain the figures 418 and 665, respectively, showing that the actual fatalities from pneumonia were over fifty per cent. greater among the men in the barracks than among the tent dwellers.

Such observations illustrate rather plainly the danger of crowded living conditions, not only as regards the lethal risk when once influenza has set in, but also to some extent as regards the general incidence of the disease. Consequently avoidance of crowded conditions should be given due consideration as a definite factor in the prevention of high morbidity and mortality from this disease.

(To be continued.)

Pathology of Lethargic Encephalitis.—G. Marinesco (*Bulletin de l'Académie de médecine*, November 5, 1918) notes that this condition was first described by Economo, and that many cases of it have been brought to light and studied in France and England since Netter called attention to it in the spring of 1918. The author's pathological study is based on material from four cases. Among the chief features were intra and perivascular hemorrhages situated particularly in the substantia nigra, the raphe, and the gray substance surrounding the aqueduct of Sylvius. The hemorrhages were not exclusively localized, however, about the vessel walls, but pressed into the parenchyma in streaky formations. The lesions of the nerve cells were not found very intense, differing in this respect from those of infantile paralysis. Even in the vicinity of the foci of inflammation the nerve cells preserved their ordinary morphologic features and did not become the prey of neurophages. Yet in some regions, such as the dorsal pneumogastric centre, the locus cœruleus, and the locus niger, there was a marked diminution in the number of nerve cells and atrophy of those that remain. Less pronounced cellular changes were noticed in the upper part of the oculomotor nucleus, in that of the facial, and in one case, in the anterior horn cells of the superior cervical region. In the locus niger and locus cœruleus there had occurred a process of cytolysis which set free melanic pigment—the latter then engulfed by neighboring neuroglia cells acting as pigmentophages. Inflammation of the meninges and meningeal veins constitutes a frequent change in lethargic encephalitis, and the motor disturbances are undoubtedly due to involvement of the roots of the oculomotor, hypoglossal, pneumogastric, etc. In the medulla and peduncles of two cases the author found colonies of peculiar corpuscles—possibly parasitic cells—straining with the Leishman and Gram stains. The virus of the disease probably extends from the nasopharynx along the lymphatic channels of the nerves to the bulb and pons. The condition constitutes a distinct form of inflammatory poli-encephalitis, which differs in respect of the existence of this inflammation from the poli-encephalitis of botulism and the hemorrhagic poli-encephalitis of Wernicke.

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WILL GERMANY REINSTATE HERSELF?

Is Germany to occupy again the place once accorded to her in the world of science and learning, particularly as it concerns us in the field of medicine, where she has contributed much? It rests with Germany herself whether this shall be. At present there attaches to her too ill a savor, the too recent memory of her exaggerated frightfulness to permit those who would otherwise do so to welcome her collaboration in the fields in which she once mutually engaged with the other nations. The crimes of which she has been guilty now overshadow such work and she alone can change this. Those within her borders, whose vision is broader than national boundaries, those whose interest is really concerned with the progress of the work that make for humanity and in the sharing of their own country in such work—and there must exist these men and women still—have upon them a task which they dare not shirk. It is their duty to their nation and to humanity and its progress that they arise and repudiate the outrageous brutality with which Germany's name has been deeply dyed.

The testimony of the savants of Lille, men who speak with the accustomed calmness and deliberation of thought and speech which belong to professional circles, brings again certain facts to the front with which the world has grown too familiar. They are facts which wring the heart of humanity, first with profound sympathy and

sorrow for those who have suffered at Germany's hands, then with deepest pain and a vicarious shame that such things should have been permitted and encouraged by any representative body of the German people.

These men of Lille protest formally to the Paris Academy of Medicine [See Paris Letter in *Medical Record*, January 11, 1919], not because of the destruction and various acts of ruthlessness which may be perhaps considered as acts of war, but against the deportations and cruelties practised upon the civilian population. They mention that 10,000 young girls and women were taken from their homes into Germany, where they were subjected to unspeakable treatment. If they protested they were met with unceasing violence as an answer to their protest. Then there was the later arrest of the young men and the aged ones and girls between fourteen and eighteen and setting them to work in the front lines, where they were subject to the fire of their own troops and where many were killed. Then there was also the deportation into Poland in midwinter of 1,000 hostages, 400 of them women of the highest intellectual and cultural classes of the city. Here they were compelled to work in most degrading occupations, after an unforgettable journey of eight days and nights in crowded freight cars. These things, the address goes on to state, were "planned and executed with studied cruelty by General Solner and his aide-de-camp, Colonel Hemmel," with the soldiers in general participating in them.

The reply of the Academy to this address calls upon the savants of Germany to repudiate such inhuman actions of their compatriots or all relations with them must cease. Nothing could so redeem Germany in the eyes of the world, in fact nothing else can purge her from the crimes wherewith she is stained, than an open and honest avowal of such a sort from those who still must represent within her the love of truth, of justice and right and of earnest and actual progress. This and this alone, voicing a sincere regret and sorrow for the flagrant acts in such appalling opposition to these principles, can purge the national soul and lead to reestablishment among the other nations, particularly in the circles of science and culture and all that makes for mental and moral advance. Then and only then can the broken trust be restored and the service which Germany had rendered in the past and toward

which her rehabilitation should tend for the future be assured and be brought again into the course of progress. There is no higher courage than that which sincerely acknowledges fault and by such could the leaders of German learning prove themselves once more worthy of admission to the ranks of scholarship and scientific pursuits and the service of these to humanity, so they could best reinstate their nation in an honored place in the world.

CONTAGIOUS DISEASES IN HOSPITALS.

In recent years hospitals have almost entirely lost the dread which used to characterize them in the minds of a great many people a generation ago, the remains of which may still be encountered, especially among those beyond middle life. There was an excellent reason for this, for the mortality in ordinary hospitals a generation ago was often as high as fifty per cent. and it was no unusual event to have a patient go in suffering from some simple surgical condition and have one of the severe contagious diseases develop, even typhus or cholera, or erysipelas or hospital gangrene, which would perhaps end fatally. It has now come to be recognized, however, that the best place for most people, who are ill, is in the hospital and that they will get better and more skillful care there than anywhere else. One of the difficulties, however, in hospital management has been that many of the ordinary contagious diseases, and especially the contagious diseases of childhood, could not well be received because of the danger of the disease being conveyed to other patients. Undoubtedly many of the children would be much better off in the hospital than at home, and besides, this would make it possible to minimize the danger of contagion for others in the family; but hospital conditions would not warrant the thought of it. A time will surely come when what are called the ordinary diseases of childhood will not be thought of as more or less inevitable—indeed, that time has now already come—and when it will be considered eminently advisable to try to prevent the spread of these diseases by proper segregation; but so far the problem has seemed almost insoluble. It is extremely interesting to note the conclusions which have been reached as the result of the experience at Ellis Island, where probably more crossinfections of contagious diseases are treated than in any other hospital in the world. Out of more than 6,000 admissions to the hospital about 4,250 enter the contagious disease ward. These are all treated by the same personnel;

they are all served by the same laundry and kitchen, and the results have been fairly satisfactory. The decrease in the death rate for the last few years has been striking. In scarcely more than four per cent. of the 6,000 patients admitted did another contagious disease develop before they were discharged from the hospital, and if those who were evidently infected with the second disease before admission were eliminated, scarcely more than two per cent. actually received their contagion in the hospital, in spite of the apparently grave danger of contact distribution of the disease which existed.

The authorities of that hospital report: "The main conclusion to be drawn from our experience as set forth in the second part of this report is the practicability of treating contagious and noncontagious diseases in the same hospital and with the same nursing force. While it is not advisable to use the same open wards for both classes of cases, it has, nevertheless, been demonstrated that if these wards are cut up into small cubicles and the proper nursing technic enforced, there is practically no danger of crossinfection. As a natural corollary to this method it would follow that all hospitals should have provisions for treating cases by the cubicle system and thus be prepared to receive contagious cases in an emergency. It would also follow that small communities which can not afford both a general and an isolation hospital should plan their general hospital and its management so that contagious diseases might be received as freely as noncontagious."

Some of their experience with regard to the disinfection of rooms is of interest not only to hospitals but also to the physician in general practice and the general public. Their rule is "As soon as a patient is discharged have all windows opened and the floor scrubbed, the bed stripped, and bedding wrapped up and sent to the sterilizing room. Every utensil and belonging of all kinds must be removed from the room in a way to cause no infection to other rooms, and the bedstead washed down with a two per cent. creolin solution."

They used to employ fumigation by routine until the summer of 1914, but there has never been a case of crossinfection traceable to room contamination since the replacement of fumigation and the practice of simple washing and scrubbing, which has now been substituted. Rooms are usually left vacant for a time, with the windows open, but in case of necessity there is no hesitancy in using them immediately after mechanical cleansing. Ordinary washing of the

hands in soap and water has been demonstrated to be of very little value, and if the washing is done in nonrunning water the hands often come out more infected than before. Even the more or less perfunctory dipping of the hands into a two per cent. creolin solution seems to be not sufficient, in the Ellis Island experience, to prevent the carrying of crossinfections. The hands are not thoroughly sterilized by such a procedure, but the number of microorganisms is greatly reduced and the chance of infection correspondingly diminished.

In a word, some of the important problems of the hospital care of infectious diseases would seem to be solved, or at least a beginning of their solution suggested, by these Ellis Island experiences, which have been made the subject of a special *Public Health Bulletin* (No. 95), issued by the United States Public Health Service.

THE IMPORTANCE OF GREENS.

"They are dangerous guides, the feelings," was an essentially Victorian attitude toward our instincts which is giving way to a more liberal spirit. Our feelings seem to be excellent guides in many respects. The normal instincts are undoubtedly the effect of the cumulative heredity. All races in the temperate and tropical zones use "greens" of some sort, that is, vegetables or leaves of plants, whether in eating the heart of the cabbage palm in the South Sea Islands, the bleached endive of the café, the sauerkraut of the Teuton races, or the corned beef and cabbage of the Celts, we find this instinctive appetite for some kind of green food manifesting itself. In view of the relatively small nutritive value of such food as reckoned in calories, the question has arisen whether they are worth what they cost.

In the face of the necessity for rigid economy in foodstuffs, and of the high cost of green food such as lettuce, cabbage, etc., in proportion to the direct food value, Dr. T. B. Osborne, and Dr. Lafayette B. Mendel, of Yale University, undertook an extensive study of the effects of green foods on growth. It is only of recent years that we have come to realize the important part the vitamins play in the animal economy, and the results of these studies are particularly interesting as showing that this importance can hardly be overrated. Previous studies have shown the value of the water soluble vitamins found in cereals and legumes. The studies of McCollum and others have indicated the value of the fat soluble vitamins which are found in considerable

quantities in the green leaves of plants. The studies made by Osborne and Mendel, (*Journal of Biological Chemistry*, January, 1919, p. 187) show that these accessory foodstuffs present in green plants are essential to normal growth and welfare. This conclusion, while put forth in a tentative manner, since the examination is only a preliminary one, is nevertheless sufficiently definite to warrant the authors in drawing the conclusion that "green vegetables supply an important addition to the diet of man, because the staples, such as cereals, meats, potatoes, fats, and sugar, probably furnish too small an amount of either of these vitamins to meet fully the requirements of an adequate dietary. Therefore, care should be taken not to reduce greatly the quantity of green vegetables customarily eaten until more is learned about the actual requirements for these food factors and their relative abundance in the commonly used vegetables and green foods. Only then will it be safe to apply the results obtained in the laboratory to attempts to effect economies in the use of these relatively expensive food products." These conclusions, arrived at from a scientific, laboratory standpoint, coincide with those arrived at by mankind through ages of experiment. It may be found that a considerable part of the therapeutic value of the *tisanes* of the French, the "yarb tea" of our grandmothers, was due to the vitamins contained in the brew. Certainly, we have progressed far past the mid Victorian attitude as to the danger from following the promptings of instinct.

RADIOLOGICAL STUDY OF CONGENITAL HEART LESIONS

Radiological examination in congenital cardiac lesions is of utmost importance and its usefulness cannot be questioned at the present day. But the data it may reveal may vary in importance. In cases where the diagnosis appears perfectly clear a radiological examination will confirm the clinical evidences and this control is not to be overlooked. In cases of difficulty—and these are the more numerous—the x ray will settle an uncertain diagnosis or correct an erroneous one. Thus, in some recently reported cases, the clinical examination of the patients led to a legitimate supposition that Botal's foramen was patent, but a radiological study of the cases affirmed the coexistence of a stenosis of the pulmonary artery.

It is above all in congenital cyanosis without audible signs that x ray examination will render important service and such instances are by no means

exceptional. Besson in his thesis (Paris, 1902) recorded six cases of congenital cyanosis without stethoscopic signs and more recently Malarte (Thesis, Paris, 1915) has reverted to the question and published five additional cases. In all of Besson's cases the pulmonary stenosis involved the entire vessel with hypertrophy of the right ventricle. The question very naturally comes up as to whether radiological examination may furnish interesting data in certain rare forms of cardiac malformation where diagnosis is extremely difficult. Interauricular patency, either alone or combined with a stenosis of the pulmonary artery, is seldom diagnosed with any degree of certainty and often only the existence of this lesion is suspected. Now, in all autopsy records a considerable increase in the size of the right auricle is mentioned and in an anteroposterior radiosopic examination, the lower right arch, corresponding to the external border of the right auricle, it is easy to estimate the degree of the hypertrophic dilatation of the auricle, which can be controlled by an examination in the left anterior oblique position.

The persistence of the arterial duct, the *semeiology* which has been so minutely described by Franck, is only occasionally suspected clinically and to date no record of a radiosopic examination has been published. The nine instances published by the two Groëdels need not, we believe, be taken into consideration as their conclusions do not seem to have any serious foundation. Regarding exceptional cardiac malformation, such as transposition of the vessels, divers forms of cardiac ectopia, etc., records of radiosopic examinations are as yet too incomplete for us to draw any conclusions from them.

A SMALLPOX WARNING.

A note of warning has been sounded to the physicians of this country regarding the possibility of a smallpox epidemic. The Health Department of New York city has been informed that an epidemic is raging at the present moment in Italy. The outbreak originally occurred in Naples and the disease is of the most fulminating type; the mortality rates being higher than that of any other epidemic ever recorded. Dr. Royal S. Copeland, Commissioner of Health, states that every precaution is being taken to prevent the disease from reaching our shores. The passengers on all boats sailing from Italian ports are carefully examined and not allowed to land unless they have been away from Italy for at least eighteen days. The same rules are applied to people coming from other European ports who have been in

Italy recently. The physicians of the country are warned to be prepared in case the disease should find a method of entering this country in spite of the extreme vigilance taken by the health authorities. Smallpox, thanks to systematic vaccination, has become a disease rarely encountered in general practice, therefore it would be advisable for physicians to study the literature in regard to the prevention and treatment of smallpox. A great deal might have been done to lower the mortality rates in our recent influenza epidemic if we had been fortunate enough to have been warned in time and if we had been able to study the disease. In the case of smallpox we have the advantage of an efficient prophylactic measure in the form of vaccination. We also have an extensive literature on the subject, as smallpox is one of the oldest recognized diseases of mankind and records of the care of patients suffering from the disease date back to antiquity. For centuries past the Chinese have known of the efficacy of wrapping red material about smallpox patients and so in a measure lessen the malignancy of the disease. In later years we have had the more scientific method of vaccination. We earnestly hope that the conflagration of the present epidemic will be arrested soon and that the dread disease will not visit us. Nevertheless, let us take advantage of the researches of the past; heed the warning and be prepared.

THE CARE OF BENEFICIARIES OF WAR RISK INSURANCE.

Under the terms of the war risk insurance, all participating in the insurance are entitled to hospital care by the government free of charge, in addition to the disability allowance provided for. Already, 24,500 soldiers, sailors and marines have been discharged from military service on account of tuberculosis, while 50,000 men suffering from epilepsy and psychoneuroses of various kinds and degree, had been discharged up to December 1, 1918. All of these are entitled to hospital treatment in addition to the war risk insurance. It has been proposed that the United States Public Health Service undertake the care of these men in its hospitals and sanatoria and in others which might be provided for the purpose. The army and navy hospitals will, of course, care for the troops and sailors so long as they are in the service, but when once they are discharged it will be difficult to provide care for them in the army and navy hospitals and sanatoria under existing laws. Indeed, new laws would have to be enacted to make it possible for the Public Health Service to undertake this task. The director of the war risk insurance bureau, which is itself a part of the Treasury Department like the Public Health Service, has made the request that such legislation be enacted. The project seems to have much to commend it and it deserves careful consideration.

News Items.

Psychological Entrance Examinations.—It is reported that the University of Pennsylvania has under consideration a plan to follow the lead of Columbia University in adopting a psychological test as an essential feature of the examinations for entrance into the undergraduate schools.

Health Sunday.—Surgeon General Rupert Blue, United States Public Health Service, has asked that the date of Health Sunday be changed to February 23d, as February 9th, the original date, has been designated as the day on which the Theodore Roosevelt memorial services are to be nationally observed.

Physicians Needed in Rural Districts.—Dr. Hermann M. Biggs, State Health Commissioner of New York, calls attention to the fact that many rural communities in New York are absolutely without a physician, and in many cases the condition is serious, as neighboring towns can no longer be depended upon for medical assistance in emergencies on account of the bad condition of roads.

Red Cross Work in France.—Up to the end of last June, the American Red Cross had expended \$15,453,050 on behalf of the American soldiers in France, and \$13,829,418 had been appropriated to the same use for the subsequent six months. Canteens were established before the arrival of the troops, six being in operation in March, when the first American troops began to arrive. The Red Cross has made an appropriation of \$5,438,919, to cover the cost of maintaining the emergency hospitals and dispensaries which are kept at the disposal of the military authorities.

Narcotic Control Regulations.—For the enforcement of the new antinarcotic law of the State of New York, the State has been divided into three districts. The metropolitan district of New York has been assigned to the first deputy, George H. Whitney, of Mechanicsville, N. Y., and to the third deputy, Mrs. Rita A. Yawger. The Western district has been assigned to the second deputy, Dr. Addison T. Halstead, of Yates County, and the Albany district will be under the immediate supervision of the commissioner, Frank Richardson. Blanks have been sent out to 30,000 persons who will be required to use such blanks either in the purchase, the sale, or the prescribing of narcotics.

Prevalence of Influenza in the United States.—Reports received by the Public Health Service from State health officers and zones surrounding army camps indicate that up to January 17th there had not been any decided general change in the prevalence of influenza in the United States. In Louisiana a recrudescence of the disease was reported from a number of places and in California the disease appeared to be increasing in many communities. The State reports for the week ending January 11th, compared with the preceding week, showed increases in the number of cases reported from Arkansas, California, Florida, Indiana, Kansas, Louisiana, Massachusetts, Oregon and Washington. Decreases in the number of cases were reported from Connecticut, Maine, Michigan, New Jersey, North Carolina, Vermont and Virginia.

Industrial Hygiene Library.—The Department of Labor, Washington, D. C., is planning to collect all the information available bearing on questions of health in industry, industrial safety, and employment management. This material will be properly classified and will be readily accessible for reference.

Over One Hundred Thousand Wounded Soldiers Still Overseas.—A report from the Surgeon General's Office states that on January 23d approximately 104,000 wounded American soldiers were still in hospitals overseas, many of whom will not be brought back to this country until they recover. In the hospitals in this country there are now about 4,500 vacant beds, which can be placed into use as additional wounded and sick are returned.

Seven Hospitals for Amputation Cases.—According to instructions issued by Surgeon General Ireland, all cases in which amputation is necessary among soldiers both from overseas and from camps in the United States, will be concentrated at the following seven hospitals: General Hospital No. 3, Colonia, N. J. (leg amputations only); General Hospital No. 6, Fort McPherson, Ga.; General Hospital No. 10, Boston, Mass.; General Hospital No. 26, Fort Des Moines, Ia.; General Hospital No. 29, Fort Snelling, Minn.; Walter Reed General Hospital, Washington, D. C.; Letterman General Hospital, San Francisco, Cal.

Assistant Physicians Wanted in State Hospitals.—Among the positions for which the New York State Civil Service Commission will hold examinations on March 1st is that of physician, regular or homeopathic, in State hospitals, and for other positions of a similar nature in various State and county institutions. The salary in the State hospitals is \$1,200, increasing \$100 each year until \$1,600 is reached, with maintenance. The examination is open to both men and women who are licensed medical practitioners in New York State. For full particulars and the necessary application blanks address the State Civil Service Commission, Albany, N. Y.

Personal.—Captain Oliver B. Kiel, of Wichita Falls, Tex., Medical Corps, United States Army, detailed to the air service, has been authorized by the Italian Minister of War to wear the Italian service ribbon, instituted by royal decree on May 21, 1918.

Dr. H. J. Novack, of Philadelphia, announces that his address has been changed from 3131 West Norris Street to Thirty-second and Diamond Streets.

Dr. Alexis Carrel, who has the rank of major in the Medical Corps of the French Army, has returned from France and will resume his work at the Rockefeller Institute for Medical Research.

Miss Bertha Cornwall, of the Army Nurses' Reserve Corps, on duty with Field Hospital Company No. 12, and Miss Ida M. Ferguson, of the Army Nurse Corps, on duty at Field Hospital No. 12, have both been cited for bravery in remaining at their respective posts and assisting in operations under shell fire, on October 8th, at great danger to their lives, thereby rendering important aid in saving the lives of many wounded men.

A Convalescing Centre at Chickamauga.—A convalescing centre is to be established in or near Chickamauga Park, Ga., in which trades will be taught to the wounded during their convalescence, and where possibly, positions will be found for the patients before they leave the hospital. The group of buildings occupied by the medical training school at Camp Greenleaf will be used.

Antidiabetic Serum Stolen.—Dr. Thomas W. Edgar of 766 West End avenue, has reported to the police that ten vials of a serum recently perfected by him for the treatment of diabetes were stolen by some person, or persons unknown, apparently by a stranger who called ostensibly to see him and during his absence, was left in his office. According to the newspapers reports, Doctor Edgar was preparing a lecture on the serum for presentation to the New York Academy of Medicine.

A Red Cross Antityphus Train in Siberia.—According to a recent report from Vladivostock, an allied antityphus train, operated by the American Red Cross, is an important feature of relief work in Siberia. The train is to be sent out through Siberia to fight the typhus situation, which is said to be very grave. The plan was decided upon by the Allied Sanitary Commission and the funds are to be supplied by the various allied powers. Dr. Joshua Rosett, of Baltimore, has been placed in charge of the train and will be medical director. The train is composed of fourteen cars, including cars with bathing facilities, cars for clothing, for drugs, and for personnel.

The Pennsylvania Bureau of Drug Control.—A special bulletin has been issued by the Department of Health of the State of Pennsylvania, explaining the antinarcotic law of that state to every physician, dentist, veterinarian, pharmacist, druggist, and registered nurse in the State. The law declares it illegal for any one either to have possession of or to traffic in narcotic drugs except persons belonging to certain designated classes. The regulations regarding the handling and prescribing of these drugs by pharmacists, physicians, dentists, and veterinarians are detailed and explicit. A bureau of drug control has been organized under the direction of Dr. Thomas S. Blair which will be charged with the execution of the law.

Meetings of Medical Societies to Be Held in New York.—During the coming week the following medical societies will meet in New York:

MONDAY, February 3d.—Clinical Society of the New York Polyclinic Medical School and Hospital; Brooklyn Hospital Club (Section I).

TUESDAY, February 4th.—New York Academy of Medicine (Section in Dermatology and Syphilis); Medical Society of the Harlem Hospital; New York Neurological Society; Society of Alumni of Lebanon Hospital.

WEDNESDAY, February 5th.—New York Academy of Medicine (Section in Historical Medicine); Bronx Medical Association; Harlem Medical Association; Psychiatric Society of New York; Society of Alumni of Bellevue Hospital; Brooklyn Hospital Club (Section III); Brooklyn Society for Neurology.

THURSDAY, February 6th.—New York Academy of Medicine (stated meeting); Brooklyn Surgical Society.

FRIDAY, February 7th.—New York Academy of Medicine (Section in Surgery); New York Microscopical Society; Practitioners' Society of New York; Society for Serology and Hematology (annual); Alumni Association of Roosevelt Hospital; Gynecological Society of Brooklyn.

Philadelphia Medical Club.—Dr. G. Oram Ring was elected president of the club at the recent annual meeting, and other officers were elected as follows: Dr. Barton Cooke Hirst, first vice-president; Dr. Henry Beates, Jr., second vice-president; Dr. Williams S. Wray, secretary; Dr. Lewis H. Adler, Jr., treasurer; Dr. E. E. Montgomery, governor; Dr. J. Torrance Rugh, Dr. William E. Parke, Dr. Howard A. Sutton, Dr. Levi J. Hammond, and Dr. William M. Sweet, directors.

Immense Exports of American Chemicals.—Before the war the United States imported about three or four times the quantity of chemicals which it exported. Eliminating nitrate of soda, a natural product imported from Chili, and certain mucilaginous gums imported from the tropics, our importations of chemicals has fallen to an almost negligible quantity, while we have exported during the past year approximately \$175,000,000 worth of chemicals. In the year preceding the war, we exported only \$27,000,000 worth of chemical products.

Philadelphia Medical Societies.—During the coming week the following medical societies will meet in Philadelphia:

MONDAY, February 3d.—Blockley Medical Society; Clinical Association.

TUESDAY, February 4th.—Medical Examiners' Association.

WEDNESDAY, February 5th.—College of Physicians; Laryngological Society.

THURSDAY, February 6th.—Obstetrical Society.

FRIDAY, February 7th.—Kensington Branch of the County Medical Society; Physicians' Motor Club (directors).

Influenza Reports from Army Hospitals.—Surgeon General Ireland has ordered that reports regarding the clinical aspects of influenza shall be furnished by all base and general hospitals of the army. A questionnaire accompanies each letter of instructions inquiring into the symptoms noted in the early stages of the disease, those which develop later, the effect of the infection on the various organs of the body, and the conditions noticed during convalescence. It is believed that in this way reliable data will be obtained which will be of interest to the medical profession.

Gift to Broad Street Hospital.—An anonymous gift of \$100,000 has been made to the Broad Street Hospital, New York, with the provision that the balance of \$200,000 needed for the erection of an addition to the hospital be raised by March 1st of this year. Several admirers of the late Colonel Theodore Roosevelt have pledged themselves, as a memorial to him, to equip and maintain by endowment an elaborate suite of rooms in the addition when it is erected. A number of subscriptions of \$5,000, \$1,000, and \$500, to an amount of \$60,000 have been contributed, and the two buildings adjoining the hospital have been purchased and are being held in trust for the expansion. No income whatever is received by the Broad Street Hospital from either the city or the State for the care of its patients, although it is a public institution giving treatment free as well as for pay. The hospital was opened in September, 1917, with a bed capacity of thirty-five, and three months later the demands of the district were such as to make it necessary to lease the entire building next door.

Miscellany from Home and Foreign Journals

Influenza Pneumonia versus Pneumonic Plague.—H. de Brun (*Bulletin de l'Académie de médecine*, November 12, 1918), having had several years' experience in Syria with plague, including an epidemic of pneumonic plague, protests against the view that pneumonia following influenza may be related to the Eastern disease. In pneumonic plague, the cough is characterized by a quiet, spasmodic expiration, repeated continuously for long periods every ten to thirty seconds, and might be termed a "whispering cough." On the second or third day expectoration begins, at first without apparent significance—yet carrying innumerable plague bacilli—and later very copious and bloody. A distressing, oppressive dyspnea vaguely localized in the retrosternal region constitutes a prominent feature from the beginning, and is accounted for neither by any abnormal condition of the heart nor of the lungs. As a rule there is no dullness, bronchial breathing, nor change of breath sounds; there is no predilection for the bases of the lungs. The pulse is full and regular at the rate of 100 to 120 till the agonal period. The condition of the tongue, the vomiting, and the melena are additional features distinguishing pneumonic plague from influenza with pneumonia. There is a special, whispering type of aphonia. Instead of the optimism frequently manifested on the day before death in influenza, there is a distressing consciousness of impending death in the pneumonic plague patient. Nearly all cases of the latter type end fatally. Septicemia is the underlying factor in these patients, the blood always containing large numbers of plague bacilli. Finally, whereas in pneumonia—whether influenzal or not—there is usually a marked leucocytosis and polynucleosis, in pneumonic plague there is a most striking leukopenia, 1,200 to 1,500, from the first day of the disease.

Diagnostic Value of Dullness in Traumatic Intraabdominal Extravasations.—Costantini and Vigot (*Paris médical*, November 2, 1918) note the importance of recognizing a fluid extravasation in penetrating wounds of the abdomen as well as in abdominal contusions complicated with visceral or vascular injury, such an extravasation indicating immediate operation. Simple perforation of the alimentary tract seldom results in marked extravasation, but let the smallest artery, e. g., some small omental vessel, be injured, and a litre of blood will easily escape into the abdominal cavity. Of the three recognized signs of visceral injury, e. g., rigidity, prehepatic sonority, and iliac dullness, the first is unreliable because it is lacking where there has been a simple hemorrhage without visceral injury and present where there is merely a wound of the diaphragm; the second, is simply a sign of meteorism, but the third is a definitely valuable indication. The migration of blood toward the right iliac fossa, however, as mentioned in the usual textbooks, is an erroneous deduction. As a matter of fact, blood extravasated in the abdomen tends generally to sag into Douglas's cul de sac. Unless the amount exceeds 200 grams it does not rise above the brim of the pelvis, and cannot be

detected clinically. Where it does rise higher, it will usually yield dullness in the right iliac region rather than in the left, for the latter is almost always occupied by the sigmoid loop, which is not displaced by the fluid and continues to yield a tympanitic note to percussion. Less frequently, the cecum is inserted low, while the mesosigmoid is very short and the extravasated fluid passes above it; leftsided dullness is then found, with marked tympany at the right. Where the extravasation is relatively slight, rendering comparison of the two sides difficult, both heavy and light percussion should be tried; if a difference between the two sides can be definitely established, an extravasation is present and operation is indicated. In patients who have been lying on the side, the cul de sac has not been the most dependent portion of the abdomen, and dullness in the iliac fossæ will be sought in vain. On the other hand, an area of dullness will easily be found on the side of the abdomen upon which the patient has been lying. If now the patient is turned on the back, the dullness will be observed gradually to descend and occupy the iliac fossa of the same side; under such conditions, celiotomy is clearly indicated.

Treatment of Hysteria.—Julian Mast Wolfsohn (*Journal A. M. A.*, December 21, 1918) bases his recommendations upon an experience of 573 cases treated in British and American military hospitals with cures in ninety-five per cent. After giving the details of the treatment of several forms of hysteria the author gives the following rules for the complete cure of hysterical symptoms. First, study each case thoroughly, taking a complete history, even if the character of the condition seems evident. Then make a careful psychological study, encouraging the patient to talk of himself. An atmosphere of confidence and optimism must be produced, making use of the presence of cured cases. Resistance to the cure on the part of the patient must be broken by strong persuasion or by the use of faradism. The physician must always be master of the situation and must have a ready response for all questions asked by the patient. The patient must be taken into his confidence and the way in which an immediate cure is to be effected explained. Severely affected patients should be isolated from other cases for a while before treatment is started. Treatment should be undertaken at the earliest moment after development of hysteria to prevent the symptoms from becoming fixed. The method of treatment must be varied with the mentality of the patient, the desire for recovery, his education and his social level. Intelligent patients are best handled with frankness, uneducated ones with simple suggestion plus some material aid. All extraneous noises and other sources of distraction must be removed during treatment. The physician must have a strong will for he cannot convince if he be not himself convinced. Strict military discipline and regular outdoor work are essential in aftercare. The affection must be made unprofitable for the patient.

The Prevention of Epidemics of Meningitis.—J. A. Glover (*British Medical Journal*, November 9, 1918) discusses the several factors which contribute to the outbreak of epidemic meningitis, especially with reference to the troops. The most important of these, and the one most easily attacked, is the question of crowding, or the space allowed per man in barracks. Careful investigations of the changes in carrier rates for the epidemic varieties of the meningococci, and of their relations to cases of the disease, show that the allowance of two and a half feet between beds has been reduced. The appearance of a high carrier rate generally indicates overcrowding and dangerous conditions. The approach of an epidemic outbreak can be foretold by a study of the carrier rate and the epidemic can usually be prevented by prompt reduction in crowding and by "spacing out" of the men's beds to a distance of not less than two and a half feet apart. A carrier rate amounting to twenty per cent. marks the danger line and figures above this rate are usually indicative of imminent danger of the outbreak of cases of meningitis. Carrier rates between ten and twenty per cent. are unsatisfactory and imply a certain amount of overcrowding. Under the best conditions in barracks the usual carrier rate should lie between two and five per cent. In addition to the spacing out of the beds, adequate provision should be made for ventilation, and each man should have at least forty square feet of floor space. The increase in the carrier rate following overcrowding occurs rapidly, while the reduction in the rate which follows spacing out and improved ventilation is far less rapid.

The Relation of the Ovary to the Causation of Sex.—John G. Murray, Jr. (*Bulletin of the Johns Hopkins Hospital*, December, 1918) presents a critical review of Dawson's theory that the supplying ovary is in reality the essential factor in the causation of sex. An analysis of Dawson's cases which are chosen to demonstrate the theory clinically shows that only four of them are acceptable proof of the above statement. Murray has gone over the records of 17,500 deliveries occurring on the Johns Hopkins Hospital Obstetric Service from September, 1896 to March, 1918, in an attempt to test the accuracy of Dawson's claim that a male foetus is due to the fertilization of an ovum that came from the right ovary and a female foetus is due to the fertilization of an ovum that came from the left ovary. A tabulation was made of seventy cases, there being actually seventy-five pregnancies, as five of the women were twice pregnant. In each case the location of the corpus luteum was demonstrated by Cæsarean section, at laparotomy for therapeutic abortion, at laparotomy within two weeks after delivery, or at autopsy. Also, there was no doubt as to the sex of the child. The corpus luteum was found in the right ovary in thirty-eight of the cases, and in the left in thirty-seven. In twenty-six of the cases (sixty-eight per cent.) in which the corpus luteum was situated in the right ovary, the child was male, and in the remaining twelve cases (thirty-two per cent.) the child was female. In twenty-one of the cases (fifty-seven per cent.) in which the corpus luteum

was located in the left ovary the child was male, while in the remaining sixteen the child was female. There were forty-seven male and twenty-eight female children. For the forty-seven males the corpus luteum was found in the right ovary in twenty-six instances, and in the left ovary in twenty-one, while for the twenty-eight females the corpus luteum was found in the right ovary in twelve instances, and in the left ovary in sixteen. These figures show that Dawson's theory is incorrect, and the clinical evidence indicates that the determination of sex is probably not due to any factor present in the unfertilized ovum. Murray concludes that the "chromosome theory" must be considered the only explanation of the causation of sex now acceptable, and that the sex of an unborn child cannot be foretold, nor can either sex be produced at will by any rules known at present.

The Bent Back of Soldiers.—A. F. Hurst (*British Medical Journal*, December 7, 1918) points out the fact that this common condition has been much studied abroad, but that no article about it has been written in English. The manifestation is a disabling and partially crippling one and it is always hysterical in nature, being secondary to some form of shock or trauma, but not necessarily a trauma involving the back. The one common feature of the condition is the complaint of pain in the back, or more rarely in the abdomen, which is relieved by bending forward. It is probable that some of the pain complained of is genuine, being due to the constant stretching of the small muscles and ligaments of the back, due to the assumed posture. The bent posture almost invariably disappears when the patient lies down. Treatment by psychotherapy is the only form permissible, and all measures which tend to fix the idea of disease more firmly in the patient's mind are harmful. Any form of psychotherapy is likely to succeed, but usually persuasion and reeducation yield the best and most rapid results. The patient is to be shown that the position is merely a bad habit, contracted when the originally severe pain was present. He is shown that when he lies down the back straightens and the pain that he had when standing disappears. This is used to convince him that there is no organic disease and he is made to understand that relaxation of the back muscles on standing erect would give the same relief. He is then stood with his heels and back close to a wall and his shoulders are slowly and firmly pushed back until they touch the wall. He is assured that the pain this causes will disappear as soon as he is erect, and that the less he resists the sooner he will be cured. Usually relaxation comes in a few moments and he is surprised to find that he can stand erect without pain. Then he is taught to walk in the erect position and the cure is complete. In certain very resistant cases good results are secured promptly by making the patient lie on his back on a long board which has a footpiece at right angles to its long axis. When he is straight the head end of the board is slowly raised until he is brought into the erect position. At this moment he may be told to walk off the board, which he will unsuspectingly do and so, greatly to his surprise, find himself cured.

Etiology and Mode of Transmission of Trench Fever.—R. P. Strong (*Bulletin de l'Académie de médecine*, November 12, 1918) notes that trench fever occasioned a higher morbidity than any other disease in certain armies on the Western front. The lower animals not being susceptible to the disease, human subjects were experimented upon, twenty-eight tests being made in relation to transmission by blood, thirty-eight to transmission by lice, sixteen to transmission by urine, feces, or sputum, and twenty-one to transmission by the type of virus causing the disease. Trench fever was thus brought on in sixty-two subjects. The conclusion was reached that trench fever is a specific infectious disease, and not a modified form of typhoid or paratyphoid fever. The virus causing the disease is of a resistant, filterable type, and occurs particularly in the blood plasma, which, when inoculated, reproduces the disease in previously healthy persons. The ordinary mode of transmission is by body lice; the bite of the louse is capable of inoculating the disease. The disease can be produced artificially by scarifying the skin and rubbing in a little infected louse excrement. A subject may have been entirely freed of lice before the time of onset of the disease. Lice need be harbored but a short period for inoculation to occur. The virus at times exists in the urine and sputum, and may be inoculated from such materials after scarification. The urine and sputum of cases must therefore be disinfected for prophylactic purposes. The disease is apparently not transmitted by recently hatched lice derived from infected adult lice.

The Influenza Epidemic in the British Armies in France.—The Influenza Committee (*British Medical Journal*, November 9, 1918) presents a report on various aspects of the epidemic of this disease as seen among British troops in France in 1918. Among other points especially brought out is the incubation period of seventy-two to 114 hours for the great majority of cases. Not only is the incubation period very short, but also the infectivity of the disease is very great and the spread of the disease extremely rapid. Its spread is by means of the excreta from the respiratory tract, as shown by careful records made in certain wards, in which the cases developed progressively in the beds on either side of single original cases, the date of appearance of the new cases being progressively later as the distance from the original cases increased. The disease as seen in France is very mild and has a gross mortality of two tenths of one per cent. The etiological organism seems to be the *Bacillus influenzae*, this belief being supported by the following observations: The organism is frequently found in the respiratory tract of persons ill with the disease, while it is uncommon among others; it may be recovered from the blood in a small number of severe cases during an epidemic; it occurs commonly in the pulmonary lesions of the fatal cases, even in the presence of complicating bronchopneumonia. Indirect evidence in support of its etiological rôle is found in the not infrequent demonstration of specific immune bodies in the blood serum of patients ill with the disease.

Normal Horse Serum in Acute Gonorrheal Epididymitis.—R. A. Brown (*Glasgow Medical Journal*, November, 1918) had previously reported favorable results in acute gonorrheal epididymitis from antidiphtheritic serum. During the last year he conducted comparative tests with normal horse serum in 100 cases. It was not, however, until the amount administered reached forty to fifty mls daily for five days that good results were obtained. In general, 200 to 250 mls of normal serum were found to be required to produce the therapeutic effects obtained with twenty-five to thirty mls of antidiphtheritic serum. In but one case out of the 100 was the amelioration of symptoms not progressive during the week through which the treatment was carried out. On the other hand, while antidiphtheritic serum produced an obvious constitutional reaction, there was no such reaction after the larger amount of normal serum. While the antidiphtheritic serum with the more severe shock reaction had a more rapid ameliorating effect on the symptoms of epididymitis than the normal serum, the latter nevertheless produced within a day or two a marked reduction in pain and scrotal swelling.

Occupational Cancer.—H. C. Ross (*Journal of Cancer Research*, October, 1918) states that during a government inquiry into pitch cancer at the briquette works in South Wales new clinical facts have been brought to light which suggest that some definite, if not specific, chemical rather than mechanical action has to do with the causation of industrial cancer. The investigation was extended to other commodities whose use may give rise to cancer. Among the substances investigated are coal, tar, pitch, soot, and other tarry commodities, petroleum, petrolatum, grease, and tobacco. This study shows that mechanical irritation plays a minor rôle, for the greater was the irritation produced by these commodities, the less was the cancer incidence. A likely assumption is that the specific chemical agents responsible for occupational cancer are organic nitrogenous substances of a group common to all the dangerous commodities. In the coal carbonization commodities the fact that the coal is bituminous is essential. The problem of finding this chemical substance was then attacked experimentally. The hypothesis of Cohnheim is not considered tenable, because the clinical facts regarding industrial cancer do not bear it out, and none of the other well known hypotheses formed a starting point any more satisfactory for the experiments undertaken. Therefore the working hypothesis is assumed that cells divide in response to stimulus from without, i. e., the reproduction of cells is initially prompted by death occurring among their neighbors, cell death thereby setting free the amino substances, and the latter exciting cell division among the surviving cells. The cell division producing agents are called auxetics. These were found to be present in many of the commodities investigated. When they are artificially introduced into animals they produce proliferation amounting to benign tumors, but the assertion cannot be made that this is the way the predisposition is caused naturally in living tissues, as it is impossible to obtain proof from lack of methods.

Cause of Early Death from Arsphenamine.—D. E. Jackson and M. I. Smith (*Journal of Pharmacology and Experimental Therapeutics*, November, 1918) investigated this question experimentally in anesthetized dogs. Slow injection of very dilute alkaline solutions produced no striking results, but as the rate of injection and concentration were increased, toxic symptoms appeared, the earliest consisting in a dilatation of the heart, perhaps mainly of the right side at first, a progressively increasing pulmonary blood pressure, and a slow, gradual, but not severe, fall of the systemic pressure. The rise in pulmonary arterial tension is ascribed partly to the alkalinity of the solutions used and partly to the specific action of the drug itself. Large toxic doses may tend to establish a state of increased irritability and instability in the heart, rarely with actual delirium cordis. The reactions of the internal organs are variable. As a rule, oncometric tracings of the spleen and intestinal loop show a dilatation, while the kidney usually contracts. Intermediary compounds occurring during the manufacture of arsphenamine did not prove very poisonous, and cannot account for the variable toxicity of different samples of the drug. Administration of tyramine is suggested for the relief of severe, acute, toxic symptoms suddenly manifested during or shortly after the intravenous injection of arsphenamine.

Indications for Citrated Blood Transfusion in Surgery.—Henri Costantini and Marcel Vigot (*Presse médicale*, November 7, 1918) emphasize the fact that when transfusion is done the vital forces of the body become occupied in two processes, first, destruction of the foreign blood, and second, restoration to a normal amount of the patient's own blood. As a result of these combined demands upon the vital forces, the resistance of the body to infection diminishes. At the Fourth Interallied Surgical Congress the conclusion was reached that transfusion is ineffectual and even dangerous in the treatment of infection because of the hemolysins that develop in the blood of the infected individual. The authors would go even further, and believe that transfusion is useful only where the surgeon taking care of a war wound is certain that the wound will soon become aseptic. From experience with transfusion in twenty-eight cases the writers conclude that the measure should be employed but sparingly in visceral wounds; it is contraindicated, e. g., by intestinal perforation with passage of fecal material into the peritoneal cavity, by extensive lung injuries, etc. A severely wounded subject, with multiple wounds inevitably destined to infection, should not be transfused. The subject most apt to benefit from transfusion is one with but one or two wounds and with copious hemorrhage. Any wounded individual subjected to transfusion should at all costs be protected from infection by radical surgical measures. Mere low blood pressure does not require transfusion which is indicated only when the radial pulse has almost or quite disappeared. In severely bled and shocked subjects suitable for transfusion the authors proceed thus: The patient is first well warmed up and placed in the inverted position for fifteen minutes. Half a litre of normal saline solution is meanwhile administered under the skin. If

the brachial pulse is now perceptible, the patient is placed on the operating table, still inverted, and half a litre of saline solution given intravenously. The field is prepared with iodine and towels, ethyl chloride anesthesia then instituted, and the operation carried out as rapidly but thoroughly as possible. Thus protected from infection, the case rendered appropriate for blood transfusion, if the latter is indicated in other respects. The amount of blood transfused is from 800 to 1,000 mls. The Jeanbrau method of transfusion is employed.

Serum Therapy in Lobar Pneumonia.—Leon S. Medalia and Nathan S. Schiff (*Journal A. M. A.*, November 30, 1918) studied two consecutive series of lobar pneumonia cases with reference to the relative value of Type I serum and polyvalent serum which had a potency against Type I equal to that of the monovalent serum. The first series of thirty cases received polyvalent serum and gave no mortality, and complications developed in only seven cases. The second series, receiving monovalent serum and numbering twenty cases, gave a mortality of ten per cent., with complications occurring in seven cases. These results were very decidedly in favor of the use of the polyvalent serum. In all cases anaphylaxis was carefully avoided by making an intradermal test for sensitiveness by injecting 0.5 mil of one per cent. antipneumococcus serum intradermally on the flexor surface of the arm, controlled by a similar injection of normal saline solution. If this test was negative it was followed in fifteen minutes by the subcutaneous injection of one mil of undiluted serum, and this, in turn, by fifty mls of the serum intravenously one hour later. The latter dose was repeated every twelve to twenty-four hours until the temperature, pulse and respiration warranted its discontinuance.

Artificial Pneumothorax in the Treatment of Gangrene of the Lung.—P. E. Weill (*Bulletin de l'Académie de médecine*, October 29, 1918) has found this treatment far more effectual than any other. The pneumothorax, which is instituted on the affected side, presses out the contents of the gangrenous focus. The lung being placed in a condition of atelectasis, the walls of the focus become agglutinated and a clinical as well as anatomical cure takes place within two weeks. The affected lung should previously have been examined with the x rays to ascertain the position of the gangrenous lesion and the condition of the pleura. Usually the latter contains a few mls of serous or serohemorrhagic fluid; this can easily be evacuated and the gas injected through the same needle with the aid of the x rays. Where there is no fluid nitrogen insufflation with the Kuss apparatus and Forlanini technic is indicated. The pneumothorax has generally to be completed and renewed after a few days' interval to procure complete recovery. As soon as it has been established, the temperature drops, the expectoration dries up—after a period of increase—the odor of the breath disappears, and the general condition rapidly improves. The procedure should be resorted to early, that it may cure the case before secondary gangrenous render this impossible. It is not available where gangrenous pleurisy or putrid pyopneumothorax has set in.

Transfusion in Pneumonias Complicating Influenza.—C. W. Ross and Erwin J. Hund (*Journal A. M. A.*, December 14, 1918) have given doses of 200 to 400 mls, repeated at intervals of twelve to twenty-four hours when there were no marked results, and have secured brilliant results in the desperate cases of pneumonia complicating influenza. Nine out of thirteen such patients showed definite localization of the pneumonic process, progressive increase in leucocytosis, resolution of the pneumonia, rapid disappearance of the cerebrospinal, respiratory, cardio-vascular, and renal disturbances, diminution in acidosis, and normal temperatures in from twenty-four to seventy-six hours. The blood used was whole, citrated blood, obtained from persons who had had definite influenza with pneumonia and had been convalescent for from three days to six weeks. The donors' bloods were tested by the Wassermann reaction and for compatibility with the blood of the recipients. A simple apparatus is described and illustrated for the collection and administration of the blood.

Pandemic Influenza and Secondary Pneumonia.—Walter V. Brem, George E. Bolling and Ervin J. Casper (*Journal A. M. A.*, December 28, 1918) studied an epidemic of about 3,000 cases of influenza with 408 cases of pneumonia, occurring among the troops at Camp Fremont. Among the prominent features noted, the hemorrhagic tendencies of the disease stood out especially strongly. Epistaxis was common throughout the epidemic and blood spitting, and even severe hemoptysis, occurred in the pneumonia cases. Metrorrhagia was common among the women affected, purpura was not uncommon, and at necropsy a fluid condition of the blood and hemorrhagic edema of the lungs were the usual findings. In spite of this clinical evidence of a blood dyscrasia laboratory investigations did not show its nature or show conclusive evidence of any such dyscrasia. Along with this clinical hemorrhagic dyscrasia further evidence of a disturbance of the bloodforming organs was found in the almost constant leukopenia of the initial infection. This persisted even during the early stages of the pneumonia and throughout in the fatal cases. It seemed evident, therefore, that the initial affection included a depression of the functions of the bone marrow, which might be overcome during the course of pneumonia in nonfatal cases after the primary infection had begun to wane. Both lobar and bronchopneumonic types of lung involvement occurred, and while bacteriologic studies did not illuminate the cause of the initial infection, the preponderating organisms found in the pneumonia cases were the *Bacillus influenzae*, pneumococci, chiefly of Type IV, and streptococci. The pneumococci and streptococci predominated in the lobar pneumonias, while the *Bacillus influenzae* was the most dominant in the bronchopneumonias. In the treatment of the disease decided benefit was found to result from the control of the tendency to hemorrhages by the use of coagulens, when given early. The prevention of continued hemorrhages into the lung alveoli following its early administration appeared to be the cause of the very low mortality, which was only 6.5 per cent.

Prophylactic Inoculation against Pneumonia.—E. A. Fennel (*Journal A. M. A.*, December 28, 1918) says that in the recent epidemic of influenza the development of bronchopneumonia was associated with such a high mortality as to be the cause of a panic which was evidenced in the use of a variety of unjustified therapeutic and prophylactic measures. The causative organism of the influenza is not yet definitely known, but it seems clear that the disease, when uncomplicated, runs a brief and mild course with recovery. The investigations into the organisms associated with the development of the serious bronchopneumonia agree in showing the almost constant presence of pneumococci of the fixed and heterogeneous types, and of streptococci. The present possibilities of prophylaxis, therefore, resolve themselves into the prevention of the pneumonia. The history of the development of our knowledge with reference to the prevention of pneumococcus infection is reviewed, especial attention being given to the work of Dochez and his associates in America and of Lister in South Africa. This work has proved the efficacy of prophylactic vaccination against Types I, II, and III, against which practically complete protection is obtainable. Such inoculation also gives some measure of protection against the heterogeneous types and against the streptococci, probably by virtue of the introduction of foreign protein. The saline pneumococcus vaccines, while thoroughly effective, have certain disadvantages, among which are their rapid deterioration, the necessity for the use of three or more doses at weekly intervals, and the occurrence of reactions following their use. These disadvantages can, however, be almost completely overcome by the use of a lipovaccine, which, though more difficult and more costly to prepare than the saline vaccine, is almost nontoxic and can be made so concentrated as to be effective in a single administration. The technic of preparing such a lipovaccine is given and attention is called to the fact that its bacterial content is accurately controlled by the use of weighed amounts of dried bacterial substance.

Report of Epidemic of Influenza.—I. W. Brewer (*Journal of Laboratory and Clinical Medicine*, December, 1918) bases his observations on the epidemic which occurred at Camp A. A. Humphreys, Virginia, during September and October, 1918. Sixteen per cent. of the camp had influenza and twenty-eight per cent. of these cases had pneumonia. The death rate for the influenza cases was ten per cent. and for the pneumonia cases thirty-five per cent. An effective measure in preventing the spread of the disease was screening the beds from each other by hanging a sheet between the individual beds. The incidence of influenza in this camp apparently bore a considerable relation to the density of the population. The colored troops contracted influenza much less frequently than the white troops, which is rather unusual, considering the general opinion that the colored race are more susceptible to diseases of the respiratory tract than are the white race. However, there was more complicating pneumonia among the colored soldiers, and the disease was more fatal among them.

Complement Deviation Test for Malaria.—

J. Gordon Thomson (*British Medical Journal*, December 7, 1918) has been successful in devising a complement deviation test applicable to cases of benign or malignant tertian malaria and useful both for diagnosis and for following the results of treatment. A culture is made of the malaria parasites from as heavily infected a case as possible, using Thomson's method. After forty-eight hours the supernatant serum is removed and an excess of distilled water is added to lake the sedimented corpuscles. By shaking, centrifuging, and replacing the water several times all of the hemoglobin can be removed, leaving the bodies of the red cells and the malarial parasites in the sediment. The sediment is then dissolved in as small an amount as possible of decinormal sodium hydrate and this solution is neutralized by normal hydrochloric acid. This is the antigen, and its anticomplementary power must be determined against guineapig's serum, the antigen being then diluted sufficiently to reduce this property. It is next titrated to determine the minimum dose of complement required. The test is then carried out in the usual way, using two known negative and two known positive serums as controls. Fixation is permitted to continue over night in the icebox and in the morning the sensitized red cells are added and the results read after fifteen minutes in the water bath at 37°C. Syphilitic serums give a positive reaction with this antigen and must be excluded by a preliminary test. The precise future utility of this test remains to be determined.

Tuberculous Dacryoadenitis.—C. Achard and A. Leblanc (*Bulletins et mémoires de la Société médicale des hôpitaux de Paris*, August 1, 1918) report a case of tuberculous disease of the lachrymal gland with skin tuberculosis of the upper eyelid in a man of forty years. The patient, on admission, coughed a great deal, with free expectoration, but had retained his appetite and had no intestinal disturbance. Death eventually occurred from the pulmonary condition. The diagnosis of the tuberculous nature of the eye lesions was based on their slow and torpid course, with the purplish aspect of the bases of the ulcerations and the surrounding skin, the tendency to sinus formation, and a positive result from guineapig inoculation with a bit of the diseased tissue. In most reported cases of tuberculous dacryoadenitis the glandular enlargement has been of the size of an almond, movable and not adherent to the skin—the latter normal or edematous. Tenderness has been absent, and the lesion as a whole of a sclerotic type, only exceptionally softening and discharging. The authors' case was peculiar in that there was present for a long time a dacryops of walnut size, apparently involving both the palpebral and orbital portions of the gland. Again, the condition was more virulent than usual, ulceration displacing sclerosis and the inflammatory process invading the skin of the entire lid. The local disease is believed by the authors to have been of hematogenous origin, and the dacryops itself to have been of a tuberculous nature and comparable, e. g., to tuberculous hydronephrosis.

Limitations of Radioscopy in Examination of the Lungs.—Mantoux and Maingot (*Bulletin et mémoires de la Société médicale des hôpitaux de Paris*, October 11, 1918) note that the results of x ray examination of the chest are not always in agreement with those obtained with the stethoscope. Radioscopy at times reveals lesions so deeply embedded as to escape auscultatory detection, but at others it fails to show relatively marked lesions that are appreciable to the ear. To ascertain the limits of visibility of densifying and infiltrating tuberculous formations, the authors first attached fragments of tuberculous tissue five to seven millimetres thick over a healthy thorax and examined with the x rays; such fragments failed to yield an appreciable radiosopic shadow. A fragment of pleura infiltrated to a thickness of fifteen millimetres was invisible unless held at the base or apex of the lung, between the subject and the screen. A parenchymatous mass seventeen millimetres thick yielded somewhat more distinct shadows, but actual spots became visible only upon interposition of a fragment of lymphnode two centimetres in thickness. In the case of a stout subject, even the latter fragments could only with difficulty or not at all be made out. Thus, x ray examination of the chest may fail to show lesions of a considerable thickness, and it should not be concluded from absence of visible x ray lesions that the lung parenchyma and pleura are entirely normal.

The Principles of Bone Transplantation.—J. S. Dauriac (*Bulletin de l'Académie de médecine*, November 12, 1918) observes that bone transplantation executed according to Albee's technic yields constant results and permits of repair of extensive losses of bony tissue which at first sight apparently require amputation. From experience among the wounded, the writer formulates the following rules for successful bone transplantation: Only living autogenous grafts should be used. Preliminary preparation of the subject is essential; for after the crushing of a bone, the latter becomes demineralized and loses all osteogenetic power. Remineralizing treatment is therefore required. No transplantation should be attempted until all suppuration in the site of the transplantation has been absent for a long time. In early autoplasmic operations the ends of the bones should be well covered with soft tissue to which the transplant is to be affixed. The transplant should never be taken from the affected bone itself, but from the corresponding uninjured bone of the opposite side. No incision through the old scar tissue should be made at the transplantation operation, as it would be reawaken latent bacterial mischief. Long transplants should be employed, which will extend well beyond the affected area, in order that the ends of the transplants shall be in contact with healthy bone tissue with which they can quickly unite by first intention. Immobilization should not be too prolonged. The limb dealt with should be early mobilized, so the portion bearing the transplant may soon be placed under the normal functional conditions. Wolff's law should be followed in making the transplant. The transplants should be fixed with absorbable material—never with metallic sutures.

Tendon Grafting with Dead Transplants.—J. Nageotte and L. Sencert (*Bulletin de l'Académie de médecine*, November 12, 1918) note that they had previously demonstrated the possibility, in experiments on animals, of replacing dead portions of organs by means of like fragments obtained from the corresponding organs of a living animal. Resected portions of tendon several centimetres long were successfully replaced by pieces of tendon from other animals, which had been kept in alcohol for several weeks. Three months after the operation the point of junction could not be detected, even microscopically. Similarly, an excised section of carotid artery was successfully replaced by a carotid transplant. The authors now report a case of successful application of the method to man. A French cuirassier had been wounded on the palmar aspect of the left wrist, and marked infective changes in the tissues had occurred, with exfoliation of portions of the tendons. The four fingers were immovably flexed into the palm of the hand. A mass of scar tissue embracing the flexor tendons was exposed by operation and resected to an extent sufficient to permit of complete extension of the fingers. A section three or four centimetres long of all but two of the eight flexor tendons of the fingers was found to be missing after this procedure. Six dead tendon transplants were now put in to occupy the gaps. Each transplant was three to three and one half centimetres long. The transplants were obtained from dogs killed and preserved for a month in alcohol. Each was fastened to the two freshened tendon surfaces with two sutures of fine catgut. Over the transplants the aponeurosis was brought together with catgut and the skin closed without drainage. Union by first intention followed. Three months later the patient could extend all of the fingers completely, as well as flex all the phalanges almost completely except in the case of the middle finger, flexion of which was slightly limited.

Decortication of the Lung in Traumatic Pleurisy.—E. Delorme (*Bulletin de l'Académie de médecine*, November 5, 1918) emphasizes the fact that in pleuritis resulting from war wounds the streptococcus is the main harmful factor, establishing itself at the start in a hemothorax that is favorable to its development. The resulting pleural reaction is ordinarily intense and is especially characterized by the abundant formation of false membranes. The lung, if infected, likewise reacts strongly, but its infection usually clears up, unless a foreign body is present. The pleura is thus as a rule the main structure affected, and the membranes encapsulating the lung constitute the chief source of difficulty. Delorme reviews the favorable experiences of Spencer and Battle in England and of Roux-Berger, Policard, and Duvergey in France with pulmonary decortication in these cases. Among forty-nine cases thus treated there was no operative mortality, and the procedure proved surprisingly innocuous in patients with chronic empyema in good general condition. In febrile cases, its effects were not quite as harmless, but the late mortality from the operation was very low. The operation seldom causes shock; lung hemorrhage is insignificant. To

obviate bronchopneumonia, Duvergey operates only in a well heated room. Recovery occurs after six to eight weeks in most instances and is usually permanent. Thoracic and even spinal distortions disappear, and the lung almost or quite fills the cavity. Some of Duvergey's patients were actually sent back to active military service. Delorme concludes that lung decortication is the operation of choice in chronic empyemas presenting large or medium sized cavities. It is especially successful in young, resistant subjects not yet exhausted by supuration, with a cavity, previously aseptized as much as possible, and without chronic pulmonary, renal, or hepatic disease. It promises to be equally serviceable in subjects with chronic pleurisy following epidemic influenza. It should be resorted to as soon as the lung has shown itself incapable of overcoming the resistance of its new formed shell. X ray examination is particularly serviceable for the demonstration of permanent fixation. Where the operation is done in time, decortication is usually easy, and results in immediate expansion of the lung.

Vanghetti's Operation.—W. F. Brook (*British Medical Journal*, December 7, 1918) says that fault has been found, rightly, with Sauerbruch's methods of tunnelization because of the difficulties in maintaining nutrition of the long flap and in approximating the edges of the gap, left after its removal, without dangerous tension. These difficulties can be avoided by cutting the flap in the long axis of the limb so that its width is at least one-third of its length, and so that it has a good lining of subcutaneous tissue. Pressure on the skin tube must be avoided by leaving it at the time of operation nothing larger than a probe, and by making the muscle canal amply large. A layer of subcutaneous tissues should also be left on the raw surface from which the flap is lifted and this should be covered by a Thiersch graft instead of being closed by having its edges drawn together.

Antiscorbutic Value of Raw Juices of Root Vegetables.—Harriette Chick and Mabel Rhodes (*Lancet*, December 7, 1918) direct attention to the relative deficiency of raw cow's milk in antiscorbutic substances and to the added fact of great importance, that the heating of milk materially reduces the small antiscorbutic properties present. Since most cow's milk now fed to infants is heated at some stage or in the preparation of the diet, it is necessary to provide additional sources of these vitamins. Fresh oranges are the best for this purpose in point of activity, but they are often difficult to secure and are frequently very expensive. In the desire of finding some substitute, the authors investigated the antiscorbutic properties of various root vegetables and found that the fresh juice of raw turnips was actively antiscorbutic; that of raw carrot, slightly active; and that of beets about the same as carrot juice. Steamed potato was fairly active. The juices of the raw vegetables can be obtained by grating the vegetable, putting the material into muslin, and squeezing it gently between the fingers. The juice should be prepared fresh daily, as it undergoes changes readily and loses its antiscorbutic properties rapidly.

Local Anesthesia and Twilight Sleep in Exophthalmic Goitre.—S. H. Rouquette (*Lancet*, December 7, 1918) strongly recommends the combination of twilight sleep with local anesthesia for the surgical treatment of exophthalmic goitre, believing it to be absolutely safe and without disadvantages or contraindications. The dose of hyoscine and morphine should be adjusted to the patient, but usually about 0.6 mgm. of the former and ten mgm. of the latter can be given and should be administered about an hour and a half before the time of the operation. Half an hour later a dose of fifteen mgm. of morphine should be given. The usual measures of plugging the ears and darkening the patient's room are to follow the first dose. Before the time of the operation the skin is infiltrated at the site of later puncture, using a fine needle. Then a large, steel spinal needle is used on a twenty mil Record syringe and all the tissues superficial and lateral to the thyroid gland are infiltrated. This infiltration is made half an hour before the actual operation is begun and is done with the patient in bed. The solution used is the following: Procain (novocaine) 0.2 gram; potassium sulphate (two per cent. solution) 40.0 gram; sodium chloride (physiological solution) to make 200 c. c. To this about 1.5 mls of a 1-1000 solution of epinephrine are added.

Relationship of Syphilis to Abortion.—F. L. Adair (*American Journal of Obstetrics*, November, 1918) states that while it seems to be the general impression that syphilis is a common cause of abortion, in a consideration of actual cases he found that syphilis could not be demonstrated in most instances. The relative frequency of abortion and miscarriage is not much greater in syphilitics than in nonsyphilitics. Malformations are somewhat more frequent in children with luetic parents. A number of observers have shown that premature births and stillbirths are quite frequently due to syphilis, and the author's experience agrees with this. For several years the Wassermann test has been made a part of the routine examination of obstetric patients in the University of Minnesota Hospital. From the recent records the author has collected 1,095 cases with a history of 2,773 pregnancies, of which 2,422 ended at term. There were 109 cases which had 197 abortions in a total of 621 pregnancies, or about one abortion to three pregnancies. In the nonsyphilitic and negative Wassermann group there were eighty-three cases with 142 abortions in 464 pregnancies, while there were thirteen syphilitic cases with twenty-three abortions among seventy-four pregnancies; in each instance the ratio of abortions is about one to three, suggesting that syphilis is not a very potent factor in terminating pregnancy during the first trimester. Forty cases had sixty-two miscarriages in a total of 202 pregnancies, or about one to three, while in seven cases with indications of lues there were ten miscarriages among twenty-seven pregnancies—a ratio only slightly higher than in nonsyphilitics. About one third of the mothers in premature births had evidences of syphilis. About ten per cent. of the mothers who had stillbirths gave positive Wassermann reactions, and syphilis was proved in two out of five cases of hemorrhage of the newborn.

Injections of Tin Oxide in the Treatment of Influenza.—A. Netter (*Bulletin de l'Académie de médecine*, November 12, 1918) reports a series of 139 cases in which a colloid tin preparation was employed. The preparation contains 0.42 milligrams of tin per mil. It is not a colloid solution but a suspension of a fine precipitate as the particles are nearly all of microscopic size. The suspension is made in a mucilaginous menstruum, but is unstable, tending to form a slight white deposit. The preparation was given by intramuscular injection, mixed in the syringe with camphorated oil. Only three patients showed any febrile reaction. The injections were repeated on several successive days. From the start, favorable results were noted, many apparently desperate cases recovering under the treatment. Defervescence was obtained after from three to seven injections. Among ninety-two children with grave complicated influenza treated with the remedy, the mortality was 34.8 per cent., while among 138 children in the same hospital not receiving it, the mortality was 44.9 per cent. Confirmation of the beneficial effect is afforded from the fact that the tin injections favor the formation of fixation abscesses.

Pericholecystitic Adhesions.—Frank Smithies (*Journal A. M. A.*, November 30, 1918) points out that affections of the gallbladder commonly represent progressing infections of the wall of the viscus and when the external coats are involved the formation of pericholecystitic adhesions is a very common sequence. Most of the infections giving rise to such adhesions are of intrinsic, rather than extrinsic, origin. Thus such adhesions were found in only about seven per cent. of cases of benign gastric ulcer, in 11.5 per cent. of cases of duodenal ulcer, and in only 5.4 per cent. of cases of gastric cancer. On the other hand, among 1,000 instances of gallbladder disease, proved surgically, forty-nine per cent. showed pericholecystitic adhesions, over forty-two per cent. involving other viscera by extension. Pericholecystitic adhesions occurred nearly twice as often in cases without gallstones as in those with stones, which was possibly due to the fact that the causative inflammations had produced extensive external inflammation before doing much damage to the interior of the bladder or interfering greatly with its emptying. The commonest effect of the adhesions was to interfere with the emptying of the bladder contents and the major clinical symptoms in this group were referable to that fact. The emptying of the stomach or duodenum was also frequently disturbed by the extension of the adhesions and in such cases the major symptoms were referable to those viscera. Where the common or cystic ducts were partly obstructed by the adhesions there were colicky attacks; constipation was common where portions of the gut were constricted; nausea was fairly common; constant or intermittent jaundice occurred frequently; a very large proportion of cases showed some abdominal tenderness; and various other secondary disturbances were recorded. The x ray proved of some help in making the diagnosis in a certain proportion of instances by revealing obstruction to the gastrointestinal stream, or distortion of the contour of the shadow of the stomach or duodenum, or their malposition.

Proceedings of National and Local Societies

THE NEW YORK ACADEMY OF MEDICINE.

Regular Meeting Held November 21, 1918.

The President, Dr. WALTER B. JAMES, in the Chair.

Dr. WALTER B. JAMES, in introducing the speaker of the evening, said that now the war had ended, the thoughts of all recurred to a variety of topics which, while they had been in mind all along, had been crowded aside temporarily by the more immediate exigencies of the struggle. One of these topics concerned the health conditions of Europe and this was of vital interest, not only because it concerned so many of our fellow beings but because of its immediate relation to this country, as Europe could not suffer from disease without America suffering. The sooner this relation to every epidemic, to every widespread condition of disease in Europe was realized, the sooner would the world be better off. Nothing was more important in this connection than tuberculosis and tonight the Academy was fortunate in having present one of its fellows, who had had a better opportunity than anyone else to study this disease throughout the Continent, who would give some very pertinent and valuable information about tuberculosis among the warring nations in Europe.

Tuberculosis among European Nations at War.

—Dr. JAMES ALEXANDER MILLER, associate director of the Rockefeller Commission for the Prevention of Tuberculosis in France, delivered this address in which he reviewed the results of the extensive study and practical work conducted by the commission in the year 1917-1918. The problems of civilian disease and mortality had come to loom very large in their association with the resources of nations behind the armies in the field. Tuberculosis had always played a leading role among the preventable diseases, and from the campaign against it many of the fundamental principles of public health had been developed and applied widely to other diseases, particularly in this country. With these fundamental principles in mind and forming sources of information at the command of the members of the commission, the task of instituting in France a vigorous modern public health program had offered the possibility of striking results. In addition, the relation between cause and effect in such a program promised to be more susceptible to critical analysis than was possible in countries like America, where the campaign for better hygiene had been a more gradual development. Incidental to the practical work of the commission, complete information of the conditions obtaining in France and, though less complete, knowledge of the situation in Great Britain, Belgium, Germany, Austria-Hungary and Servia, had been secured.

The influence of the war upon tuberculosis problems fell into two general categories, first, in the armies and secondly, among the civilian populations. The situation as regarded tuberculosis in the French army had been very much exaggerated, and a careful estimate based on the official figures

of examinations for tuberculosis showed that in reality the maximum amount of tuberculosis necessitating discharges from the army was only 1.75 per cent. in the early months of the war, and .63 per cent. in the later months of the war after the large numbers of cases of active tuberculosis which had been mobilized had been eliminated to a large extent. The number of cases of tuberculosis developing in the French army during active service had been found to be no greater than that in a similar group of men taken from civilian life in America. The physicians and surgeons of the French army had without exception declared that the physical condition of the soldiers was much better than among similar groups who had been mobilized into industry, or than it would have been in their normal civilian life. Many examples of early or latent tuberculosis becoming arrested after two or three years of military service had been brought to the attention of the speaker.

Some interesting data had been secured regarding the experience of the British army, through the courtesy of the War Office and of the Medical Research Committee which was conducting an analysis of all the cases of sick and wounded in the British army; and it was known that up to December 31, 1915, pulmonary tuberculosis had formed only 1.1 per cent. of the whole number. This equalled the figures obtainable in peace times, since for fifteen years pulmonary tuberculosis had been almost a constant factor in the British army, and it would therefore seem justifiable to conclude that the conditions of the present war had not tended to increase the percentage of tuberculosis in the British army. The information supplied concerning tuberculosis in the Belgian army, before and after the war, showed that Belgium, with an extremely low incidence of tuberculosis in its army before the war, nevertheless had had this rate distinctly lowered during the war. Turning to the American army, short and inconclusive though experience concerning it had been, nevertheless tuberculosis had proved to be in no sense a large problem, only a few cases of pulmonary tuberculosis having been returned to the United States from the army in France, and comparatively few cases had developed in France. The effect of gas warfare and of chest wounds upon the subsequent development of pulmonary tuberculosis had been watched with great interest and it had been definitely proved that contrary to expectations based upon currently accepted notions, pulmonary tuberculosis did not develop as a result of these severe mechanical irritations of the respiratory tract. From all the sources available to the commission, it therefore seemed entirely justifiable to conclude that tuberculosis had not been increased because of the influence of the war upon the armies in the field, and that if anything the effect of army life was to diminish the hazard from pulmonary tuberculosis.

For any effect of the war toward the increase of tuberculosis it was necessary to look to the conditions among the civilian populations, and therefore

studies were conducted along this line. In France the tuberculosis situation among the civilian population was truly a serious one in the cities, but in the rural sections the mortality statistics were comparatively low. That the war had not materially increased the tuberculosis death rate generally throughout the country was shown by the comparative mortality statistics before and during the war in the city of Paris.

The conditions in France having their influence upon the tuberculosis problem were 1, the tremendous overcrowding in the larger cities due to the influx of refugees from the invaded districts, the unprecedented development of war industries in these centres and the total lack of new housing construction since the beginning of the war; 2, the excessive industrial pressure which had drafted thousands, especially women, into unaccustomed industry and usually under the most unfavorable hygienic conditions of long hours, excessive strain and special hazards of the working environment itself; 3, the prolonged physical and mental strain incident to the war, nowhere more noticeable than in France; and 4, excessive alcoholism in such cities as Paris and Marseilles and certain country districts as Brittany and Normandy.

It was both interesting and important to note that there had been no real problem of undernourishment in France. Food in general had been sufficient and available to the working classes. During the latter part of the investigation, however, reports had come in of more general malnutrition seen among dispensary patients. This condition would lead to serious results if continued. The experience in France was strikingly corroborated by that of England, so that the effect of the war among English civilians appeared to be a problem of industry in the larger cities, especially among young women, with overcrowding an important although possibly a secondary factor and with no influence attributable to insufficient food.

In regard to conditions in occupied Belgium, a very full and remarkable report as to the health conditions therein had been made by the Inspecteur de Service de Sante, M. Hulot. From all the numerous sources which went to make this report, the testimony was unanimous in stressing infant mortality and tuberculosis as the urgent problems. There was a startling increase in the comparative mortalities of Brussels, Auvers and Liege, especially in 1917, the increase of 1917 over 1912 being ninety-one per cent. in Brussels, ninety-four per cent. in Auvers, and 102 per cent. in Liege. The report did not indicate any unusual distribution of this alarmingly increased mortality among the different age and sex groups, although the great increase of tuberculosis among children was indicated. The story of food conditions was the same from all parts of Belgium. The food ration accorded to them by the German army of occupation, for the households, counting only adults and young people, was altogether insufficient both from the point of view of quantity and of quality. The average adult daily ration for all of occupied Belgium had averaged between 1,800 and 2,000 calories for a period of over a year. The correlation of the increase of tuber-

culosis with the insufficiency of food in Belgium afforded a striking contrast with the conditions noted in unoccupied France and in England. In spite of the appalling condition of affairs within the borders of Belgium, and staggering under her frightful ordeal of four and a half years duration, this wonderful little country had nevertheless drawn up a program to combat tuberculosis that was modern, complete and admirable in every detail and which was worked out before peace was declared and held ready for immediate operation as soon as the country was evacuated by the Germans. And what was most astonishing, the Ligue Nationale, struggling under its heavy burden of supplying relief of all sorts, had in addition raised a fund of 6,000,000 francs with which a program against the spread of tuberculosis was to be launched.

Accurate information from Germany was, of course, scanty, but the official publications of the Imperial Health Office, showing births and mortality among twenty-seven million people, or about one third the total population of Germany, gave comparative deaths from tuberculosis in 1913 of 40,625, in 1916 of 48,446, and in 1917 of 67,208. The percentage of tuberculosis deaths and total deaths were 11.2, 13.3, and 12.7 respectively for these three years. There was a rise in the tuberculosis death rate from 1.51 per 1,000 in 1913 to 2.31 in 1917. The general death rate had risen from 12.2 to 17.9. The big increase in both did not occur until 1917, and another point of interest was the tremendous fall in the birth rate, 1917 being about half of that of 1913. A circumstance difficult to understand was that the infant mortality rate in 1917 was not very marked and that of 1916 was below that of 1913. The only available data upon conditions in Austria-Hungary included figures for Vienna, Prague, Trieste, and Budapest. In the period shown, which was only from thirty to thirty-five weeks, the deaths from tuberculosis increased from 7,311 in 1913 to 11,755 in 1917 or over sixty per cent. Conditions were far worse in Austria-Hungary than in Germany. The probability was that bad food conditions were primarily responsible.

Little was known of conditions in Serbia, but such indications as were available showed fifteen per cent. of the population to be suffering from tuberculosis. Thirteen per cent. of the Serbian refugees in France were suffering from tuberculosis. The remnant of the Serbian nation in exile showed an enormous incidence of tuberculosis as indicated by the figures given for those in France. The situation was probably of equal seriousness in Russia, Poland, Rumania, and Armenia, to say nothing of the enemy nations themselves, and there could be little doubt that tuberculosis would be one of the most frequent consequences of the terrible suffering and disease which war had brought to hundreds and thousands of the civilian population.

There were seven lessons to be learned from this brief review of the tuberculosis situation in Europe as occasioned by the war: 1. The experience of the armies indicated that there was less

hazard than supposed in hard physical exertion and exposure, as regarded the breakdown of resistance to tuberculosis, provided these conditions were combined with open air life. 2. There was relatively infrequent development of pulmonary tuberculosis as the result of the exposure to poisonous or irritating gases and of chest wounds. 3. Following the system developed in the American army of rapid but systematic chest examinations in the elimination of tuberculosis suspects, large groups, especially among industrial workers, could be detected early. 4. Food was a very important factor in increasing mortality from tuberculosis, and the effects of long sustained malnutrition were cumulative. 5. The tuberculosis situation in France and England, and its analysis as an industrial condition among young women, would indicate the importance of the place in economics of industrial hygiene. Systematic supervision of working conditions should go hand in hand with home supervision and sanitation of workers. 6. Two phases of the experience of the tuberculosis commission in France possessed value for adaptation to the general tuberculosis problem; they were the organization of the educational propaganda and the training of health visitors for tuberculosis and child hygiene. Regarding the former, the combination of American ideas and French art had produced effects that deserved imitation. The training of health visitors had proved a great success in France, proving that it was unnecessary to employ only graduate nurses in this work. There was need for a very much larger number of such workers. They were in no sense nurses, but rather inspectors and supervisors of home and living conditions, teachers of hygiene and agents for social reform or care. They should have training for these special duties, which would require at the longest two years. The functions of visiting nurse and health visitor being distinct, their training should become so also. 7. The last suggestion to be presented from this war experience was that of reeducation and vocational training for the tuberculous. The industrial colonies developed in France and England presented possibilities not only for the disabled soldiers but for the tuberculous civilian as well. The after care of the discharged sanitarium cases was as yet an unsolved problem; which was largely due to economic conditions, the patient being under the necessity of supporting himself, and perhaps a family, as soon as possible, and reeducation of the tuberculous would be a long step in the direction of a solution. A beginning had already been made in this direction, and the movement would enlist the support of all interested in antituberculosis work.

Dr. DAVID R. LYMAN, president of the National Association for the Prevention of Tuberculosis, said that about one year ago he went to France to relieve Doctor Miller temporarily in his work on the problem of giving demonstrations along the lines of educational propaganda in tuberculosis. He found the French most enthusiastic about the work, but he thought that if the American public health workers could know what the French believed the regular tuberculosis problems in America included they would be surprised, for over there the

problem included complete social and health relief for the entire family of all the cases that came to the dispensaries. The house of the sufferer was visited by the trained social workers and the family was treated as a social unit. If it was a man who was sick, he stopped working and his wages went on just the same. Every member of the family was physically examined and everything was done for them to enable them to thrive and build up, especially for the children, so they could acquire immunity to this disease with which they were in contact all the time. If the housing conditions were found to be bad another house was rented for them. There were many intensely interesting phases of the work. There were many cases that epitomized the situation in Belgium, Russia, Poland, and Serbia and the starvation that lay at the root of the terrible health conditions. Many refugees would have died had it not been for the help extended by the tuberculosis commission, and many children, if they had lived, would have always retained an impaired physique, had it not been for the work of the Red Cross, and that was a work that had to be carried on. It had done more to win the war than anything else. The Frenchmen in the trenches had the courage to fight when they were perfectly assured that should their families at home be ill or in need they would be cared for. If the Red Cross continued to ask for financial help, it would be because it was badly needed and no one should hesitate to give as much as he could. The war was won, but the effects of the war had not been obliterated and the work of the Red Cross would not be complete for a long time to come. This after war work was fully as important as any that had so far been done. One of the benefits of this would come through the knowledge gained of the problems of tuberculosis by American physicians, as many of whom had been brought more or less in touch with the tuberculosis situation in France; they would bring back many interesting lights to throw on the problem here, and it was hoped that this would mean that the general practitioner would be able to handle the tuberculosis situation in his community, instead of its being handed over as a specialty in medicines. Tuberculosis should not be considered as a separate and distinct disease, for the circumstances that controlled the awakening of active tuberculosis were interwoven most closely with everything that happened in life. It was a big social and general health problem and distinctly one of general medicine and it was to be hoped that in the future it would be so regarded. The wonderful results of army life had staggered every one, but the speaker was a little hesitant in ascribing it all to open air life. There was another factor that should not be forgotten and that was that these men had been under close observation and control, excellent discipline and regular and good food. A man could do outdoor work for a certain period of time if his life were healthily regulated, if he got good food at regular intervals and if he was not indiscreet during his playtime. A matter of enormous importance in connection with the problem of tuberculosis was that of food. It was one of the great factors among the civilian population. The basis

of alcoholism in this country was that the average woman knows so little about food values, and the general system of public education should include as an important branch the teaching of girls and young women how to make a home, how to select and buy food and how to adequately and economically feed a family from scientific training instead of a haphazard picking up the knowledge after they were married. There was no question of the enormous influence of improper feeding in the spread of tuberculosis.

Dr. WICKLIFFE ROSE, general director of the International Health Board, considered two or three points in Doctor Miller's paper worthy of special emphasis. The most important of these was that suggested by the charts exhibiting the relation of death rate to birth rate in the several warring countries. The most serious problem which these nations would have to face during the period of rebuilding was the necessity of restoring their lost man power. Houses might be built, destroyed farms reclaimed, industry and commerce reestablished, and the nation's prosperity restored, provided the nation had the men. All depended upon productive man power. The charts showed that in Belgium, France, Germany, Austria, Serbia, and Poland, the death rate for the last three or four years had been far in excess of the birth rate. In addition, conditions would seem to indicate that in some of these countries at least the birth rate would continue relatively low for many years after peace was restored. To this fact of declining population must be added the further significant fact that war had taken its toll of men in their prime. These nations had lost in killed and permanently disabled a large percentage of their producers, their leaders in industry and commerce, in science and art, and the whole field of thought and action. Of that portion of the population not engaged at the front, particularly in the invaded regions, war had borne most heavily on the children. In Belgium, Northern France, Poland, Serbia, and in Austria-Hungary the death rate among children, due to lack of food and of proper care, had been high. In the work of rebuilding which these nations were facing foremost place must therefore be given to the conservation of life and health and working efficiency, particularly that of children for at least a generation. Doctor Miller had made it clear that in undertaking to restore their lost man power these nations would have to reckon with tuberculosis, a serious menace in times of peace, made vastly more serious by the conditions of war. Tuberculosis also took its heaviest toll of children during the first two years of life and of men and women in their prime. The fight on tuberculosis to be successful would involve the essentials of a general public health program. Some diseases, such as malaria or yellow fever, might be controlled by specific measures without raising the question of personal hygiene and with but slight effect on general public sanitation. The prevention of tuberculosis was not so simple. The disease was too organic, had woven itself too intimately into the fibre of social and economic life to be controlled by any specific procedure. A study of tuberculosis in this country and of our fight against it (undertaken some time ago

and still in progress) seemed to indicate that our tuberculosis rate had varied not with the special measures which had been directed against it, but rather with more general social and economic conditions and with progress in personal hygiene and public sanitation.

It was of great significance, therefore, that most of the countries engaged in the war were even now projecting national programs of public health. In our own country Congress had greatly increased its appropriations for public health purposes and the Treasury Department had under consideration a reorganization in the interest of greater efficiency of our Federal health service. For months England had been formulating a plan for the unification of all health activities under a ministry of health. In France, where nothing approximating an efficient health service had existed hitherto, opinion was forming in support of a national health program as one of the foremost measures of reconstruction. In both France and England the importance of adequate institutes for the cultivation of hygiene as a science and the training of workers for the public health service was receiving intelligent consideration. Belgium even under the severe strain of German occupation, had raised a considerable fund with which to begin a fight on tuberculosis as soon as peace brought freedom, and proposed to back this with measures of general sanitation. Austria had begun a reorganization of her national health service just before disintegration set in; and a letter just received from Serbia stated that the organization of a national health service with child hygiene and the prevention of tuberculosis as a part of its program was now under consideration by the Serbian Government. This focusing of attention as never before on the importance of conserving life and health was one of the best fruits of this life destroying war. The greatest satisfaction could be derived from the thought that after four years of bitter conflict these same nations would find in a program of health a common meeting ground where the gain of each would be a contribution to all.

Dr. HERMANN M. BIGGS had only a few words to say, first to express his great pleasure in listening to the remarkably interesting and instructive paper by Doctor Miller, and, secondly, to voice the gratification which all must feel that America had been so ably represented in the work on tuberculosis in France by such men as Farrand, Miller, Lyman, and others who were the best products of the antituberculosis campaign that had been going on in this country for thirty years. The Rockefeller Foundation, in establishing the International Health Board and in the work it had undertaken, had given the best example of broadminded farseeing philanthropy which the world had ever seen. The work being undertaken all over the world in extending public health programs, in studying difficult health problems, and in helping people to help themselves, was one of the greatest contributions of the times. What Mr. Rose said as to the significance of the excess of the death rate over the birth rate in France and other European countries was intensified when the fact was recalled that the population of France had been almost stationary for a century.

The death rate for New York city was 13.7 for 1917 against the death rate for all of France of 18 or 19; i. e., the latter was four or five points higher. With the birth rate falling as it had during the war far below the death rate, there was great reason for apprehension as to whether the French, unless their economic life could be altered, were ever going to bring the birth rate up so that it equalled or excelled the death rate. If that could not be accomplished, the ultimate future of France was certainly dark.

SOUTHERN SURGICAL ASSOCIATION.

Thirty-first Annual Session, Held in Baltimore, Maryland, December 17, 18, and 19, 1918.

The President, Dr. ISAAC S. STONE, Washington, D. C., in the Chair.

Suture of Ruptured Kidney with Report of a Case.—Dr. S. L. LEDBETTER, Jr., of Birmingham, Alabama, said that an early exploration was indicated in subparietal injury to the kidney and suturing the ruptured kidney where possible was preferable to either nephrectomy or gauze packing. Nephrectomy should be reserved for those cases where operation had been delayed and when the kidney was hopelessly damaged. Packing with gauze, where possible, was to be avoided on account of the delayed convalescence, the danger of secondary hemorrhage, and the possibility of infection.

Connell had collected sixteen cases of suture of ruptured kidney with two failures, one developing a urinary fistula and the other requiring secondary nephrectomy. He reported the following case: Negro male, twenty-four, fell from a scaffolding, striking his right flank against an iron casting. He was seen shortly afterward and though somewhat shocked, was in good condition. All evidence pointed to an injury of the right kidney without associated injuries. Exploring the kidney twelve hours later an extensive transverse rupture was found between the middle and lower thirds. This was sutured with chromic catgut, a small cigarette drain inserted down to the capsule, and the wound closed. The patient made an uneventful recovery, and on leaving the hospital nineteen days later the urine showed only an occasional blood cell. Subsequent specimens were normal and he understood that the patient was now in army service.

Prostatectomy, with Its Preparatory and Post-operative Treatment.—Dr. BRANSFORD LEWIS, of St. Louis, Missouri, stated that after considerable experience with the removal of the prostate by the suprapubic and perineal routes, he had adopted the suprapubic method as the one of choice because it gave the better results. It was free from a number of momentous objections that pertained to the perineal operation, such as ineffectual urinary control, sexual disability, and urethrorectal fistula. While a one stage suprapubic prostatectomy might with confidence and safety be carried out in a patient of middle age and good general condition, there was no doubt about the marked and distinct advantages presented by the same operation done in two stages in the decrepit patient of advanced years and weakened resisting powers. The oppor-

tunity presented by the two stage operation of establishing a firm adhesion between bladder and abdominal walls was scarcely less valuable than that of establishing suprapubic drainage. Infection of the loose connective tissues surrounding the bladder and extensive suppuration in these cases was one of the most serious dangers attendant on suprapubic work. Once established, such suppuration was difficult to control, and the condition might rapidly become formidable. The ounce of prevention consisted in attaching the bladder firmly and permanently to the abdominal wall around the opening in the bladder by means of chromicized catgut sutures. Spinal anesthesia was commended as serviceable by some operators, but he regarded it as the most dangerous of all methods of anesthesia. His personal acquaintance with some seven or eight instances in which death was attributed directly to spinal anesthesia used by operators well versed in its technic, had led him to this conclusion. He knew of no death so far reported from the use of caudal anesthesia, although there had been instances in which physiological effects had been observed.

Dr. JOHN R. WATHEN, of Louisville, heartily agreed with the essayist that the main thing in prostatic surgery was proper drainage and the avoidance of infection. He disagreed with him, however, when he made the statement that the indwelling catheter should remain in the urethra a considerable time, even nine months as he mentioned in one case, because his experience had been that the indwelling catheter was not tolerated by the majority of patients for a considerable time, and some patients could hardly stand it at all. He believed the suprapubic operation under local anesthesia was the operation of choice.

Dr. ROBERT T. MORRIS, of New York, stated that after the suprapubic operation he liked to fold the ragged fragments into place pretty well and pack them there with neat folds of iodoform gauze, leaving the end of the gauze protruding from the suprapubic wound; and for drainage he used little packs of sphagnum moss, allowing the patient to turn on one side or the other or abdomen if he liked, and he depended upon the capillarity of the gauze and sphagnum moss.

Dr. FRANCIS REDER, of St. Louis, Missouri, said that a mortality following prostatectomy was on account of the loss of blood. It was the constant bleeding in these cases that caused fatalities, and in the aftertreatment of cases of prostatectomy he could heartily recommend the use of the Hagner bag for the control of hemorrhage.

Dr. JAMES E. THOMPSON, of Galveston, Texas, stated that Doctor Lewis left out one of the most important tests we had that would give us a clear idea as to how patients behaved after operative procedure. The value of the hemoglobin percentage was great, as was also the phthalein output, but a valuable test was the estimation of the blood urea.

Dr. GEORGE A. HENDON, of Louisville, said that in suprapubic prostatectomy it was his practice to pack the cavity lightly from which the prostate had been removed with iodoform gauze or plain gauze, and allow the ends to protrude from the supra-

pubic incision; but before doing so he put an ordinary Nelaton catheter in the bladder. The first twenty-four hours a lot of clots might form, but by irrigating with six or twelve ounces of warm boric acid solution, the lumen of the catheter was kept open and no clot formed, and all drainage took place through the catheter in the urethra, and that was collected by a urinal between the patient's legs. On the third day he removed the gauze packing and all the drainage took place below through the natural way. He had not had any suppuration or hemorrhages to make him dissatisfied with this method of treatment.

Irritable Bladder in Women.—Dr. CHARLES A. L. REED, of Cincinnati, Ohio, said that irritable bladder was characterized by frequent desire to urinate, pain in the bladder often extending to the rectum and perineum, sleeplessness and nervousness, all in a history of long duration and obstinate resistance to all treatment. The causes of irritable bladder were found outside of the bladder and within it. Those that were outside of it embraced pregnancy, uterine displacements, infections of the uterine appendages, ovarian tumors, displacement of the intestines and adhesions. Those that were within the bladder were gonorrheal, and other infections, tumors, calculi and ulcers. Among the various forms of ulcers the one which was described as punctate was the most important as being probably responsible for the majority of all intractable cases of irritable bladder. It was a small round ulcer about two to three mm. in diameter, a few being somewhat elongated. It formed in myriad numbers over an area of from two to six c. m. long and from one to four c. m. broad on the front wall and vertex of the bladder. The underlying pathology was that of chronic interstitial cystitis with static edema, causing macular necrosis of the epithelium. The pathology of the condition and the function of the bladder combined to make the condition incurable by so called conservative means, as demonstrated by ample experience. The diagnosis could be made only by careful consideration of the history, the presence of occult blood in the urine and cystoscopic examination which should be made in all cases of chronic irritable bladder. The only rational treatment was by excision of the ulcer bearing area. Three successful cases were reported. Thirty-eight of these cases now on record proved that it was a surgically safe procedure and one by which many, probably the majority, of these sufferers could be permanently cured. The conclusions reached were: The punctate ulcer of the bladder with its associated pathology is a demonstrated clinical entity. The condition, by virtue of the pathology, is not only chronic, but incurable by so called conservative methods. The usual limitation of the ulcerative process to the anterior wall and vertex of the bladder makes it surgically accessible. The treatment by excision of the ulcer bearing area is justified by its demonstrated practicability and by its equally demonstrated results.

Dr. GUY LEROY HUNNER, of Baltimore, said it was important to remember the conditions in the urethra that might cause symptoms of irritable bladder. He presented a paper at Louisville before

the association in which he called attention to cases of chronic urethritis due to chronic tonsillitis, and he had had many opportunities since then to find that the observations made at that time were correct, and that many of the cases of irritable bladder could be cured by finding the focus of infection and removing it.

Dr. BRANSFORD LEWIS, of St. Louis, Missouri, stated that Doctor Reed had omitted to accentuate one sort of trouble that to his mind was very frequent and very important, namely, irritable urethra in which the irritability was kept up for from five to twenty years or more, and it was not due to any other cause. There was either a spasmodic contracture or organic contracture which was definitely demonstrable, and this condition was relievably by frequent applications to the irritable urethra.

DOCTOR REED, in closing, stated that one thing that had been largely overlooked in the urethra very frequently was the involvement of Skene's follicles, to which Skene called attention thirty years ago, and this condition could be relieved by simple intervention.

(To be continued.)

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Amputation Stumps, Their Care and After Treatment. By C. MARTIN HUGGINS, Medical Officer to the Government Schools, Salisbury, Rhodesia. With Ninety-five Figures. London: Henry Froude (Oxford University Press) and Hodder & Stoughton, 1918. Pp. xv-228.

The writer's qualification for presenting this volume is his responsibility for the treatment of about three thousand amputation cases during the past year. He has not intended the work of the textbook, but shows in many practical ways what departures from prewar practices could be made in dealing with amputations. The book is thoroughly illustrated and is replete with the valuable deductions of a very wide experience. The classical methods of this type of surgery have been departed from and many new methods have been introduced, particularly in the treatment of stumps which have proved satisfactory. The volume is worthy of a place in every surgeon's library.

The Treatment of Cavernous and Plexiform Angiomata by the Injection of Boiling Water. By FRANCIS REDER, M. D., F. A. C. S., Visiting Surgeon to City Hospital; Consulting Surgeon to St. John's Hospital and Missouri Baptist Sanitarium, St. Louis. St. Louis: C. V. Mosby Company, 1918. Pp. 75.

This monograph deals with the boiling water treatment of angiomata, as first devised by John A. Wyeth. The varieties of angiomata particularly applicable to this form of treatment, the details of the treatment, and the personal experience of the writer are carefully described in detail, and his cases and instruments thoroughly illustrated. Dr. W. J. Mayo stated that it was his belief that this procedure was one of the advances in the treatment of tumors of the blood vessels.

Surgical and War Nursing. By A. H. BARKLEY, M. D. (Hon.), M. C., F. A. C. S., Lecturer at Good Samaritan Hospital Training School for Nurses; Consulting Surgeon, Good Samaritan Hospital, Lexington, Ky. Illustrated. St. Louis: C. V. Mosby Company, 1918. Pp. 200. (Price, \$1.75.)

The primary intention of this small volume is that it will take an intermediate position between a reference and a textbook and that it will find favor with the student of nursing as well as with the graduate. The book is very conveniently divided into short chapters, based upon the writer's lectures delivered at the Good Samaritan Training School. The chapters, well written, thoroughly illustrated, and full of valuable instruction both for the nurse at the front and at home. The chapters on war nursing represent the fruit of the writer's experience as an army surgeon both in the Spanish-American and the present European war. The book is to be thoroughly recommended both as a textbook and a book of reference.

Autotherapy. By CHARLES H. DUNCAN, M. D., Discoverer and Founder of Autotherapy; Former Mechanical Engineer of the Illinois Steel Company; Attending Surgeon and Genitourinary Specialist, Volunteer Hospital, New York, 1905-1914, etc. New York: Charles H. Duncan, M. D., 1918. Pp. xv-361.

At first glance this book gives one a variety of more or less confused impressions which are not altogether clarified upon closer reading. The volume is the author's attempt to set forth his radical methods of treating a host of diseases by the administration to the patient of his own secretions in one or another form and by mouth or by subcutaneous injection. The theory underlying this method of treatment is that the secretions, as for example the pus of a boil, contain all the materials required to produce immunity to the condition, and in the proper relative proportions. Elaborate discussions are given to support this contention and deductions, not wholly warranted at times, are made from the writings of some of the exponents of vaccine therapy. The methods of securing the requisite secretions or excretions in a variety of diseases, from boils and puerperal sepsis through acute gonorrhea to hay fever and deficient lactation, are given in detail, including the preparation of solutions for subcutaneous injection by means of the Duncan Autotherapeutic Apparatus. The latter method of administration is the one recommended most commonly, but the author does not hesitate to prescribe and make his patients drink simple watery solutions of lochia, gonorrheal pus and the discharges from infected wounds, or to ask them to chew their soiled dressings or the scrapings of wounds. When there is a chance of their rebelling at such delectable (!!) remedies they are made to consume them disguised by being rubbed into a paste with lactose and made into pills. We are not prepared to state that the practice of autotherapy by the hypodermatic injection of solutions of pus and other secretions which have been passed through a good infusorial candle may not have some value. In fact immunological studies suggest that it has. But we do believe that the horribly disgusting practices touched upon must be abandoned if the method is ever to be given any trial by physicians in general. The bulk of the

volume is given up to rather imperfect case reports from the practice of the author and others to show the value of the methods. These reports are offered as conclusive evidence of the worth of the treatment, but no scientifically controlled series of parallel cases, treated and untreated by the method, is given, and few instances of its failure are mentioned. The volume is not convincing and its perusal leaves one almost overwhelmed by the disgusting practices perpetrated upon unsuspecting patients.

Births, Marriages and Deaths.

Died.

BORDEN.—In Gowanda, N. Y., on Saturday, January 11th, Dr. Allen L. Borden, aged forty-seven years.

CORY.—In Saratoga Springs, N. Y., on Wednesday, January 15th, Dr. Horace C. Cory, of Newark, N. J., aged fifty-three years.

DENNETT.—In France, on Wednesday, October 16th, Dr. Paul Carroll Dennett, Lieutenant, Medical Corps, U. S. Army, of Boston, Mass., aged twenty-seven years.

DOLBECK.—In New York, N. Y., on Friday, January 17th, Dr. George Nelson Dolbeck, aged fifty-six years.

FITZGIBBON.—In San Francisco, Cal., on Friday, January 10th, Dr. Gerald J. Fitzgibbon, aged sixty-four years.

FREENY.—In Pittsville, Md., on Sunday, January 19th, Dr. Lawrence Carl Freeny, aged forty-five years.

GREENOUGH.—In Bayport, Long Island, on Tuesday, January 21st, Dr. Charles H. Greenough, aged sixty-nine years.

HADDOCK.—In Beverly, Mass., on Monday, January 13th, Dr. Charles W. Haddock, aged sixty-three years.

HALL.—In Philadelphia, Pa., on Thursday, January 16th, Dr. Phillipe Sharples Hall, aged fifty-three years.

HARRINGTON.—In Boston, Mass., on Sunday, January 19th, Dr. Thomas Francis Harrington, aged fifty-four years.

HUMPHREYS.—In Morristown, N. J., on Tuesday, January 14th, Dr. Frederic H. Humphreys, aged seventy-two years.

KELLEY.—In Mount Vernon, N. Y., on Thursday, January 16th, Dr. Charles D. Kelley, aged fifty-nine years.

LEWIS.—In Pittsburgh, Pa., on Wednesday, January 15th, Dr. William M. Lewis, of Sharon, Pa., aged fifty-seven years.

LOWMAN.—In New York, N. Y., on Thursday, January 23d, Dr. John H. Lowman, of Cleveland, Ohio, aged seventy years.

MACKEEN.—In Whitman, Mass., on Sunday, January 19th, Dr. Albert Atwater MacKeen, aged sixty-five years.

MITCHELL.—In Bakersfield, Cal., on Sunday, January 12th, Dr. Frank W. Mitchell, of Manchester, N. H., aged seventy years.

RAFFERTY.—In Rensselaer, N. Y., on Wednesday, January 15th, Dr. William F. Rafferty, aged thirty-two years.

RAUB.—In Philadelphia, Pa., on Saturday, January 4th, Dr. Albert H. Raub, aged fifty-five years.

RILEY.—In New York, N. Y., on Tuesday, January 21st, Dr. Thomas Lewis Riley, aged forty-eight years.

ROWE.—In Union City, Mich., on Saturday, January 18th, Dr. William H. Rowe, aged sixty-eight years.

SAWYER.—In Dexter, Me., on Thursday, January 23d, Dr. John W. Sawyer, aged fifty-four years.

SCHLESINGER.—In Brooklyn, N. Y., on Monday, January 13th, Dr. Herman W. Schlesinger, aged thirty-three years.

SHELDON.—In Middlebury, Vt., on Monday, January 13th, Dr. William P. Sheldon, aged sixty-three years.

SIMMONS.—At Mountain Lakes, N. J., on Sunday, January 5th, Dr. Horace Melville Simmons, of Baltimore, Md., aged sixty-five years.

TAYLOR.—In North Cambridge, Mass., on Tuesday, January 21st, Dr. Frederic Weston Taylor, aged sixty-three years.

WHITCHER.—In New York, N. Y., on Monday, January 20th, Dr. Ralph Hall Whitcher, aged thirty-one years.

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COMMENTARIES ON HIPPOCRATES.*

BY JONATHAN WRIGHT, M. D.

Pleasantville, N. Y.

THE MEDICAL THEORY OF CNIDOS AND THE MEDICAL PRACTICE OF COS.

In reading Hessler's Latin translation of the Susrutas, the Hindu book of medicine, any one familiar with the writings of Hippocrates must be convinced that very many passages in it must either be the derivative or the origin of the Greek treatises. To some extent I have pointed this out elsewhere, (1) tentatively accepting the views of Haas, a German critic of the middle of the last century. He insisted that the Hindus had never been a progressive race and asserted that in all probability the Susruta is really a derivative of the Hippocratic system, and even that the name "Susruta" is a Hindu corruption of Hippocrates. It is supposed by him that the Hippocratic writings were rapidly disseminated through Asia by the Greek physicians in the conquering armies of Alexander.

Notwithstanding a very great deal of research which has inquired into the origin of Hindu medical learning since, especially by Hoernle (2) I see no reason to doubt the accuracy of this early modern criticism, but a careful study of the Oriental epics,—the Zend Avesta, the Rig Veda and the Atharva Veda, I think, will convince one much of their coloring had been introduced into Greek thought before the time it was translated into the Hindu book of medicine. It is thus true even the Orientalisms may have formed originally a part of the Greek medicine the Hindu took bodily into the Susruta. The school of Cnidos in the text of Galen exhibits these tendencies, but its principles may have been derived from the Orientals and the Hindu copyists, many hundred years later, may have, as Asiatics, only been taking their own again. In "Susruta" we learn that there are sixty-four diseases of the mouth in seven situations. The seats of morbid action are the lips, eight diseases, roots of the teeth fifteen, the teeth eight, the palate nine, the fauces seventeen, and all of them together three. "Galen, in his Commentary, mentions that the Cnidians described seven species of diseased bile, and twelve diseases of the bladder; and, again, four

diseases of the kidneys; and, moreover, four species of strangury, four species of tetanus, and four of jaundice; and, again, three species of phthisis." In the Zend Avesta and the Vedas this tendency to give definite numbers for the ills which afflict mankind strikes us as something apart from our own traditions and tendencies of thought. This is what Hippocrates or the author, whoever he was, of the book *On Regimen in Acute Diseases* protests against, when this scrupulosity in the attention given to the enumeration of disease categories and of symptoms obfuscates the thought which should have been given, unembarrassed and carefully analytical, to things more important. "Those who composed what are called 'the Cnidian Sentences' have described accurately what symptoms the sick experience in every disease, and how certain of them terminate; and in so far a man, even who is not a physician, might describe them correctly, provided he put the proper inquiries to the sick themselves what their complaints are. But those symptoms which the physician ought to know beforehand without being informed of them by the patient, are, for the most part, omitted, some in one case and some in others, and certain symptoms of vital importance for a conjectural judgment. . . . Those, indeed, who have remodeled these 'Sentences' have treated of the remedies applicable in each complaint more in a medical fashion. . . . Some of them, indeed, were not ignorant of the many varieties of each complaint, and their manifold divisions, but when they wish to tell clearly the numbers (species) of each disease they do not write correctly; for their species would be almost innumerable if every symptom experienced by the patients were held to constitute a disease, and receive a different name."

Litré points out that this tendency to arithmetic has finally found expression in modern medicine in the form of statistics, but many of us sympathize still with Hippocrates who instinctively recoils from the thought that you can tabulate vital phenomena without ignoring and concealing those very phenomena of vital energy which separate a mollusk from a marble. Infinite intelligence might not dwell upon the difference between counting oysters and marbles, but a zoologist would protest that oysters present many characteristics which must not be ignored in the counting, and in the most complex of human beings the vice of statistics in tabulating the tangled threads of life is notorious and

*The translations of Francis Adams's *Hippocrates, Genuine Works*, v. 1 (New York: William Wood & Co.), and E. Litré's *Hippocrates, Oeuvres complètes* (Paris: J. B. Baillière, 1839-1845), 10 v. have been chiefly used and compared with Litré's Greek text.

often glaringly the source of error and inexcusable dogmatism. This is one of the counts, a minor one perhaps in his estimation, which Hippocrates makes against the Cnidian sentences. Yet they have perished so completely from the records of men that we know of them chiefly if not exclusively through the criticism they aroused in Hippocrates and Galen who considered things not so much in their isolated details as in the relations they bear to one another.

Even in Littré's time the character of the tendencies of the nineteenth century was apparent to him. In the flood of facts that burst upon the mentality of European mankind, rushing forth when the barriers of thought, which State and Church had erected, fell before the cataclysm of the French Revolution, the totality of things became too great and too variegated for comprehensive study. The philosophy as well as the science of the ages disintegrated into groups of scarcely coherent facts. Statistics which had slept with the Cnidian Sentences for thousands of years came again into their own. Without them we could scarcely have coped at all with the confusion that was introduced. In the middle of the century, and even earlier various systems of philosophy began to appear. Comte, Spencer, Darwin tried to reduce things to some kind of order, but the rise of pragmatism, really the antithesis of any and all systems, raised its puny head at the end of the century, as a sort of despairing cry. The increase in the incoherent data of thought had been enormous and toward the last of the nineteenth century, the impotence of the human mind in dealing with them on the statistical plan became evident to some thinkers. This realization has grown stronger with the opening decades of the twentieth century. Practical affairs had long since begun to show evidence of the tendency to cohere into larger aggregations and science and philosophy, inclusive of social and political phenomena, are seeking the same end in striving for some comprehensive plan, whereby the fruits of the past one hundred years may not escape us. An endeavor is being made, almost unperceived by us, widening the doors for the entrance of the totality of things and guarding the windows of the soul against the intrusion of narrow specialism, to place ourselves in the way of utilizing to the best advantage the harvest of the past.

Littré remarks that there are many things in science which are true only relatively and for the time being and often a principle which found no application at one epoch but sank into desuetude, arose again in another to greater utility. We instinctively think of the atomic theory of Leucippus and Democritus, which evidently occupied the thoughts of men before Leucippus and Democritus were born, but Littré had in mind the question of the methods of Cos and Cnidos as they have been handed down to us in the Hippocratic treatises. "The principle," he says, "which formed the basis of the Coan method was prognosis," which for our purposes we may consider to mean diagnosis for it was "the preponderating study of the different aspects of the general condition"—that of Cnidos was the study of the varieties of diseases in the arithmetical sense. We have lost track of the way of

Hippocrates and we must find it again, despite the fortune which has accrued to us from the onesided plan of the Cnidian practitioners and a narrow attention to the details of pathology and bacteriology whose significance, if it does not change from day to day, is lost for want of the analysis and the synthesis, the ratiocination and the philosophy, which seeks in the facts a prognosis and a diagnosis—what concerns the patient, the man personally and not some fanciful category set up arbitrarily and with no bearing on the realities of life and death, the happiness and the sufferings of the man himself.

What is it to him or his family if the general average of results is good in amputation of the leg? He wants to know if there are not some idiosyncrasies in his particular case by which his leg may be saved and the risk to his life not increased. The man is entirely right in his demands. Surgery becomes a trade like carpentry or blacksmithing, if we are to be guided by the general average of things which statistics tell us about. This is the very antithesis of biological science. It is the individual, not a group of individuals, a surgeon is called upon to treat. The jobber and the large manufacturer may carry on activities concerned with wholesale magnitudes, but their business is something far removed indeed from the arts and sciences. If medicine is to remain an art or a science of life and death, it must carry on its activities by a study of the individual, by retail not by an organization for department stores.

They rip out tonsils and adenoids and intestinal and uterine appendages, they exenterate the sinuses of the nose and the ear, the gallbladder and the stomach, not only because they have the opportunity and the skill but because of some rule arbitrarily arrived at without a consideration of the vast number of exceptions to it furnished by individual cases. It is the individual patient Hippocrates pleads for, not the individual symptom or lesion or locality which swells by one only the lists of statistical data. He wants to know just what that particular symptom or lesion imports to that particular individual. It is the totality of things he grasps at for the formulation of theory, it is the individual fact only in its relation to the individual man which interests him in practice. When we come to read in *The Epidemics* of the patients, of Pythion who lived by the Temple of the Earth, of Hermocrates who lived by the New Wall, of the man who lodged in the Garden of Dealces, it is for us to generalize, but Hippocrates was concerned only with Pythion and Hermocrates and the other man as individuals. I know nothing that should so appeal to the modern medical man as this striking and characteristic trait of the mind of the many sided Hippocrates—"no high brow, high falutin" nonsense about abstract theory, but solid everyday fact. It is theory, it is "moonshine" which the practical man professedly abominates. Yet these facts of Hippocrates are the very things it wearies him to read about. He refuses even to notice them. They are not facts to him, they are errors. The trouble with "the practical man" is his antipathy to cerebration.

Yet the student can read with profit and pleasure

those discursive and general remarks which often open a treatise of Hippocrates and are occasionally interspersed through more practical and objective discussions. This of course is because the principles deduced from observations made 2,500 years ago have persisted as familiar rules of theory and practice ever since. The amount of emendation they require is limited, but the observed "facts" which gave them origin have practically disappeared in the form they took when Hippocrates and the Nature Philosophers who preceded him first viewed them. No one believes patients "die on the seventh day or still earlier" if they have been on a regimen of unstrained ptisan any more frequently than on the sixth or the fourth day or the eighth.

This was a fact for the author of *Regimen in Acute Diseases*. When he says that it appears to him that "those things are more especially deserving of being consigned to writing which are undetermined by physicians, notwithstanding that they are of vital importance, and either do much good or much harm," he is making a statement which we recognize as valid today as it was then. It is dreary reading indeed to follow with weary eyes the lines which describe matters perfectly familiar to us, but it is chiefly in an historical sense we are curious to know "wherefore certain physicians, during their whole lives, are constantly administering unstrained ptisans, and fancy they thus accomplish the cure properly, whereas others take great pains that the patient should not swallow a particle of the barley (thinking it would do much harm), but strain the juice through a cloth before giving it; others, again, will neither give thick ptisan nor the juice, some until the seventh day of the disease, and some until after the crisis. Physicians are not in the practice of mooted such questions; nor, perhaps, if mooted, would a solution of them be found; although the whole art is thereby exposed to much censure from the vulgar, who fancy that there really is no such science as medicine, since, in acute diseases, practitioners differ so much among themselves, that those things which one administers as thinking it the best that can be given, another holds to be bad; and, in this respect, they might say that the art of medicine resembles augury, since augurs hold that the same bird (omen) if seen on the left hand is good, but if on the right bad: and in divination by the inspection of entrails you will find similar differences; but certain diviners hold the very opposite of these opinions. I say, then, that this question is a most excellent one, and allied to very many others, some of the most vital importance in the art, for that it can contribute much to the recovery of the sick, and to the preservation of health in the case of those who are well; and that it promotes the strength of those who use gymnastic exercises, and is useful to whatever one may wish to apply it." The facts on which were founded this conclusion from direct observations are no longer facts for us. Yet in the regimen of the sick pursued three or four generations ago or even more recently they had a very practical significance. We attach no importance to the barley grains in the ptisan as a cause of a pain persisting in the side in a case of pleurisy. "And moreover if, while the

pain of the side persists, and does not yield to warm fomentations, and the sputa are not brought up, but are viscid and unconcocted, unless one get the pain resolved, either by loosening the bowels, or opening a vein, whichever of these may be proper; if to persons so circumstanced ptisan be administered, their speedy death will be the result. For these reasons, and for others of a similar kind still more, those who use unstrained ptisan die on the seventh day, or still earlier, some being seized with delirium, and others dying suffocated with orthopnea and râles. Such persons the ancients thought struck, for this reason more especially, that when dead the affected side was livid, like that of a person who had been struck." We get a flash of recognition of the determination of blood to the back of the corpse but we no longer connect it up with barley grains or even pleurisy in our conception of the sequence of events of death from pleuropneumonia, but hear what Adams, writing some fifty years or more ago says in the way of comment: "This sentence shows that Hippocrates understood thoroughly the proper treatment of pleurisy. When the disease did not yield to fomentations, but the pain continued, either a vein was opened or the bowels moved; for without first using these means, it was reckoned fatal practice to administer ptisan. Galen relates that it was also considered an unsafe practice to give opium, mandragora, or hyoscyamus for the purpose of alleviating the pain, instead of having recourse to venesection or purging for the removal of it. This is a practical remark well deserving of the most serious consideration."

We are just as far away in the world of thought from this as from the text of Hippocrates. We say the rigid application of the statistical method, to which Hippocrates objected, in the study of cases of death would have shown that cases of pneumonia died just as frequently if they had strained broth as if they had barley grains in their soup—that dorsal decubitus produced a livid skin at the back whether they had had barley grains or not or whether they died of pleurisy or typhoid. This is the sort of research Hippocrates was engaged in. Trivial and absurd as it may appear to us in this old treatise, something like it has recently arisen as to the diet in typhoid fever. Those who are young and whose horizon is limited from inexperience rather than from innate stolidity of mind, will have in a few years opportunity to take note whether clinicians arrive at a conclusion radically different from that of Hippocrates. After a short and searching analysis of the symptoms and the results, unsupported by vast stretches of statistic columns, he says: "For the most part, then, the results are the same, whether the patient have used the unstrained ptisan or have used the juice alone; or even only drink; and sometimes it is necessary to proceed quite differently." This was the conclusion arrived at by a mind unfettered by the grouping of disparate phenomena in rigid categories—a method often useful perhaps but leading often to errors in the construction of theories which become serious obstacles in the progress of medical knowledge.

The very essence of biological phenomena is differentiation. Classification, doubtless necessary for

the workings of many minds, has had to be repeatedly burst through by such torrents in the evolution of thought as Darwin introduced in his *Origin of Species*. Classification and differentiation then are two of the methods of science which have their co-operation and their limitations, but are often essentially antithetical. It is unnecessary to point out to modern readers in science what we have gained by the statistical method of Cnidos, but the method of Cos exemplified in this study of the Diet by Hippocrates shows fairly well that the general conclusions arrived at by the two methods in concrete matters, in which both methods are applicable, differ but little, while the conclusion as to the abstract proposition that the themes for scientific discussion are the indeterminate ones forms a part of the wisdom of all ages. It is scarcely necessary to remark that in attacking the statistical method of the Cnidian Sentences we moderns cannot go all the way with Hippocrates, glaring as is the fallacy they exhibit to us in the single example we find in Galen cited from them. Hippocrates has indeed laid his hand on the raw spot when he holds up to ridicule the sharp separation of closely allied biological phenomena implied in the arithmetical nosology of Cnidos. This is almost the worse that can be said of it. It is true the method is so bad that the severity of a scorching criticism has often been called for since, but to be blind to what the statistical method has done for us in the last generation or two, even in biology, would be absurd. Sweeping condemnation of any method of arriving at the truth is on the same level with ignorant and pedantic cleaving to any one support.

There is a difficult passage in the text of which the rendering by Littré is clearer than that of Adams; though both of them reveal the meaning essentially enough for comment. It is to the effect, "common people have little aptitude in recognizing physicians really skilled more than others in treating these acute affections and they are more disposed to blame as well as to praise medication which may be exceptions. These affections are the very ones in which they have the least capacity for judging the treatment and the ones in which those who are not doctors at all appear to be such. It is easy to know the name of medicaments which are usually employed." Then the author says one can easily mention such a decoction of barley or speak of hydromel or of wine and the laymen hearing these names which they know all physicians use think the latter are all alike and the skilful uses them in just the same way as the ignorant; "but it is no such thing and in that there is the greatest difference between physicians." Now I imagine that if a modern critic was going to show up an ignorant set of practitioners he would hardly choose to instance the way they used barley or honey water in the treatment of disease, but I am sure some of my readers are old enough to remember the profundity of thought thrown into the discourse of his professor of Theory and Practice some thirty or forty years ago as to the way to use alcohol in pneumonia and opium in peritonitis. It is true, no more than then or in any other medical epoch would the regular profession countenance the use of stimulants or

opiates in any disease by the ignorant, but I judge considerable shrugging of professional shoulders would ensue if the learned professor in these early decades of the twentieth century should dwell for a lecture or two on the alcohol treatment or the opium medication which we do not have to go very far back into the decades of the nineteenth century to find in full bloom. I fear the coterie of medical students who are supposed to mock everything under heaven and elsewhere, as their class slowly emerges from the "common people" into something much more dignified, would grow hilarious even if they did not consider their intelligence insulted. Yet after all we must go back to the barley grains in the broth.

If the treatment of pneumonia and peritonitis has had radical changes in the time over which the memory of only fairly elderly men can extend the dietetic treatment of typhoid can scarcely fail to arise before the minds of comparatively recently fledged physicians as an example of the veering of the therapeutic weather vane. The solid meal advocates and the broth and the milk and the solid diet men met in animated conflict but a year or two back. The net result seems to be emerging, with help of statistics this time, but why restate it in other terms than those of Hippocrates? It will suffice to repeat: "For the most part, then, the results are the same, whether the patient have used the unstrained ptisan or have used the juice alone; or even only drink; and sometimes it is necessary to proceed quite differently." In the closing phrase we get the Hippocrates point of view from which he looked down with distrust on the statistical method. Whatever the statistics may show is a matter of indifference to him. On the whole "the results are the same" but "sometimes it is necessary to proceed quite differently." That is the difference between counting marbles and human diseases.

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3. A. F. A. HOERNLE: Studies in the Medicine of Ancient India, Part 1, Osteology or the Bones of the Human Body, Oxford, Clarendon Press, 1907.

The Bacteriology of Influenza.—Neufeld and Papamarku (*Deutsche med. Wochenschr.*, 1918, 44, 1181) report that they have found typical Bacilli of Peiffer in the sputum of influenza patients. There were a limited number of examinations made as the work was not started until towards the end of the epidemic. Their findings are in accord with those of a number of other laboratory workers, who state that they have never recovered influenza bacilli even in tuberculosis cases in spite of careful searching since 1912. The authors report that the Pfeiffer bacilli disappeared from the sputum in a short time, while pneumococcus and Micrococcus catarrhalis, which had been absent or present in very small quantities, replaced the Pfeiffer organisms. Uhlenhuth states that it may have been due to a fault of technic or to a lack of knowledge that the negative results were noted.

THE HUMAN FOOT, BOTH NORMAL AND PATHOLOGICAL, EXCLUSIVE OF MOST TYPES OF CONGENITAL DEFECT.

BY E. SMITH, M. D.,
San Francisco.

The necessity of raising and training the largest army in the history of America has led to the careful study of the foot. Heretofore, about the only attention given the foot was to casually inspect it and accept or reject men for military service, according to preconceived ideas as to what constituted a normal foot in contrast to the abnormal. The medical profession as a whole has always shown the greatest indifference to that commonest of all types of foot ailment, unfortunately dubbed "flat foot," because it required no laboratory findings, very rarely involved operative procedure and in many instances, remained undiscovered because it happened to be painless. The profession rated it of so little consequence that it was not worth bothering about. To the best of my knowledge, the first surgeon to recognize "flat foot" as an abnormal condition, acquired in most instances as a result of faulty shoeing, occupation or neglect, was the late Dr. Lewis A. Sayre, of New York. More than forty years ago Doctor Sayre diagnosed "flat foot"; tried to remedy it, first by adhesive straps and eventually had steel arch supports, manufactured for the relief of the condition. Although Doctor Sayre occupied a high position as teacher and surgeon, the men in the profession of medicine never became enthused over his handling of "flat feet."

First of all what constitutes a normal foot? This problem must be worked out by observation of the feet and legs of individuals presumed to have perfect feet and legs. Many children grow up with imperfect feet that are never supposed to be abnormal in any way, because the feet are never inspected by competent persons at any time during childhood. Most shoes for little children are wretchedly constructed, affairs which change the shape of the feet. Unfortunately, very few children go barefoot in summer, as compared with earlier times in the history of the world. Going barefoot develops the feet as nature intended them and for that reason "flat foot" and kindred disability were of rare occurrence in the olden days. In looking over the *Orthopedic Manual*, No. 4, now in use in the United States Army, we find a beginning of the study of the normal foot by Colonel Edward L. Munson, of the United States Army. He uses a plumb line dropped from the crest of the tibia to the head of the astragalus. If the foot is normal, according to Colonel Munson's rule, the line should fall at a right angle to a line drawn between the second and third toes. Posteriorly he drops a line through the middle of the popliteal space, which, if the foot is normal, intersects the tuberosity of the os calcis. T. S. Ellis makes impressions of the feet of a child with normal feet, they are smeared with printer's ink and then placed on paper. Various lines, one of which is known as Meyer's line, are then drawn through the impression and an attempt made to deduce from these lines and impressions

rules which may be laid down as indicating a normal foot. This method is open to serious error as it would require observations of the impressions of many thousands of feet and then a sorting out from these of a large proportion that were positively abnormal, before any sort of fact could be established as to what actually constituted a normal foot. In the manual an attempt is made to define pronation of the foot. For instance, the lateral motion at the subastragalar joint away from the middle line is termed pronation, that toward the middle line is called supination. It requires a stretch of the imagination to accept this sort of definition. In pronation and supination of the hand and the forearm, both the hand and the forearm are equally involved. In such action the anatomical construction of the parts is positively different from that of the leg and foot, so much so, that it is an anatomical and mechanical impossibility to have pronation or supination of the foot. The contention that there is pronation and supination of the foot confuses the whole subject of "flat foot" and prevents either the surgeon or the layman from gaining any true knowledge of the subject.

In recent work done in the cantonments, impressions have been made of the feet and still another line added as a means of diagnosis of arch defects, Feiss's line. This line is drawn from the posterior border of the internal maleolus to the head of the metatarsal bone of the great toe on the inner side. Another line also is presumed to be the line of the normal foot and used in association with the Feiss line. This line is presumed to go through the imprint of the sole of the foot so as to intersect the os calcis on the sole of the foot and the middle of the impression of the second toe. The distance of the scaphoid bone below the Feiss line is taken as an index to the normal, which is placed at half an inch. Any further depression than that is regarded as an indication of "flat foot." This can not help but be faulty in the extreme, as it would be hard to find two people with apparently normal feet giving the same index with regard to the Feiss line. The known difference in the contour of feet of different individuals presumed to have normal feet makes this method open to serious error. In the event of more or less defect of the longitudinal arch being present, the drawing of this line would be seriously interfered with by the inward bulging of the deformed arch. In a study of the skeleton of the foot and leg in which the appearance of the bones is such as to give an indication of a fairly normal foot, the most reliable line as an axis for the normal foot would be one intersecting the middle of the tuberosity of the os calcis through the middle of the articular surface of the astragalus and following to the inner side of the head of the metatarsal bone of the great toe. This line may vary a trifle by falling through the head of the metatarsal bone and would be found to intersect the great toe in the foot of primitive people not much given to the wearing of shoes.

In the consideration of this subject nearly all authors of recent, or remote, date seem to entirely ignore the muscular condition of the leg without which flat foot can not occur. In infancy flat foot,

is present in nearly all infants because of the undeveloped bones of the mediotarsal region. As ossification progresses in the normal foot, the arches adjust themselves in the course of time. If ossification is delayed the foot becomes the type of foot much written about as a weak foot. The x rays are of the uttermost assistance in determining the truth of this statement. If the weak foot is not put up in overcorrection and carefully held in proper position during the time a child is walking, it will lead almost certainly to an organic flat foot. In the ordinary individual who had normal feet in infancy and early childhood, flat feet come about as a result of bad shoes, poor muscular development of the legs, walking upon hard surfaces continually, as all city dwellers do, and also as a result of occupations which necessitate long hours standing on hard floors, and carrying heavy weights while walking on stone or plank floors. This was recognized in a way by the saloon men many years ago. To the best of my knowledge saloon men of our country were the only employers of labor who paid heed to the conservation of their employees' feet. A bartender will seldom work behind a bar not provided with a spring rack on which to stand. It is rather a sad comment on the employers of labor that in one respect the necessity to be humane has been shown by the employers whom we now seek to put out of business because we do not like the result of their activities.

Recently our military surgeons have attempted to classify "flat foot" as first, second, and third degree "flat foot." To the surgeon who has had a large experience in handling arch defects and who knows the many complications that may have a bearing on the subject, this is most absurd. It is a good deal like trying to define fog, light rain, and storms as first, second, and third degree weather. In long standing cases of flat foot, there seems to be a dearth of knowledge, as to the real condition of the bones. The deformity which occurs in flat foot is not by rotation of the foot as a whole, but begins as a buckling of the longitudinal arch inward, after which the apex, as represented by the scaphoid bone, may sag downward. The whole foot in front of the head of the astragalus is abducted. The os calcis is also abducted, causing the deviation from the normal line at the back of the leg. The bones are jammed in the whole metatarsal region and if this condition begins during adolescence, the bones will become distorted as are the bodies of the vertebrae in scoliosis. There is nothing that resembles a pronation about this condition. We often hear mentioned the alleged fact that the plantar structures have stretched and permitted the arch of the foot to sag or fall. This is impossible. Any one making such a statement must certainly have forgotten both his anatomy and his histology. We know that most of the soft plantar structures are composed of white fibrous tissue. We know also that white fibrous tissue will not stretch. It will invariably rupture if forced beyond its strength. The longitudinal arch bears a similar relation to the soft plantar structures that a bow does to the string. The string will not stretch and if a force be placed upon the convex surface of the bow be-

yond its strength to endure it will buckle in one or the other direction, laterally. This is what happens to the foot in flat foot. It can not happen until the anterior and posterior tibial muscles have become weakened and partially atrophic. In the meantime the peronei muscles have contracted and also the muscles of the calf of the leg. The peronei group from overaction and the calf muscles from an attempt on the part of the individual to make the calf muscles do the work of the tibials. As soon as the deformity has become established there is frequently pain and soreness in most of the leg muscles. After a time this may wear off as the deformity and disability in the foot increases. In some cases there is great pain and distress at night, which is more difficult for the patient to endure than the pain on walking in the daytime.

Traumatic flat foot occurs by suddenly springing the arch inward, from the foot forcibly striking underneath the instep on some object like a treadle to a step or on a round stone or some abrupt obstruction in the street. The condition is excruciatingly painful and should be reduced under an anesthetic at the earliest possible moment. Organic flat foot occurs sometimes, beginning at about the same period at which we find the beginning of scoliosis. The arch of the foot buckles inward and becomes enormously distorted in a very short time. The bones become changed in shape, also enlarged and rapid ankylosis takes place. These feet cause great disability in walking because of the ankylosis but are usually not very painful. The feet are most ungainly in appearance, will smash any shoe out of shape in a very few days and utterly defy any attempt at correction by ordinary "arch supports" or any such means. They are very painful if an attempt is made forcibly to correct them under an anesthetic and sometimes but little benefit occurs from such treatment. Arthrodesis in the ordinary sense can not be practised in these cases. Nothing short of cuneiform resection of a portion of the scaphoid bone with a portion of the internal cuneiform bone extending through into the middle cuneiform bone will be of any avail in these cases. The superabundant bone tissue must be removed in order to make any progress in the removal of the deformity. No attempts should be made in these cases to meddle with the articulation between the astragalus and the scaphoid bones. The deformity is anterior to this articulation largely and of such nature, it is much better to do the operation described than to attempt to meddle with the ankle joint. These cases occur in the same type of child in which we find scoliosis. They are absolutely different from the functional type and will not yield to the ordinary methods in vogue for the relief of flat foot.

Paradoxical though it may seem, "claw foot" may exist with well marked so called flat foot. The contraction of the plantar tissues will frequently be accompanied by an inward bulging of the arch, giving us the two deformities in the same foot. The author has recently seen four such cases. A subcutaneous tenotomy of the tendo achilles and division of the contracted band of plantar tissues with an overcorrection of the arch, and incasement in

plaster of Paris, will give a most excellent result in these cases. Any individual complaining of severe pain associated with flat foot should be scrutinized with great care. It should never be assumed that a painful foot is due to a so called "fallen



FIG. 1.—A. Normal axis of bones of foot.

arch." It has become a most reprehensible habit for the average doctor to assume that everybody who has a pain in his, or her, foot needs a so called "arch support" and to advise them to go to a shoe store and get a pair of "arch supports." It is quite reprehensible that nearly all shoe dealers try to inveigle as many of their customers as possible into buying these "humbugs." The half educated chir-podist advertises and sells "arch supports" with a great deal of gusto. They stick them under all kinds of feet whether the foot is deformed or not. Any foot that is painful, unless the condition is very manifest from clinical examination, should be radiographed.

I once saw a boy about fourteen years of age who had very marked flat feet. He was very tall for his age. He had gone to a clinic in a most excellent hospital and had been examined by a well known surgeon. Steel arch supports were prescribed for him and applied. The boy returned to the clinic several times, complaining bitterly of pain in one foot. The other foot troubled him a little but not badly. The pain became worse but the surgeon was obdurate in insisting that he continue to wear the arch supports and that there was nothing the matter with him out of the ordinary. After a time the boy came into my hands. The foot was swollen, hot, and edematous over the inner side of the medi-tarsal region. X ray revealed a tuberculous cavity in the astragalus. Some years before I was caught napping myself. A man applied to me for treatment for a very bad pair of rigid flat feet. They were not ankylosed. The feet could be overcorrected without anesthetic and without unnecessary pain. They were placed in plaster of Paris, the bony prominences well padded. One foot did well; the patient complained bitterly of the other foot. He removed the plaster. The foot was put up again and without appealing to me for relief of the pain he removed it again. This was before we had x rays. I did not realize that the failure might have been due to some serious condition within his foot. There was nothing to be seen about the foot, or in any way of handling it, that indicated a serious condition of the bone. I asked another surgeon to look at it and he agreed with me that there seemed to be no condition to be accounted for by any other reason than flat foot. I did not handle his foot roughly either with or without an anesthetic. The patient disappeared. Five months afterward I was

passing through the ward of a charity hospital where I met this patient just convalescing from amputation of the leg, following acute infection of the bones of the foot. It was rather a startling experience and one which made me think seriously about every case that came into my hands.

Nothing produces a more rigid and intractable type of flat foot than gonorrheal arthritis. This type of foot is distinct. The foot bulges at the junction of the scaphoid with the head of the astragalus abruptly inward. There is not an inward bulging of the whole longitudinal arch as seen in ordinary flat foot of other types. It is very painful and makes very rapid progress. An arch support under this sort of a foot, until the inflammatory condition is over, is torture. These feet must not be submitted to the pressure of arch supports, or special shoes, until they have been placed in plaster of Paris for some weeks and the original source of the infection eradicated by appropriate treatment. Never, under any circumstance, give an anesthetic and attempt to correct such a foot. The correction will fail utterly and excite the most serious osteo-arthritis. The afterpain will be pitiable to witness and will remain from a few weeks to a few months, leaving the foot distorted worse than ever. Such feet should be thoroughly well padded, placed in plaster of Paris from toes to knee with the foot in as nearly a corrected position as can be borne by the patient. All focal centres of infection should be found and eradicated. If the feet have been put up in plaster for some weeks it will be found, in most cases, that the soreness has gone and a beginning ankylosis has materially lessened or disappeared. Any marked case of flat foot, where the surgeon can not bring the foot to a right angle with the leg with the arch in the corrected position, should always be placed in plaster of Paris for from four to twelve weeks before attempting to place any arch support in a shoe, or having a special shoe constructed. Any other course will utterly fail. The patient can not hold his own foot and should



FIG. 2.—Extreme flat foot. a. Uncovered head of astragalus bent downward and inward. b. Axis through astragalus passing also through pseudoarthrosis on external side of neck of deformed astragalus. c. Line showing abduction of anterior portion of foot on head of astragalus. d. Deformed scaphoid bone. e. Large exostosis due to abnormal pull of calcaneo astragaloid ligament. f. Uncovered portion of os calcis from astragalus twisting and sliding inward.

be absolutely passive on his back. The knee should be semiflexed and the foot placed at a right angle to leg.

Sheet wadding should have no place in surgery. It is vile stuff underneath plaster of Paris. It is not properly cleansed; it is nonabsorbent; it is oily; it contains portions of seed hull of the cotton seed, which are irritating to the skin; it retains the perspiration next to the skin, which undergoes rapid decomposition and becomes offensive in a few days. Good absorbent cotton properly cut and shaped, applied smoothly and bound down by a thin gauze bandage makes an ideal dressing. Plaster of Paris when applied to the foot should be filled in underneath the arch, so as to give a sort of rocker shape to the sole of the dressing. This serves two purposes: It prevents the dressing from breaking down and enables the patient to walk comfortably without being inconvenienced from not being able to use the ankle joint. Very much of the plaster of Paris work of the present day is very poorly done, with increasingly poor results, which serve to bring plaster of Paris into disrepute in surgery. Dr. Lewis A. Sayre in describing the method of making plaster of Paris bandages said, "Get crinoline, wash out the starch and dry carefully and then make the bandages." The profession have ignored his advice about washing out the starch, which at the present day happens not to be starch, but glucose sizing. For the same reason that cane sugar has a partially solvent effect on plaster of Paris, so also has glucose sugar or syrup. This glucose sizing in the crinoline which is used in most of the hospitals, the world over, makes the plaster dressing damp and cheesy and has a disintegrating effect on the plaster, causing it to crumble. Unsized gauze, with a coarser mesh than the ordinary bandage gauze should always be used. Now as to the plaster, it is not sufficiently explicit to say dental plaster because there is more than one sort of dental plaster. Commercial plaster of course is impossible. Dental impression plaster should always be used and a most excellent modification of this plaster is five per cent. of white cement, such as tile setters use in placing light colored or white tile on the interior of bathrooms and so forth, thoroughly mixed with the plaster, gives the most ideal of all dressings of the plaster of Paris sort. Never put any foot afflicted with chilblains in plaster of Paris.

Arthrodesis performed in the usual way, or by some of the newer methods in which a bone graft is inserted, is of very doubtful expediency. Where the bone graft is inserted, frequently the denudation of the bone from its articular cartilage is not thoroughly done, with a result that there is a non-union and the bone graft promptly breaks. This is not supposition, but fact, as witnessed by the author. Most patients will not submit to having their foot incased in plaster of Paris for from three to six months. Firm union of the bones in the mediotarsal region will not often take place in less time. These feet are generally painful for months, or years, or as long as the patient lives. The worst and most ridiculous of all procedures is to detach the tendon of the anterior tibial muscle, bore a hole through the scaphoid, draw the detached tendon through this hole and stitch it to the bottom of this bone. The muscle is already somewhat atrophic, overstretched and almost useless. To still further incapacitate it, is positively a sarcasm

on surgery. Metal arch supports should be obsolete. There is seldom a case requiring their use. Any arch support will be an utter failure if placed in a shoe with a weak shank. The shoe must be strong enough to carry the person's weight without yielding at the shank, or the metal support will break, and any other support will sag out of shape. The supports found on the market are of the deformed type, corresponding to a flat foot. They serve only to perpetuate the deformity and batter and bruise the mediotarsal bones, sometimes leading to serious osteoarthritis.

The method of making plaster of Paris models of flat feet, as is most often done, is childishly inefficient and absurd. The model when it is done is a beautiful reproduction of a flat foot and any arch support made over it most certainly would serve to perpetuate the deformity. Arch supports should be made of a good quality of piano felt cut and properly shaped so as to raise the foot underneath the ankle joint, and not so much under the scaphoid and internal cuneiform bones. This felt is placed between properly molded pieces of sole leather and covered with a piece of goat skin. It is made the shape of a normal foot. It is very light and is flexible. When put inside of a shoe with a strong shank, it will hold the patient as well as any other arch support in use. The author has one patient weighing 287 pounds, who had been almost helpless for seven years from flat feet (as the late Dr. Lewis A. Sayre said, "The hollow of her foot certainly made a hole in the ground"). She is walking about very happily on a pair of felt arch supports and a pair of strong ordinary shoes. Swing last shoes are an abomination with which the present market is flooded. The original Munson last was a partial swing last and for that reason nor as good as the modified Munson last now in use in the United States Army. The swing last shoe has no effect in preventing or curing flat feet. It will ruin the metatarsophalangeal joint of the little toe and frequently the third, fourth, and fifth toes also, causing no end of torture to this part of the foot; makes many corns and is a grotesque and inhuman invention. The most grotesque shoes with an exaggerated swing last are now on the market and largely advertised; they are the production of imbecility and are harmful. Associated with flat foot we frequently find a breaking down of the transverse arch with metatarsalgia. This is not due to a pinching of a nerve trunk between the heads of the metatarsal bones. The pain is due to an arthritis in the metatarsophalangeal joints usually of the second and third, or third and fourth toes. The condition is nearly always accompanied with one or more calluses underneath the ball of the foot. Frequently the extensor tendons are contracted and the toes stick up on the foot after the fashion of a duck's head and neck. Careful manipulation of the joints involved will show them to be inflamed and very sensitive. A sort of half pear shaped pad of piano felt glued to an insole, or to the sole of a felt arch support and covered with leather, so as to lift up the second, third and fourth metatarsal bones, but never the first and fifth, will relieve this condition or cure it.

Associated with flat foot, we often find bunions

with hallux valgus. Recently a number of operations have been devised which are no better and no worse, than the old stereotyped resection of the joint. These operations are utterly bad. They are a useless mutilation of the foot. Barring cases in which caries is present, the joint should never be obliterated. The head of the metatarsal bone should always be spared. Resections of the bone are uncalled for and useless. Transplanting of tendons in this condition is an unwarranted meddling with those structures. About thirty years ago Watson-Cheyne, of London, devised an operation for bunion which is so simple and easy of performance, so logical and gives such excellent results that it failed to attract attention in the profession of surgery.* It was too plain and simple. Many surgeons have tried to devise an operation of a much more complicated sort by which they might bequeath their names to the literature of surgery and many people have been crippled as a result. Watson-Cheyne's operation gives the most admirable results and leaves the foot unblemished. A crescentic incision with the convexity upward is made from a point about three fourths of an inch anterior to the joint and brought down to a point about three fourths of an inch posterior to the joint. Incision should not wound the extensor tendon of the big toe. The flap is laid down on a level with the sole of the foot. If there has been an inflamed bursa underneath this flap the inflammatory tissue should be carefully dissected out before operating on the joint, care having been taken not to injure the internal lateral ligament. The internal lateral ligament is then divided in front of the joint from above, downward and reflected backward. The bunion is freely exposed and sliced off with a metacarpal saw, being careful not to saw into the head of the bone. The edges of the saw cut are smoothed off and the big toe forcibly overcorrected. If it does not yield readily, the external lateral ligament may be nicked by a tenotome, bringing the big toe into marked overcorrection. The internal lateral ligament is resected and shortened and then sutured so as to hold the toe in overcorrection. The flap is then closed with a silk-worm gut suture. A splint made of thin board, cut so as to hold the toe in marked abduction is well padded and applied to the sole of the foot and toe. The splint should go from the heel to the end of the toe, and be securely fastened so that it cannot slip laterally. Plaster of Paris is useless. The author has practised this operation for a great many years with excellent results. It is amazing that this excellent and useful operation never found its way into surgical literature.

Patients with feet in plaster of Paris for correction of flat foot should be allowed to walk freely. Many of them can resume their daily occupations. Rigid flat foot, not due to infection either latent or active, should have the feet forcibly corrected under an anesthetic and then placed in plaster. Exercises and manipulations as practised both in and out of the army, may come to have a very useful place in the convalescent treatment of this condition. Otherwise they are childish out of place and show a lack of understanding of this most prevalent, and troublesome condition.

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TEACHING SURGERY BY THE MOVING PICTURE.*

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I have been asked to describe the moving picture as a teaching method. In order to readily consider this, it must be remembered that there are at least three varieties of moving pictures, each of which has its own advantages when taken at the normal rate of sixteen to one second and a fourth by a slow or rapid take. Up to the present time, only one of these methods has been used to any very great extent; that is, the sixteen to one or the old style, the common method in which the operator is taken with his patient and with his assistants, but often, the blood blocks out the field so as to obliterate the very things it was desired most to see.

Another method, much less well known, is that which was taught me by my friend, Frank Gilbreth, of Providence. It consists in taking the picture of the scene you want upon a background and floor of four inch squares (one decimetre, 3.937 inches) so that the four inch squares appear in every portion

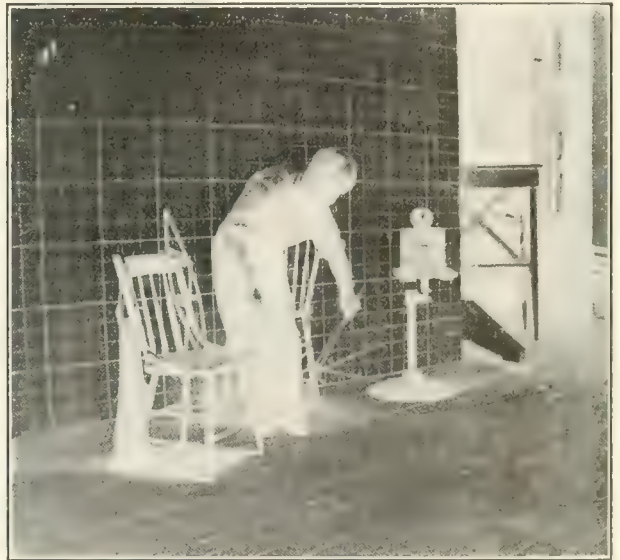


FIG. 1. Mechanical movements analyzed by means of squares marked in background.

of the field at all times. In the field, at the same time, there is placed a clock, in which there is no escapement, since the fractions of time involved are very small and the escapement introduces a dead point which might possibly interfere with the accuracy of the work. This method will be of particular value in the medical world when it has been developed as it has been in the engineering world, for the examination of spasmodic seizures, of limps of various characters of the reflexes, etc.; I imagine the patellar reflex explained by stop motion when teaching the student his physiology and this followed by a moving picture of the reflex in the living individual. By using the device known as a simultaneous motion chart, taking the pictures from

*Read before the section in Orthopedic Surgery of the New York Academy of Medicine, January 16, 1919.



FIG. 2.—The fingers are shown gradually moving into the field of operation on the left of the field.

sixteen to sixty or eighty per second, as the necessities of your work require, and then throwing these pictures on a screen and charting in vertical sections, the time element of the cycle of movement; and on the horizontal, the distance moved in each fraction of time by each individual portion of the body involved in the cycle of movement which it is desired to study, and as either the time element or the distance traveled in the cycle changes, the quadrangle of each cycle of the individual part changes its shape, being lengthened or shortened in one or the other direction, so when you have charted two or three cycles of the movement, the irregularity becomes instantly visible upon the simultaneous motion chart even though they are not seen on the screen in the picture.

I was particularly interested in one of Frank Gilbreth's experiences. Having several young engineers studying in his laboratory, he gave one of them a moving picture taken three years before with the time and distance elements in it and told him to make a simultaneous motion chart. In this chart, there developed in one of these cycles, a very marked irregularity in which the time element was doubled and the distance element was shortened. The picture was reexamined, and Gilbreth then saw the reason for the lengthening of the time and the shortening of the distance, which ordinary observation had not shown at all, but which was now perfectly plain and apparent. The men in walking down the ramp, had worn a shallow hole in the earth at the foot of the ramp, and as they came down with the load on their shoulder (they were handling pig iron), it was necessary to place this foot with a little care in this hole to keep from stumbling, and it was this that created the irregularity in the gait which had not previously been noticed, but when the simultaneous motion chart had invited his attention to it, it was like a sore finger, you could not lose it—and so it will be with you, when you come to make a simultaneous motion chart of limbs, spasmodic seizures of hysteria and reflexes. It will enable you to make direct and positive diagnosis from the regularities and irregularities shown upon your simultaneous motion chart.

There is yet a third kind of moving picture that is, perhaps, as a teaching method, of far greater importance than either of the other two, or, perhaps than the two combined. This is what I choose to call the animated diagram. You see them constantly in the moving picture theatres in the so called Mutt and Jeff picture.

In the operation for femoral hernia by the inguinal route, it is interesting to watch the artist's hand appear, drawing in the torso of the woman—then the bony pelvis appears—then Poupart's ligament, then Gimbernat's ligament—to see the aorta subdivide—the internal and external iliacs drop into place and the femoral artery go through under Poupart's ligament to its own place. It is, to say the least, interesting to see the knife march into place, make the proper incision, march out, the retractors come in and open the tissues up and layer by layer the operation proceeds with the moving diagram ever changing and making a perfectly clear outline of every detail of the operative procedure you wish to explain.



FIG. 3.—Operation for trans-
verse forearm to jaw.
Shows position of patient and
instrument approaching the field
of operation.

Not a word of truth in it, only verisimilitude, only a description of the movement by picture, rather than by words, just plain, straight makeup, and so it can be with almost anything else upon the face of the earth that you wish to tell. One of the ambitions which I had was to make a moving picture show in detail the nerve impulses and the effects which followed in the heart, and the irregularities of action resulting therefrom, indicating the difficulties produced in the ventricles when there is an interference with the function of the bundle of His, and other important structures.

I also had an ambition to make a transparent image of the child in growth, and to make the organs grow under your eyes, in their definite relationship, one to the other. It would be very interesting to see the forming of the peritoneum in place, and to see the stomach and duodenum turn, fall back and form the lesser cavity, and to see the bloodvessels grow down into and with the mesentery. One of my friends desires very much to make an animated diagram, showing the cell changes in the growth and repair of bone. I had him in the proper frame of mind, his diagrams were in the hands of the artist, but the war ended and both the artist and my doctor were anxious to return to civil life, and another dream of mine was gone.

Imagine, as a method of teaching, that you were able to put on the screen an animated diagram of just what your idea was of the operative procedure you wished your students to know and then you performed the operation as nearly as you could alike to your animated diagram and to have the pictures taken. Have your student read over the descriptions of the operation, see the animated diagram, the motion picture of the actual operation, then when he sees the operation at the clinic, he will carry with him a very much clearer picture of what instruction was than he possibly can receive in any other way with many times the same study. Your own ability to think in diagram is your only limit by this method and with a camera, you can make the negative in your own hours.

This making of the negative is quite easily accomplished by remembering the principles upon which these animated diagrams are put into movement. When the eye receives an impression, it lasts only a fraction of a second, less than one eighth, and then another impression of the same object within one fourth or one half inch of the same position, and the series of these are impressed upon the retina. The result is that the eyes see a continuous movement. For example, one of the pictures is that of a chisel being driven into a bone by a mallet. The method by which this was done is as follows:

First—pictures of the chisel and the mallet were drawn upon a piece of cardboard. These were then cut out in the black lines of the drawing; then the drawing of the foot and the bone to be cut. The drawing of the chisel cut out of paper is laid upon the drawing of the foot and the picture is taken. The picture of the chisel is then moved a short distance, another picture taken, and a series of these pictures taken with a picture of the chisel gradually approaching and assuming its position to cut the

bone. Then when this is done, the mallet picture comes in by the same process and when it gets into the position from which the blow is to be struck, a picture is taken—then the next picture represents the mallet in the position to strike, then it is placed on top of the chisel and since two blows are to be struck, the next picture is taken by putting the picture of the mallet back into place from which the original blow was struck. This is repeated with modifications of this process in every single item of these stop motion pictures.

Imagine yourself teaching physiology with an animated diagram of the blow on the tendon, the impulse flowing up the nerves of the thigh to the centres, and the reflexes back down the nerve to the muscle with the muscular contraction. Then show an individual giving this reaction in a moving picture, and a student will not forget it when you show it at the clinic. Heart studies with the animated diagram, the reflexes, studied in the same way will certainly reward the student and enable him as a teacher, to explain in a far more satisfactory way to the beginners, than otherwise would be possible.

When you take pictures at four to the second and then throw them upon the screen at sixteen to the second, the result is, that the man who walked across the stage in the picture at two miles an hour, will appear and apparently go across the screen at the rate of eight miles an hour, four times as fast as he actually walked. Much of the funny work on the screen is done by this means. On the other hand, when you take pictures at sixty-four to the second and then throw them on the screen at sixteen to the second, the man who walked across the stage at two miles to the hour, appears to move at the rate of one half a mile to the hour.

I hope that the physicists will not doubt my word, for I have a picture with the evidence in it itself that it was taken at 128 to the second by means of a continuous motion clock which indicated $1/2000$ of a minute in each subdivision. There was taken a very interesting picture, of a group of twelve or fifteen boys playing together, in a very rapid motion, and in the midst of this, one of these children ran very rapidly to the group and jumped upon the top of them. When this picture was thrown upon the screen at sixteen to the second, this child appeared to be going in long leaps, floating through the air very lightly, at the rate of about one mile per hour, and when he jumped he apparently floated like a very light balloon and settled on top of this squirming mess of children and bounded up very slowly and very lightly just as a very light balloon would do when striking the floor in still air.

When you couple this slow motion picture with four inch squares on the floor and wall and a timing device, it enables us to slow this motion down and study it with a very much greater accuracy than it is possible to otherwise do and you will be able to solve almost any of the problems involved in reflexes and spasmodic contractions.

A very valuable piece of work, would be to study the cripple at work. I know of a one armed brick-layer who earns more in laying brick than the two handed do in the majority of the cases. What a picture it would be, to get a rapid motion picture of

this man with time and distance, then his automatic motions would be registered, the simultaneous motion chart would solve his motions and they could be analyzed slowly and deliberately and other brick layers be taught his method, and have his automatism become theirs.

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REMARKS ON METHODS OF TEACHING MEDICINE AND SURGERY BY THE CINEMATOGRAPH.*

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As a supervising orthopedic surgeon, it early became apparent to me, in lecturing at various cantonments or to any large body of students, that simply the verbal lecture, with the limitations of the human voice and absence of illustrations or clinical material, was inadequate for attention and retention by the memory; charts and slides were impractical, so that the moving picture, on my initiative and the hearty cooperation of Colonel Owen, the commanding officer of the museum and library division, was established in the Surgeon General's Office and the other specialists soon availed of it.

In creating these lectures, I have had in mind not only military instruction, but adding teaching facilities available for use in our civil medical schools, upon request to the surgeon general. A detailed list of the medical and surgical films now on hand may be had upon application to the Instruction Laboratory, Surgeon General's Office. It soon became apparent to Colonel Brackett, director of our division, and the rest of us engaged in this instruction, that it was expedient to go into the most rudimentary facts regarding locomotion, the prevention of avoidable disability and the recognized treatment of the more common affections of the lower extremities. I prepared some thousands of feet of film on these subjects alone, and I am giving you only disjointed snatches from them here and there. After completing our task of instruction in preparation for oversea duty, our attention was next directed to the demonstration of methods for the immediate care of the wounded. Finally, our efforts have been to portray in detail the technic of surgical reconstruction in tendon, muscle, and bone work. I will also show a portion of our work on posture, as we look to New York as the home and Dr. Henry Ling Taylor as the father of the American Posture League here.

The moving picture film will bring the student into closer touch with clinical material, certain symptoms such as neuroses, epileptic seizures, tics, and other nerve conditions, than are oftentimes available in hospital routine instruction and difficult to describe. The so called "closeups," as shown by "the movies," will bring the student intimately in contact with the operating table, which is often not possible from an amphitheatre seat. The details of arterial, nerve or intestinal anastomosis, bone grafting, application of mechanical prin-

ciples of direction and technic in tendon and muscle transplantations for deformities and application of deep sutures are brought home and fixed in the memory as by no other means of instruction, save actual experience later in the procedures themselves. This mode of instruction yields a higher average mark than any other mode of teaching.

The moving picture possesses the advantage over the lantern slide in that the component parts of a lecture cannot be disarranged, broken or lost, nevertheless inserts or additions can be made, almost unlimited positives can be printed from the original negative at the same cost as slides, and films are lighter and more easily transported than slides. A simple modern attachment for larger projectors is also now available for stopping the moving picture machine at any point without burning the films, and some small lecture projectors possess the same possibility where it is desired to emphasize some special picture, thereby putting it in a less costly class than the slide, which has not heretofore obtained and was an objection.

By means of the moving picture in comparative teaching of the future, the medical student will also be able to see the modifications of several surgeons in performing a given procedure; thus a class may see the technic employed at the clinics of this and other countries at the same sitting and appreciate the value of the points made in each. It is thus very broadening in its educational possibilities. Or a clinical professor, who wishes to illustrate his systematic course of lectures, but is lacking in clinical material, can resort to a moving picture record of the desired cases, symptoms, signs, operations, and other procedures. The films of the Surgeon General's Library will be available to teachers in the army and medical schools and the profession, just as the books in the Surgeon General's Library are for study or reference, provided transportation, safe handling and return in good order or replacement are guaranteed. Those who wish to own prints can purchase copies by arrangement with the Instruction Laboratory of the Surgeon General's Office at a reasonable figure, viz., cost of film.

It is hoped that the profession will cooperate in giving films to this department or allow it to make copies of existing negatives. It has been brought to the attention of the Surgeon General's Office that certain commercial film companies, having made medical films, wished to charge this department for copies or the profession for exhibition purposes on a commercial basis. Physicians could easily and should specify, when approached to demonstrate a new original procedure for a "movie" company, that a copy be sent to the surgeon general for the library, before permitting it to be made.

Many facts in the prevention of acute foot strain, the so called flatfoot, and the explanation of the large number of torn ligaments at the knee and ankle in trench jumping at the cantonments have been explained by this department and moving pictures prepared showing how to jump correctly and prevent such disabilities. Also as a result of this film, instruction in standard foot examinations, shoe fitting, correct balance and marching, to be used in the army, have been, or will shortly be issued by the general staff as general orders.

*Read before the Section in Orthopedic Surgery, New York Academy of Medicine, January 26, 1917.

By diagrammatic or "stopmotion" line drawing or "animated drawings," as they are called, a most valuable instructive preliminary is at hand to precede a picture of an actual operative procedure. Demonstration of details in brace construction, fitting and therapy, and especially in recording, charting, measuring departures from normal gait, this new means of teaching orthopedic surgery is an added asset, divested of the costly obstacle which has prevented its addition as a routine in the teaching of standard methods by many, heretofore. The plan in teaching my students any given operative procedure is to show them the animated drawing first, then a "closeup" of an actual operation and other surgeons' technic in that condition, and then finally the operation itself, on the living subject, with illustrative cases before and after the operation. It is thus felt the methods imparted will stick.

STRANGULATED INGUINAL HERNIA IN INFANTS.

Successful Bassini Operation on an Infant Fourteen Days Old.

By JOSEPH E. FULD, M. D.,

New York,

Instructor in Operative Surgery, College of Physicians and Surgeons, Columbia University; Assistant Visiting Surgeon, Hospital for Ruptured and Crippled, Gouverneur, and City Hospitals.

Strangulated inguinal hernia in infants is a rare condition, which can readily be judged by the fact that we found only one among the 1,200 cases examined in the children's clinic of the Hospital for Ruptured and Crippled during the past year. Nevertheless there are a sufficient number of cases on record to emphasize the importance of never allowing a hernia in infants to remain unreduced. The reason that strangulation occurs so rarely in infants is explained by the following facts: 1, Hernias in children are small as a rule, and there-

fore easily reduced while strangulation practically always occurs in large scrotal hernias, which are not of common occurrence in infants; 2, they occur on account of loose and easily dilatable pillars of the external ring; 3, the hernia has not existed sufficiently long to become adherent to the surrounding tissues.

At the onset there are symptoms of pain as shown by persistent crying and vomiting, diarrhea or constipation and tenesmus. The hernia becomes larger, more tense, and very painful



FIG. 1.—First step in applying the wool truss.

on pressure. If the strangulation is not relieved within a few hours the pulse becomes rapid, thready, and very easily compressible, the facial expression is anxious, the temperature is subnormal, the extremities become cold and moist, and the nose

looks sharp and pinched; in fact all the symptoms of collapse are found. The symptoms of strangulated hernia which have already been described are so typical that they present no diagnostic difficulties. The failure of diagnosing this condition is usually the result of omitting a thorough examination and frequently the presence of a hernia is discovered by the consultant. The mortality in unoperated cases is nearly 100 per cent. The patients usually die either in a condition of collapse during the first forty-eight hours or of septic peritonitis from intestinal perforation.

In the prophylactic treatment in very young infants the use of a frame truss is unsatisfactory in these conditions; I have been in the habit of using instead the wool truss in infants under one month old. It is made from one quarter of a skein of white yarn, the length of which is the circumference of the body. A piece of tape, ten inches long, is tied to one end. The yarn is placed around the body, the tape end is passed through the loop, forming a knot over the inguinal canal, which acts as the pad of a truss. The tape is then passed under the perineum and tied to the transversed portion. If the patient is seen immediately after strangulation has taken place it is put into a hot bath, the knee on the side of the hernia is flexed, the limb externally rotated and taxis attempted: To carry this out: Steady and grasp the neck of the sac with one hand while the other hand gradually compresses the hernial contents. Should this method fail a second attempt may be made under general anesthesia with consent to perform herniotomy it unsuccessful.

The foregoing facts are illustrated by the following case:

Patient, Philip G., a poorly nourished, puny boy, fourteen days old, was brought to the Surgical Service of the Gouverneur Hospital on November 2, 1918. One

week prior to the date of admission the mother noticed for the first time a right scrotal hernia, which came down when the child cried and November 1, 1918, the scrotal swelling reappeared, the child became cross and peevish, began to vomit



FIG. 2.—Showing wool truss with knot over inguinal canal.



FIG. 3.—Showing wool truss with tape tied posteriorly.

and had numerous bloody diarrheal stools. Inadvisedly, the mother gave a dose of castor oil. Physical examination showed a right scrotal inguinal hernia, the size of a pigeon's egg, which proved after repeated attempts to be irreducible. Operation was performed with the least possible delay, in the following manner: Ether, being the safest anesthetic to use, was carefully administered. An incision two inches long was made parallel with Poupart's ligament and about one quarter inch above it. The aponeurosis of the external oblique was incised two inches in the direction of its fibres. Its upper leaf was dissected well back, giving a full exposure of the internal oblique. The lower leaf of the cut aponeurosis was dissected down until Poupart's ligament was exposed to the pubic bone. The sac and cremaster were seized with a pair of thumb forceps and lifted up and the muscular fibres pushed aside, exposing the sac, which was held by a pair of artery forceps in the left hand and with a pair of thumb forceps the cremaster was easily dissected from the cord and sac. The exposed sac was now grasped with an artery clamp and the infundibuliform fascia which surrounded the sac and cord was peeled off. The cord was separated from the sac with a thumb forceps, which must be done very carefully on account of the small size of the vas deferens and its artery. The sac was tense, inflamed, and matted to the cord, but with great care I was able to separate it from the cord.

It was necessary to use particular care in opening the sac to avoid injuring the intestines in so small an infant. The sac contained a moderate amount of blood stained fluid.

A large knuckle of the small intestine of purplish color was found to have been obstructed by a very tight and densely fibrous ring at the neck of the sac; with some difficulty I succeeded in slipping a grooved director under its margin and incised it. I was now able to draw down the loop of intestine and on each of the two limbs at the side of constriction there was a deep groove which fortunately had not injured the peritoneal coat. Hot saline compresses were applied to the intestine, and after a few minutes the intestinal wall recovered its tonicity, the color became brighter and it was manifest that its circulation was restored. The intestine was then reduced. The neck of the sac was transfixed in the centre, with a double No. 1 plain catgut ligature, and then tied off, so that there was no longer

duced by means of a small Hagedorn needle through the lower portion of the internal oblique muscle coming across the inguinal canal, beneath the cord picking up the shelving process of Pou-



FIG. 2. Showing incision in position, posterior view.

part's ligament and tied; only three sutures were required.

The aponeurosis of the external oblique was closed by a continuous suture of the finest kangaroo tendon and the skin wound closed with fine silk. A special form of dressing was used in order to prevent the wound from becoming soiled from the urine. I have been using, with good results, the collodion dressing which is made by saturating several layers of gauze with collodion and placing it over the wound and allowed to dry.

This case illustrates very clearly the danger in administering cathartics in acute abdominal conditions; no purgative should be given while the hernia is unreduced, as it is frequently the cause of fatal termination, unless met with prompt surgical interference.

Mothers and nurses of babies should be warned against the practice of giving castor oil, as soon as the child shows symptoms of abdominal pain, without first being examined by a physician. The promiscuous administration of purgatives is equally injurious in appendicitis and intussusception. We know that in at least seventy-five per cent. of the cases of appendicitis, perforation has followed the use of cathartics. It is my opinion that the administration of a purgative was the cause in producing strangulation in this case. The danger of allowing hernias to remain unreduced should be impressed upon both mother and nurse. In infants under one month old the wool truss already described makes an efficient support not obtained by means of a truss with a steel frame. If strangulation has existed long, taxis is more dangerous than operation. Operation of itself presents very little danger; the interesting feature is the excellent way in which the babies stand the operation. I have found from experience that the fine instruments employed by the ophthalmic surgeon are the most practical in operating and handling these delicate tissues. Operating early on infants under ether anesthesia is in my opinion attended with very little danger.

101 EAST EIGHTY-FIRST STREET.

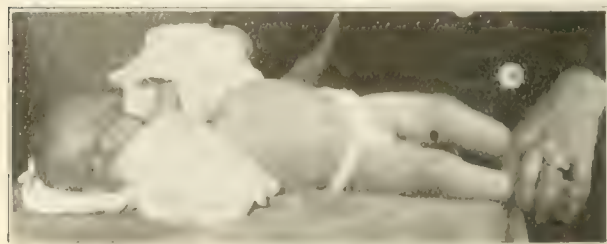


FIG. 3. Showing wool truss in position; front view.

any funicular process of peritoneum. The cord was then held upright by means of a narrow piece of tape and artery forceps. The deep sutures were of the finest size kangaroo tendon, they were intro-

Intravenous Serum Therapy in Erysipelas and Typhoid.—A. Campani and F. Bergolli (*La Rivista Medica*, August 25, 1918) report excellent results from intravenous injections of both anti-streptococcic and antidiphtheric serum in severe cases of erysipelas.

PATHOGENICITY, CULTIVATION, AND REPRODUCTION OF PROTOZOON PARASITES.

BY A. J. HINKELMANN, M. D.,

Enid, Okla.

The pathogenicity, cultivation, and reproduction of the protozoon parasites have long been questions of much obscurity. While the ameba, practically ever since the early finding of this organism, and since certain complications caused by it have been well understood, has been regarded as the causative factor of the amebic form of dysentery, it has become very apparent of late, especially through study of the ameba that the diarrhea of dysentery, and its commonly known complicating lesions, constitute only a few of the conditions resulting from amebic infection.

In regard to the *balantidium coli*, the *cercomonas hominis*, and the organisms of the *trichomonas* group, these are commonly thought of as local invaders and inhabitants of the intestinal tract in certain diarrheas and dysenteric conditions, but opinion is still divided as to whether they are really the causative factor or only the consequences.

PATHOLOGY.

What applies to bacteria in acute infections, with reference to local lesions and general circulatory invasion, applies to these protozoon parasites. In acute and subacute cases, at least, the organisms of the ameba, the *balantidium coli*, the *cercomonas hominis*, of the *trichomonas* group, as I shall show in my reported cases, may be found alive and active in the blood taken from the veins. To this end protozoology has gradually been leading. Bowman has found the *balantidium coli* in nests of from six to twelve organisms in the blood vessels at autopsies upon fatal cases from this infection. (1) Similar findings are recorded by Strong and Musgrave (2), and by Bel and Couret (3); and are substantiated by my own early findings of the *balantidium coli* in the urine of the patient (4). The hemorrhagic urine, as a frequent sequel of the infection of the *cercomonas hominis*, and the finding of the *trichomonas* in various parts of the body, without any evidence that these organisms in different locations are not the same, speak with equal logic for a generalized infection. We have ample evidence that the ameba enter the blood by the number of metastatic lesions frequently found in amebiasis and also in the appearance of this organism in the urine. Apparently their presence has little significance.

SYMPTOMATOLOGY.

In common it may be said that all of these organisms, when entering the body under favorable conditions, follow practically the same morbid course and set up conditions differing in degree only, and of which the principal outward clinical manifestation is commonly a disturbance of the gastrointestinal tract resulting in a diarrhea of one form or another. The ameba and the *balantidium coli* seek the colon and the lower part of the bowel as their primary seat of infection, while the *cercomonas hominis* and the *trichomonas* favor the ileum

and the upper part of the intestines. However, a diarrhea is only the open manifestation of the organisms, in cases where the intestinal tract happens to be the line of least resistance. Whatever condition is set up may be clinically manifested by anything from a stubborn constipation to that of a real dysentery. Evidently, by far the greatest field of pathological conditions, in which these parasites play the part of causal factors, is on the masked side of the question. A large percentage of the cases of amebiasis, that have come under my observation in the laboratory, have not had diarrhea and were obscured by various errors of diagnosis, both surgical and medical. In those cases where there had been a striking rise and fall of temperature, at more or less regular intervals, malaria was suspected. Where the temperature remained at a more uniform height, and had been continuous for some time, typhoid fever became the probable diagnosis.

On the surgical side, liver abscess has been directly presented in such a manner as to leave no doubt in the surgeon's mind that his diagnosis rested between the conditions of appendicitis, peritonitis, infected gallbladder, and perforated gastric or duodenal ulcer. The infection from the *balantidium coli* organism is seldom suspected, and only in cases where there is chronic diarrhea and the disease has reached the dysenteric stage. More often, in the earlier stages, and in cases showing no diarrhea, such diseases as chronic malaria, typhoid fever, or syphilis are actually sought for. In one case of my own observation, among my reported cases, a double pyelitis, which ended fatally, was found; and in another a marked ulcerative urethritis. Trichomonic infection, in the absence of leading gastrointestinal symptoms, may be equally obscure and as easily mistaken for syphilis or hook worm, if encountered in southern climates—although acute conditions such as fever, localized pain and rigidity suggestive of appendicitis, gallstones, or renal colic may be present.

THE URINARY TRACT.

In consequence of a generalized infection, it readily can be understood how members of this group of parasites frequently appear in the urine, for they are evidently thrown into the urine in each case where the blood is invaded, but owing to the fact that they are easily disintegrated and only retain their morphology under certain conditions, they may not always be found except in freshly voided urine. In central Illinois, during the summer season of 1915, the *balantidium coli* was frequently found in the urine; while here in Oklahoma, the organisms were not found in the urine. I have never seen a case of infection by the ameba, even in the obscure cases, where spherical forms were not found in freshly voided urine. This finding has been so constant that in this section of the country it has been used as a valuable diagnostic point.

CONSTITUTIONAL SYMPTOMS.

It can be generally said that the action of these parasites is purely mechanical, and that most of the injuries produced are indirect. The postmortem findings of Bowman (1), and of Bel and Couret

(3) in fatal cases from balantidium coli infection bear this out well. Even the lymphatic glands containing the organisms show no cell reaction as in toxic bacteria. It is also well known that amebic

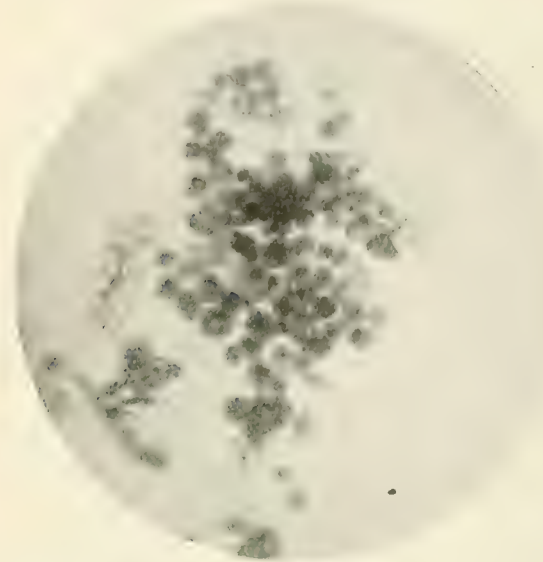


FIG. 1.—Ameboid bodies of the urine from a case of amebiasis showing irregularity of size as compared with that of a similar number of leucocytes. Precipitated in mass as a result of the action of carbolfuchsin stain. (Magnification 130 diameters.)

ulcers are practically characteristic, by the absence of the usual products of purulent inflammation in the surrounding areas.

In uncomplicated cases the leucocyte count is about 12,000; with a tendency of an increase in the lymphocyte count. Chronic and severe acute cases, toward the end, may show a marked fall in the number of red cells; but, these may be found high in cases of diarrhea, evidently through concentration. An eosinophilia of about twelve per cent. is often found in cases of chronic infection of the trichomonas intestinalis. The fever, which is more commonly present only in amebiasis, though usually spoken of as an irregular one, is, after all, very characteristic. While it may be high or low, there is always a striking difference between the evening and the morning temperatures, which difference remains the same (Figs. 7, 8, and 9). If it registers 103° F. in the evening, it will probably register 99° or 100° F. the following morning. If it rise to 105° F., it will fall again to 101° F., or thereabouts. The cases which do not receive treatment end by an indefinite form of lysis; while those which are treated may end abruptly.

REPORT OF CASES.

The following are some of the cases of infection by these parasites which have come under my observation, and are, partially, the basis for the conclusions arrived at in this article. Special attention is directed to the finding of the ameba in the urine, while not generally recognized as of any significance, I have become firmly convinced, from observations in this section of the country, that ameba, regardless of form, are never present in the urine without a consequent pathological condition somewhere in the body, in which they play the rôle

of causal factor. When found they show no motility, but appear as spherical bodies, varying in size from that of a large leucocyte to a body four or five times as large, containing, usually, a single nucleus located eccentrically, several vacuoles, a number of granules, and ingested material. They are typical in form and are easily distinguished from anything else that ever appears in the urine, but might easily be overlooked unless especially sought for (Fig. 1).

It is equally important to find this organism in the blood. This holds also true for the balantidium coli, the cercomonas hominis and the organisms of the trichomonas group, and in this way we can complete the link that has long been missing between the primary seats of infection of these organisms in the intestinal tract and the metastatic lesions, elsewhere in the body.

It is somewhat impractical to search for the ameba in the blood, by hemolyzing with distilled water and examining the centrifuged residue, owing to the marked similarity of the organisms to certain white blood cells, which are normally present, assume under the action of distilled water. They become swollen, at times, to twice their natural size and the nucleus shifts to one side. Furthermore, it is apparent that in freshly drawn blood, treated in this manner, these cells will agglutinate and appear in masses of varying numbers in the residue (Fig. 6).

CASE I.—A married woman, thirty-six years of age, was referred to the laboratory for a diagnosis after having been ill for about three weeks with a fever and diarrhea. The Widal reaction was negative, the leucocyte count 12,000, and the stools contained large quantities of mucus, and blood, and ameba were present in large numbers. The urine contained albumin and granular casts and also amebic bodies. A diagnosis of amebic dysentery was made, but the case ended fatally after an illness of five weeks.

CASE II.—This patient was the physician in at-

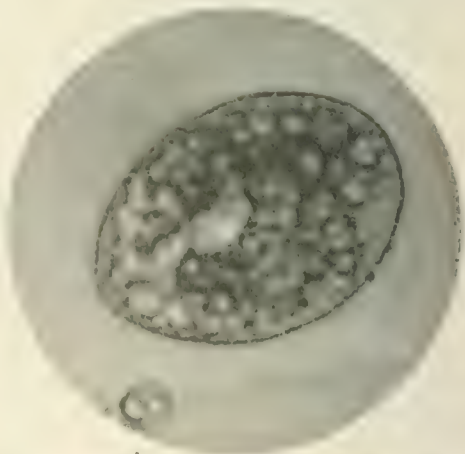


FIG. 2.—Balantidium coli from culture, oval shape, showing stage of granulation, previous to disintegration of mother organism and liberation of daughter parasites. Well developed daughter parasite with two vacuoles shown in the same field. (Magnification 125 diameters.)

tendance of the case just mentioned. He complained of backache, some intestinal irregularities and a feeling of general malaise. His urine contained a number of large amebic bodies and an examination

of his stools was suggested. The next day, however, he was obliged to take to his bed and soon developed a typical attack of amebiasis with diarrhea. Several examinations were made of his

the leucocyte count fell to normal. When the patient left the hospital she was on the road to recovery.

CASE V.—A young woman school teacher, about twenty-five years of age, came to the hospital suffering from a diffused pain in the abdomen and giving a history of having had diarrhea a few days previously. Her temperature was 103° F.; leucocyte count 10,000; Widal reaction negative; and the urinary findings, at this time, were also negative. There was some rigidity of the abdomen on the right side and a diagnosis of appendicitis was made and an operation performed. The patient made a good recovery, surgically, but her temperature remained high. In the evening it was found at about 103° to 105° F. and in the morning from 100° to 102° F. At the end of about three weeks the patient had become very exhausted and her pulse was rapidly growing weaker; diarrhea had set in. A general examination was again made of the blood, urine, and the stools. The Widal reaction was still negative; the white count again 10,000; and the urine contained albumin, and casts, and now contained large numbers of ameba. This was also the case with the stools, which were bloody and contained a great deal of mucus. Further search was made for the ameba in the blood and the organisms were found by the hemolysis and centrifuge method. Five c. c. of the patient's blood were mixed with ten c. c. of sterile distilled water and centrifuged. The organisms found in the residue were of the granular spherical type as were those present in the urine. A diagnosis of amebiasis was now made and the patient put on treatment accordingly, which was followed within a few days by a marked drop in temperature. But the patient had become too weak and exhausted and died thirty days after she entered the hospital.

CASE VI.—A little girl, four years of age, showed the same rise and fall of temperature mentioned in the previous case, and constipation. The Widal

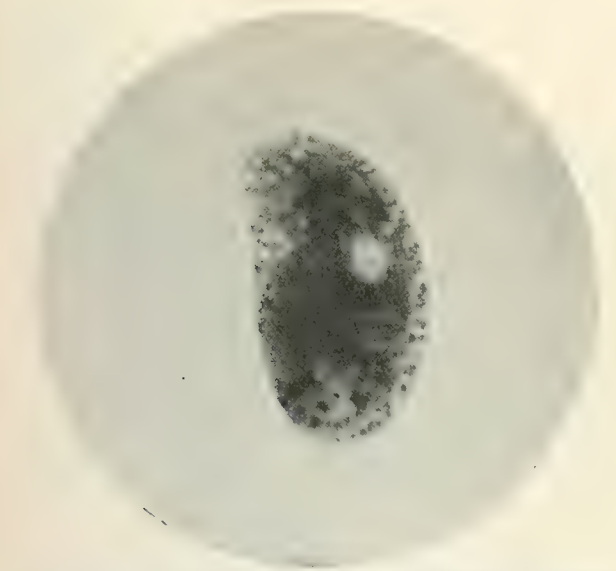


FIG. 3.—*Balantidium coli* from the urine of a case of ulcerative urethritis, oyster shape, showing peristome cilia and a part of kidney shaped nucleus. Mature organism at stage of development preceding granulation. (Magnification 1,200 diameters.)

stools, which revealed the presence of the ameba. They continued to appear in the urine, which finally contained albumin casts. The patient recovered after an illness of about eight weeks.

CASE III.—A young college girl was rejected by the life insurance examiner on account of albuminuria. She came to a physician for treatment. A urinalysis showed a large amount of albumin and, relatively few casts, but many large granular amebic bodies. Repeated examination was made of this patient's urine for over a year, the ameba would disappear and reappear, at intervals, with no improvement of her nephritis, and she died finally of heart failure. The significance of amebæ in the urine, was disregarded and she was treated as a case of ordinary nephritis.

CASE IV.—A woman from the country, about fifty years of age, the wife of a farmer, was referred to the Enid General Hospital with a diagnosis of probable appendicitis. She gave a history of having had an irregular fever for about two weeks, some irregularity of the bowels, and pain in the right side. Her temperature was 99° F. upon admission. Physical examination revealed an enlarged and tender liver but no rigidity or localized pain in the region of the appendix. The white blood count was 15,000; the red blood count 5,600,000; the urine contained albumen, and a few casts, and many amebic bodies. Her bowels, at the time, were constipated. She was given a cathartic, which brought many hard lumps of fecal matter, wrapped in bloody mucus, in which ameba were also found. A diagnosis of an amebic abscess of the liver was made and the patient was given a course of emetine and epicac treatment, under which the ameba rapidly disappeared from the urine. It became free from albumen and casts and

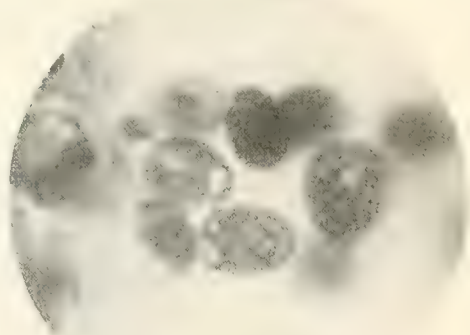


FIG. 4.—*Balantidium coli* from culture showing stage of granulation and process of disintegration, leaving many minute spherical bodies, or young organisms, in the debris. (Magnification 430 diameters.)

reaction was negative and a leucocyte count of 10,000. The urine was bloody, scant, containing albumin and casts, and the ameba were also present in large numbers. A high enema was given, which brought a number of mucus wrapped lumps con-

taining blood. These mucus particles were examined under the microscope and the diagnosis of amebiasis made. Patient recovered after about four weeks of illness.

CASE VII.—In this case, I received for laboratory

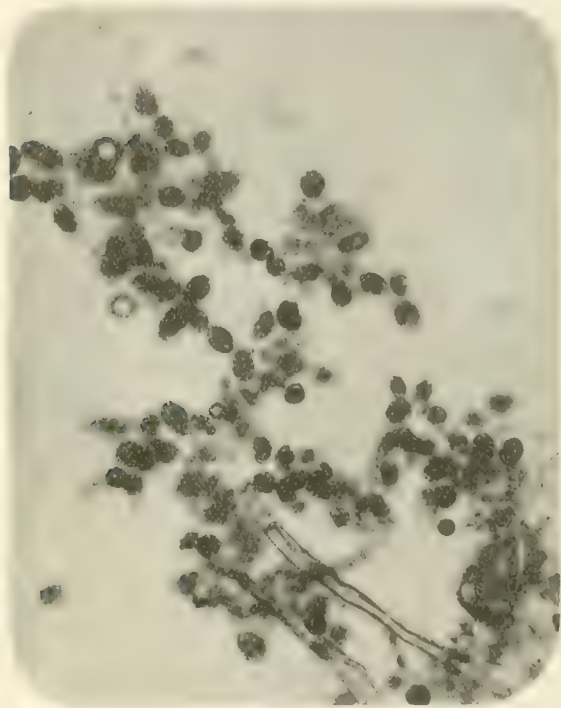


FIG. 5. *Balantidium coli* in culture showing debris made up of disintegrated mother organisms and liberated daughter parasites. (Magnification 135 diameters.)

examination, the blood, urine and the stool from a girl, nineteen years of age, who had been running a typhomalaria like temperature for a period of three weeks. The patient had diarrhea and had become markedly jaundiced. The urine contained ameba in such numbers as to suggest that the natural resistance against the organism had broken down completely, it was hemorrhagic, and contained pus and casts. The stool also contained ameba and the patient died about a week later.

CASE VIII.—A girl, eighteen years of age, the daughter of a physician, having felt badly for some time, became acutely ill, complaining of an intense pain in the region of the back. Her temperature was 103° F.; leucocyte count 16,000; Widal reaction negative; the blood culture was also negative; and the urine contained albumen, pus, and many granular casts. A diagnosis of acute pyelitis was made. On the third day another examination was made of the urine, and this time, in addition to the above findings, was found to contain *balantidium coli* alive and active. A cystoscopic examination was made and the ureters catheterized, which revealed the involvement of both kidneys. The patient became progressively worse and died, at the end of six weeks, of septic endocarditis, which had finally intervened.

CASE IX.—A farmer, thirty-five years of age, became suddenly afflicted with painful urination and urethral hemorrhages. When his urine was examined, to my astonishment, I found it swarming

with the *balantidium coli*. The case was referred to a genitourinary specialist, Dr. L. W. Bremmerman, of Chicago, who found a deep, ragged ulcer in the urethra at the neck of the bladder.

CASE X.—A man, twenty-five years of age, a plumber, presented himself with a most striking form of skin lesion. There was a macular eruption over his entire body, face, and extending to the palms of his hands. He gave a history of progressive emaciation, and for nearly a year previously had had fainting spells similar to the *petit mal* of epilepsy. He had no rise in temperature; the heart, lungs, and glandular system were negative; but his bowels were irregular, and constipated most of the time. A venereal history could not be obtained. The patient's condition impress the physician as being syphilitic. After a few days he was again seen. His eruption had resulted in an almost complete desquamation of the epithelium over his entire body, including large patches of his hair. Over his hands it was shed like a glove.

A specimen of blood was collected in a Keidel vacuum tube and brought it to the laboratory for a Wassermann test. The tube was opened immediately, before it had had time to clot, and part of the blood put into a sterile centrifuge tube and diluted with five times the amount of sterile distilled water in order to examine it for protozoa.

This was centrifuged for about three minutes and the sediment put on a slide under a cover glass. The microscope revealed the presence of active *balantidium coli*, and in all of the shapes of its commonly known morphology. The Wassermann reaction was negative as was also the urinalysis excepting that a very large number of calcium oxalate crystals were found. The patient was called into military service about this time and was not seen again. A diagnosis was not made, but the interesting thing about the case was the finding of the *balantidium coli* in the blood. A more detailed re-

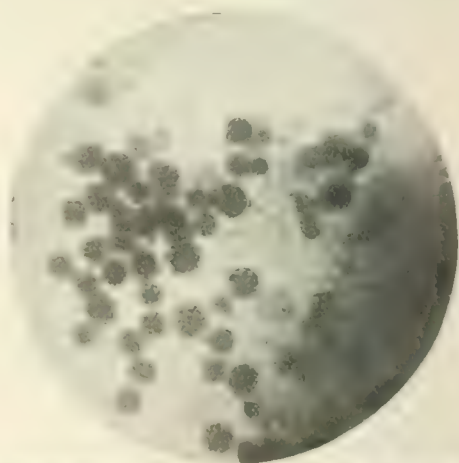


FIG. 6. Sediment from centrifuged blood hemolyzed with distilled water showing swollen mononuclear cells which become hard to distinguish from ameboid bodies. (Magnification 1,000 diameters.)

port of this case has been promised from the physician himself, Dr. A. L. McInnis, Enid, Okla., from whom I have received the above clinical data.

CASE XV.—A physician, about fifty-five years of age, called at the laboratory to have an analysis

made of his urine, complaining of an irritable bladder, which, while not amounting to an actual cystitis, caused him considerable inconvenience in the way of frequent urination. Microscopic examination showed the presence of many live and motile organisms of the trichomonas group, but there were no pus cells, usually found in bladder inflammations. I had occasion to observe this case over a period of three years and to make repeated analyses. In each instance, the same organisms were present. At times they were only a few and again they were numerous; which variation seemed to be according to the amount of irritability the patient experienced.

CASE XIII.—A woman, thirty-five years of age, looking well and strong, presented herself for a general examination because of a feeling of malaise and a general lack of strength. She also complained of what she termed "heart attacks," or, "attacks of sudden difficult breathing." Physical examination revealed no heart lesion, or other abnormalities. The Wassermann reaction was negative and also the urinary findings. Her red

CASE XV.—A young woman, the wife of a dentist, was suddenly taken ill with diarrhea, pain in the back and abdomen, with fever, and scanty urine containing visible blood. No parasites were found in the stools and the urine contained nothing more than was apparent blood and pus. However, blood drawn from the vein, treated with distilled water, and centrifuged, showed the presence of the *cercomonas hominis* in such numbers that three and four live organisms could be found in places under the low power field of the microscope.

CULTIVATION AND REPRODUCTION.

Little success has been attained, so far, in the cultivation of any of these organisms outside of the body on artificial media. What has been accomplished with the ameba is well known, but in the case of the *balantidium coli*, and the other organisms I am dealing with, all attempts so far seem to have failed. According to the report of Bel and Couret (3), in their experiments with the organism from a fatal case of *balantidium coli* infection, all forms of the common and special medias known at the time, as well as all degrees of acidity and

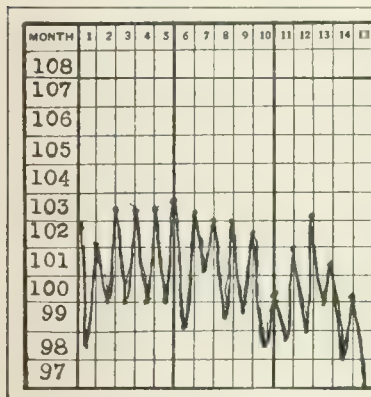


FIG. 7.

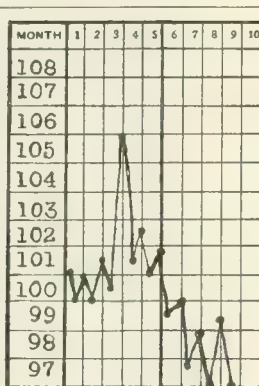


FIG. 8.

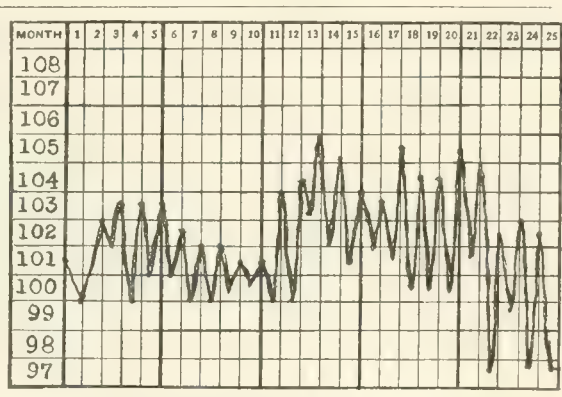


FIG. 9.

FIG. 7.—Fever of amebiasis, regular type, showing characteristic wide margin of difference between the morning and the evening temperatures.

FIG. 8.—Fever of amebiasis, malarial type, showing a moderate continuous temperature interrupted by sudden high elevation.

FIG. 9.—Fever of amebiasis of a typhomalarial type, showing a high continuous temperature interrupted at intervals by sudden higher elevations. Showing also the characteristic wide margin of difference between the morning and the evening temperatures, as in Fig. 7.

count was 4,500,000; hemoglobin eighty-five per cent.; and the total white count 9,000. The differential count showed an eosinophilia of ten per cent., which led the physician to think of intestinal parasites. The patient was constipated. However, a cathartic was given and her stools examined, which revealed the presence of the trichomonas intestinalis in unusually large numbers.

CASE XIV.—A young farmer came for medical treatment on account of diarrhea and an intermittent fever. From the character of this fever, the physician first thought of malaria and drew about five c. c. of blood from the patient's vein and brought it directly to the laboratory. Smears were made and some of the blood mixed with distilled water for examination for other than malarial parasites. This was centrifuged and a few drops of the sediment placed on a slide under a cover glass and examined. Many motile bodies could be observed in the covered area, showing distinctly all of the features of the trichomonas intestinalis.

alkalinity were tried, but with no result. The organisms implanted in the media dying without any evidences of increasing numbers.

The same has also been my own experience in my earlier attempts to cultivate the same organism; but, at the present writing, I am in a position to report complete success at growing it outside of the body. As a first word in the culturing of the *balantidium coli*, it may be said that it is an organism that can live on practically nothing, but is parasitic in every sense, and thrives best on raw blood in media free from all mineral salts, especially sodium chloride. It will live indefinitely in distilled water and show slow multiplication. With one drop of whole blood, or blood serum, in 100 c. c. of water multiplication becomes quite apparent. It becomes more so with two drops in the same amount of water, and so on up to twelve drops. This becomes an ideal media, in which, at regular incubator temperature, a few organisms introduced will increase to enormous numbers within forty-eight hours.

Reproduction of all the parasites I have dealt with takes place in practically the same manner. The theories of direct division, conjugation, budding, and segmentation have all been advanced, but in my opinion segmentation alone takes place. At a certain stage of the mature organism small spheres begin to appear in the endosarc (Fig. 2), which continue to increase in size up to a certain point, at which this mother organism disintegrates and these spheres are liberated and in turn develop into mature organisms (Fig. 4).

Most observers believe that the *balantidium coli* multiplies by direct division. I will state that only through studying the organism in culture did I become convinced that this division did not take place. All stages of division are apparent, but these are only the contortions of the *balantidium*. They are so ameboid in character that a single organism may almost cut itself in two and yet return to its normal morphology. Also, two organisms frequently run together and so overlap one another so, that to all appearances there is but one. They remain this way for a long period of time and as they gradually separate, one is easily led to think a single organism is dividing.

On the other hand, in looking into the living mass of a culture, one sees all sizes of the organisms, from maturity down to the tiny spheres, liberated from the mother organism in the final stage, all moving about with the same gliding motion characteristic of the *balantidium* (Fig. 5).

The number of spheres appearing in the body of the ameba before reproduction by disintegration is not the same as in the case of the *trichomonas*, or that of the *balantidium coli*, but the process in all cases appears to be the same.

CONCLUSIONS.

1. The ameba, the *balantidium coli*, the *cercomonas hominis* and the organisms of the *trichomonas* group constitute a group of organisms that are parasitic to man, and, in common, induce the same pathological conditions with different degrees of severity.

2. The infection by any of these parasites may become generalized through the entrance of the organism into the circulation, after which metastatic lesions in various parts of the body may result.

3. The kidneys are especially prone to the infection, on account of their function in the process of elimination. Remnants, or whole and living organisms, may appear in the urine; and in the case of amebiasis is a valuable diagnostic point.

4. Diarrhea and gastrointestinal disturbances are common clinical manifestations of infection caused by these organisms; but have many degrees of severity, or may be altogether absent.

5. The metastatic lesions, especially in amebiasis, may be manifested directly and apparently as the primary condition.

6. Protozoon parasites may be recovered alive and active from the blood through the method of hemolyzing freshly drawn blood with distilled water and centrifuging.

7. The *balantidium coli* may be recovered from the blood in culture by placing the blood into sterile

distilled water in the proportion of one c. c. of blood to 200 c. c. of water.

8. Amebiasis may be suspected in all cases of obscure fever showing a striking difference between morning and the evening temperatures with the leucocyte count remaining steadily about 12,000, regardless of the presence or absence of diarrhea or any suggestive intestinal symptoms.

9. In semitropical countries, sudden pain in the abdomen with rigidity and fever is not always indicative of appendicitis, but may be caused by an abscess formation due to protozoon metastasis; especially if the leucocyte count rises above 12,000 and does not agree at all with the acuteness of the case.

10. Chronic languor, pallor, emaciation with an eosinophilia and a stubborn constipation, may mean a swarming infection of the *trichomonas intestinalis* high up in the intestinal tract.

11. Skin eruptions may be caused by protozoon invasion of the blood.

12. These protozoon parasites appear, in varying degrees, to have everything in common. They act alone, or in conjunction with one another; and conditions which predispose an infection by one do so for the others as well. Immunity can not be established, but a valuable amount of resistance appears in all individuals, which combats the invasion in the beginning. When this resistance becomes broken down, the case becomes chronic in some form or other; or the patient succumbs to an overwhelming proliferation of the invading organism, in an acute attack, depending upon which one of the group he has to contend with.

I am much indebted to Dr. W. E. Lamerton, Dr. Julian Field, Dr. F. A. Hudson, Dr. W. L. Kendall, and Dr. J. H. Hays, of the Enid Clinic, and members of the staff of the Enid General Hospital, for the clinical data which they furnished from their various departments of practice and for their general aid, especially in the findings of the various forms of amebiasis which I have considered here.

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Effect of Heat on Resistance to Tuberculosis.

James B. Murphy and Ernest Sturm (*Journal of Experimental Medicine*, January, 1919), subjected mice to heat and a week later inoculated them with a bovine strain of tuberculosis virulent for mice. These animals displayed a greater resistance than the normal controls, the average length of life after inoculation for three groups of heated mice being eighty-eight, sixty-nine, and sixty-seven days respectively, while the control groups averaged sixteen, twenty-nine, and twenty-eight days respectively.

ROENTGENOLOGICAL DIAGNOSIS OF CHOLECYSTITIS AND ADHESIONS.

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In speaking of cholecystitis we must bear in mind the clinical classification—the acute and the chronic. Acute cholecystitis is seldom met with in private roentgenological practice, though quite frequently by the clinician and hospital service. The chronic variety is the one most commonly referred for x ray diagnosis because of its resemblance to lesions of the gastric, pyloric, and duodenal region.

I shall not speak of cholelithiasis, "because a common sequence of cholecystitis is cholelithiasis, which serves to keep active or readily induces cholecystitis" (1). It is clinically impossible to state definitely whether there are stones in the gallbladder or not. Rarely, faceted gallstones may be found in the stool and then it can only be inferred that there are more in the bladder. With the technic perfected at present, gallstones can be shown in about eighty-five per cent. of cases (2). If the clinical signs suggest disease of the gallbladder, the roentgen findings of adhesions periduodenally, spastic contraction of the prepyloric gastrica, and a density of the bladder shadow can be considered as conclusive evidence of chronic cholecystitis. The visibility of stones, however, greatly minimizes the possibility of error. It must not be forgotten that duodenal ulcer is at times a concomitant, so that the observation must be keen in order to disclose the coexisting condition. It is needless to emphasize the importance of a history and a review of clinical symptoms, which help considerably in drawing accurate roentgenological conclusions.

CASE I.—R. D., aged thirty-three years, housewife, mother of three children. About two years prior to admission to hospital she began to suffer from pain in the stomach, of a gnawing character, about fifteen minutes to one hour after meals and at times at night. Relief often followed the partaking of any kind of hot drink. She vomited occasionally, felt weak, and lost about thirty pounds

one. Analysis of the gastric contents gave the following results: Total acidity 62, free hydrochloric acid 24, and the microscopic findings negative. The stool gave a faintly positive reaction with the guaiac test. Examination of the blood showed hemoglobin



FIG. 3.—Barium filled stomach, showing the filling defect at A, which is due to spasm, and also the distortion of the duodenum at B, which is due to gallbladder adhesions. (Case I.)

seventy-five per cent., leucocytes 16,300. Several x ray plates taken of the right hypochondriac region showed no stones, but the gallbladder area appeared considerably denser than seen in the normal. Other plates taken of the barium filled stomach, at five to fifteen minute intervals, revealed a dilated antrum, a lack of filling of the prepyloric segment, and distortion of the first and second portion of the duodenum. This part was also drawn upward and to the right. There was a slight six hour residue.

The clinical diagnosis was cholecystitis and duodenal ulcer. Considering the symptoms and physical examination, the roentgenological conclusions were chronic cholecystitis and periduodenal adhesions. I also believed the existence of a prepyloric ulcer. At operation a chronically inflamed gallbladder was found, containing a few small stones. The first and second portion of the duodenum were enveloped by fine adhesive bands. No ulcer was found.

Fig. 1 shows the appearance of a normal barium filled antrum, pylorus, and duodenum, while Fig. 2 illustrates the anatomical relation of the gallbladder and duodenum, which explains why this portion of the gut becomes so readily involved in chronic cholecystitis. According to DaCosta (3) "the first portion of the duodenum is in such close relation with the gallbladder that it is usually found to be stained by bile after death, especially on its anterior surface."

CASE II.—Mrs. A. L., aged thirty-two years, mother of three children. Had been suffering for about two years with "indigestion"—a feeling of fullness in the stomach, belched freely, and at times she would eructate food, but did not vomit. Patient laid special emphasis on the fact that she always had a fatty taste; the pain would be in the

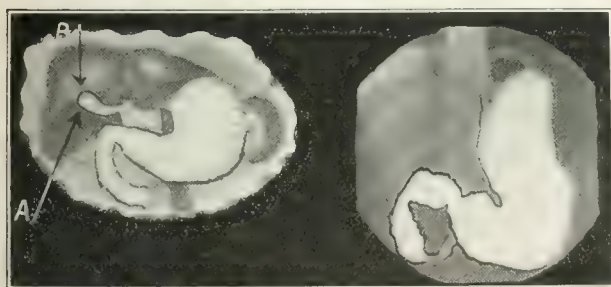


FIG. 1.

FIG. 2.

FIG. 1.—The anatomical relation of the gallbladder and the duodenum. The bladder is lifted up. A. Gallbladder. B. Liver.

FIG. 2.—Normal barium filled stomach and duodenum. (From George and Leonard.)

in the past year. Physical examination elicited marked tenderness in the midepigastria, navel, and appendicular regions. There was also some tenderness in the right midaxillary and right scapular regions. The recti were rigid, especially the right

epigastric region, radiate upward, and appear fifteen minutes to three hours after. She was never jaundiced. Stool always appeared normal. On physical examination she appeared to be a well preserved young woman, with adipose tissue slightly in excess though well distributed. Mucosa, sclera, and skin of normal color; tongue coated and dry. On palpating the epigastrium I elicited some tenderness below the xiphoid process, which radiated upward. Gallbladder and liver were neither palpable nor tender. The "tender spot" (4) to the right of the spinal column between the seventh and the eleventh rib was brought out in the course of examination. Examination of the gastric contents after giving Ewald's test breakfast gave the following results: Total acidity 65, free hydrochloric acid 28. The stool was negative with the guaiac test. Urinary findings were unimportant. Several x ray plates taken of the gallbladder region showed no stones, but an increase in density in the region of the viscus. In superimposing several plates and held before a strong diffused light the bladder outline could be traced. I want to point out here that an increase in density of the gallbladder can only be brought out when this organ is diseased. The radiograph of the

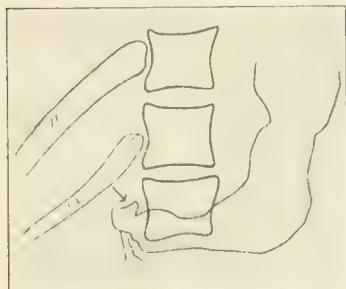


FIG. 4. The arrow points to the indentation of the duodenal cap. A diagrammatic illustration of Case II.

barium filled stomach appeared normal except for a few exaggerated peristaltic waves. The cap presented an indentation on its upper surface as if some weight was resting on it, which was, of course, the distended gallbladder. This defect was visible on several plates taken at few minute intervals. A plate taken in the erect position visualized a somewhat ptosed stomach, while the pyloroduodenal section was held firmly high up. The six hour plate exhibited a small gastric residue.

Röntgenological conclusions and diagnosis: Cholecystitis and pericholecystic adhesions. At operation the gallbladder was found chronically inflamed and thickened, containing a few small calculi and adherent to the adjucent viscera.

Conclusions.—In the cases cited above as well as in similar ones which came under my observation, the x ray diagnosis of cholecystitis and its sequel could have been readily made without a clinical history, but an anamnesis and *status præsens* is of material value, and I invariably go into these as a matter of routine. The landmarks to be borne in mind are the prepyloric region for a defect due to spasm, the first and second portion of the duodenum for the presence of distortion or defect, eliminating, however, an organic lesion, and an increase in density of the gallbladder area. The presence of choleliths can be assumed in practically every case of chronic cholecystitis.

In conclusion, I shall quote Cole (5), whose statement is applicable in this condition: "The radiologist

can recognize and differentiate these conditions with about the same degree of certainty as can the surgeon at an exploratory operation without the microscopic examination of the specimen."

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232 EAST FIFTH STREET.

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U. S. Army.

THE LETTERMAN GENERAL HOSPITAL, SAN FRANCISCO, CAL.

By L. C. MUDD, M. D.,

San Francisco,

Lieutenant Colonel, U. S. Army.

Ideal in its situation and perfect in its equipment is the Letterman General Hospital at the Presidio of San Francisco. The hospital is built in the midst of trees, ornamental shrubbery, flowers, and lawns, with the beautiful San Francisco Bay in the foreground and the Presidio hills as a background. There are but few days in the year when patients cannot remain out of doors, as the rainfall is not excessive and it is never really cold. Nature has given this wonderful site, and the officers of the hospital have utilized the setting to an advantage. The main buildings inclose two courts, carpeted with lawns and bordered with flowers, which bloom the year around. Wide verandas and solariums, opening on to these courts, provide attractive resting places for the patients.

Letterman became a general hospital during the Spanish-American war and did much for the soldiers returning from the Philippine Islands. It has gradually grown in size and importance, and even before the outbreak of the world war many serious cases from the Islands and from posts along the Pacific Coast and Western States were handled. Cases of injured and sick soldiers from the Mexi-

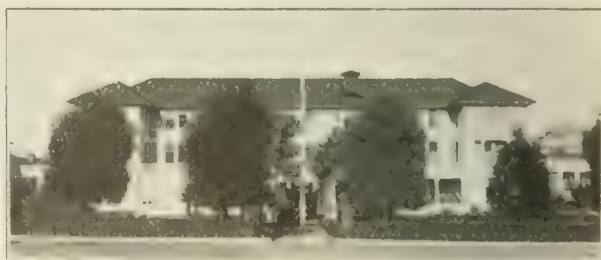


FIG. 5. Main building, Letterman General Hospital.

can campaign were taken to Letterman, and already many of the troops invalided from Europe are being sent to this hospital. As the army is demobilized in Europe interesting cases are being sent for treatment, and reconstruction work has become a fea-

ture of Letterman. In the orthopedic ward some remarkable results have been accomplished.

The equipment of Letterman is quite in keeping with its setting, and its present standing as one of the principal base hospitals in the country reflects



FIG. 2.—Patients in the open air in midwinter at Letterman General Hospital.

great credit upon the staff of the institution. Immediately upon the declaration of war by the United States the expansion of the hospital took place, with the result that in a very short time 1,400 patients were cared for at one time and the best of attention was given them.

Although situated in the Presidio reservation, the general hospital is a separate organization from the post. Letterman has its own telegraph station, laundry, barber shop, shoe repair shop, power plant, ice plant, garages, recreation rooms, quartermaster's department, and many other features which make it practically an independent village. The operating room is in a separate pavilion and is one of the brightest, sunniest places imaginable. There is a main operating room in which two major operations are frequently performed at one time, two

hospital but the excellent staff in charge is engaged in extensive research work.

The x ray rooms maintain the standard of the other important departments of the hospital. Other features deserving of mention are the laundry, which is strictly modern in every detail and which turns out 10,000 pieces a day at a unit cost of one cent and eight mills to the government; and the kitchen, which would do justice to a modern hotel. There are two buildings where prisoners and the insane are taken care of. The doors and windows are barred and the buildings closely guarded, but otherwise the quarters are quite as sanitary and well equipped as the main buildings. Although the high state of efficiency of the Letterman Hospital is largely due to the officers of the regular service, who have been in charge during the past ten years, the work of the medical officers who were in from civil life at the beginning of the war has been splendid. At the time this article was written (November 25th there was but one officer of the regular service on duty. He is Lieutenant Colonel Leo C. Mudd, commanding officer. All of the others, fifty-five, gave up their practice in civil life in order to



FIG. 4. Operating room, Letterman General Hospital.

do their proper part in winning the war. Among the principal officers are Major J. Wilson Shiels, Chief of Medical Service; Major Herbert C. Moffitt, Medical Service; Major Henry L. Wagner, Chief of Ear, Nose, and Throat Service; Major Albert C. Carlton, Assistant in the latter department; Major Robert Hull, Chief of Orthopedic Service; Major Samuel Robinson, Chief of the Surgical Department; Major Samuel W. Hussey, Chief of the Dental Service; Major Harry A. Foster, Chief of the Laboratory, and Major Allan Cullimore, Chief of Educational Service.

The remainder of the staff is composed of Captains Emil O. Jellinek, David C. Twichell, Frank P. Topping, John Wikander, Wood C. Baker, Harold Zimmerman, Arthur E. Brown, Gordon McCracken, Frank Doane, Thomas R. Petch, Ernest Streit, Frank B. Reardan, Richard H. Wellington, Newton T. Enloe, Frank N. Chessman, Henry W. Edgerton, Glenn E. Meyers, Emel L. Cottrell, Charles A. Bell, John T. Witty, William T. Clarke, Max W. Brachvogel, Raymond A. Kelser, David A. Conrad, John I. Boyer, William A. Reckers. Lieutenants James



FIG. 3.—Court, Letterman General Hospital.

anesthetic rooms, rooms for minor operations, and dressing rooms. The equipment is among the best in the country, and 573 major operations were performed with ease in one month. The laboratory is complete and meets not only the demands of the

R. Snyder, Francis J. Romer, Dewey R. Powell, Allen E. Scott, Eddy T. Boyd, Roy N. Fuller, Harold E. Farnsworth, Wilfred Bishop, Dockey R. Wilson, William E. Rideout, Franklin H. Cookingham, Frank C. Bishop, Goy E. Cornelius, Linwood Doxier, Arthur C. Kennedy, Arthur G. Waidelich,



FIG. 5.—Recreation room, Letterman General Hospital.

Claude E. Huestis, and Contract Surgeons Charline R. Smith and May Mathewson. There is no doubt that close cooperation between the regular medical officers of the service and those who came in for the duration of the war has been of great benefit to both. Each has learned something, and upon demobilization both the regulars and civilians will continue their profession with a broader and bigger viewpoint.

(Published by authority of the Surgeon General, United States Army.)

THE FLIGHT SURGEON AND THE FLYING AMBULANCE.

BY "THE CARE OF THE FLIER SECTION,"

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Washington, D. C.

The duty of the medical branch of the air service has been not only the selection of the flier, but, once he is in the service, to keep him in such physical condition as will tend to eliminate his liability to crash or go stale—to keep him fit to fly. Very early it became apparent that the flier, in pursuance of his duties, acquired certain characteristics peculiar to the unusual nature of his work. In other words, he became an intricate, highly sensitized piece of machinery. It was soon obvious to the air medical service that to keep this organism physically fit a master mechanic must be provided—a physician with special knowledge of eye and ear problems as well as general physical, and also preferably one who is willing to take flying instruction so that he will have first hand comprehension of the air game. From this necessity evolved the flight surgeon.

The prospective flight surgeon received his first instruction in the medical research laboratory at Mineola. Here he became not only familiar with the duties of his office but with the special equipment designed for examination and reexamination

of fliers. One of the main studies at the research laboratory, and at the branch laboratories in the flying schools, is the classification of the fliers on an altitude basis. Oxygen shortage has been one of the problems of aviation, for present warfare has necessitated much flying at altitudes ranging from 16,000 to 22,000 feet. The research laboratory was established to study the effects of altitudes on man, and to determine the individual fitness of our aviators for various altitudes, classifying them according to their ability to withstand the effects of oxygen lack. This has been accomplished by means of the rebreathing apparatus with which the flight surgeon is familiarized while at Mineola. After this course of instruction he is assigned to a flying field where he at once takes measures to establish such relations with the cadets and officers as will give him an intimate personal knowledge of each flier.

The aviator needs special and constant attention, as to diet, exercise, and habits. Also, his fitness for flying depends largely upon his mental state, and all conditions which tend to disturb his poise are apt to react against his efficiency in the air. It is the duty of the flight surgeon to watch for the unmistakable signs of individual deterioration in the fighting strength of our air force, and to take such measures as are necessary to combat these conditions. His all important duty is to see that no man risks his life by flying when he is not fit. He is given wide latitude in meeting and developing his work, and his methods vary according to the field to which he is assigned. At the same time he keeps in close touch with the central office by personal and standardized reports which he sends in at regular intervals. When in his opinion a flier should be relieved of flying duty, either temporarily or permanently, his recommendation carries weight, as it is recognized that it is his special duty, through sick call and reexamination, to know the physical and mental condition of each flier in the command. The flight surgeon always bears in mind that his mission is not to eliminate, but through every means



FIG. 1.—Loading patient into plane

placed at his disposal to keep the flier in active service.

THE FLYING AMBULANCE.

But even with this personal care accorded the flier, combined with all other measures taken to guard against accident, the aviator sometimes comes

to grief. Unless the crash is immediately fatal, when it occurs and where it occurs bear a close relation to the probable recovery of the man in the fuselage. The accident may occur on a cross country flight, many miles away from the necessary facilities for applying the proper treatment. It is



FIG. 2.—Removal of cowl.

all important that the patient receive first aid within the shortest possible time. It is here that the hospital ship carrying the medical officer can be of great use. It has no rough roads to contend against; its bright markings, easily seen in the air, give it right of way; and it arrives in a comparatively short time on the scene of the accident. After supplying first aid to the injured aviator, if the surgeon suspects brain injuries by concussion or possible fracture of the skull, it is believed by this office to be wisest not to remove the flier, but to "build a hospital around him"; in other words, to keep him absolutely quiet, provide the necessary shelter, and give the required medical and surgical attention without incurring the risk of removing him until his condition is improved.

If, on the other hand, the flier's injuries are such that moving does not endanger his life, the hospital ship as a rapid and comfortable means of transportation is considered immeasurably superior to the ordinary motor ambulance.

The hospital ships are in use at many of the fields. They vary in design. In a new ambulance ship now in use, the injured flier is carried in the compartment just back of the pilot—the second seat usually occupied by the observer folding up so that the medical officer can be taken to the accident, and then the same space utilized in bringing the patient to the hospital. The top of the turtle back opens up, and the ordinary Army stretcher can then be lifted directly into the body of the plane. A device is made so that the patient's shoulders are held in place by two curved braces well padded, while a footrest eliminates any motion downward. A pneumatic pillow is used for his head and canvas straps are buckled across to prevent any lateral movement. The following report of transporting a patient by ambulance a distance of ninety miles is of interest:

"The flier suffered a fracture of the left leg (tibia and fibula) and contusions of the face and head following an aeroplane crash. He was immediately taken to the local hospital where splints were ap-

plied to the leg, and the contusions dressed. On the following day, the ambulance ship (Curtiss H) left the flying field at one thirty p. m., with the pilot and medical officer, arriving at the scene of crash at three fifteen p. m., making the ninety miles in one hour forty-five minutes, in spite of adverse winds. On return trip, left at five fifty p. m., arrived at the flying field at six forty-five p. m., making the trip in fifty-five minutes with the aid of favoring winds. The patient stated that he felt the take off and landing very slightly. The trip across was very smooth, so much so that he almost went to sleep. The loading and unloading did not bother him at all. The difference between the ease and lack of jarring in the ship and the ambulance carrying him to the ship was marked."

The ambulance ship has come to stay—its usefulness is beyond question, where the scene of accident is far removed from the peace and quiet of the hospital bed. To its prompt appearance and kindly aid, many a flier will owe his future usefulness to the service, if not life itself. The flight surgeon's work is the ounce of prevention, the duty of the



FIG. 3.—Patient in fuselage ready. A pillow has since been provided.

ambulance ship, to pick up the pieces. The mission of both is the care of the flier. As the work of the flight surgeon develops, we will find less and less need for the ministrations and uses of the hospital ship.

RECENT GLEANINGS RELATIVE TO THE PROPHYLAXIS AND TREATMENT OF INFLUENZA.

BY LOUIS T. DE M. SAJOUS, B. S., M. D.,
Philadelphia.

(Continued from page 199.)

In the preceding issue the influence of crowded living conditions in increasing the incidence and mortality of influenza was referred to. As a matter of fact, even brief exposure to the virus has repeatedly proven sufficient to transmit the disease, therefore, avoidance of even temporary congregation of large numbers of individuals is a most necessary factor in general prophylaxis. Hence the stress laid by health authorities upon closure of theatres, moving picture establishments and schools, and the prohibition of concerts, entertainments of various kinds, and all other varieties of concourse involving the close proximity of large numbers of individuals. Repeated, careful disinfection and free ventilation can manifestly be but of little avail if the probable main factor in transmission, if the direct discharge of virus laden droplets from the mouths and noses of infected individuals to other individuals nearby, is allowed to continue. Street cars and other vehicles of transportation, especially when fully occupied or actually crowded, must necessarily constitute another prolific source of contagion, and one less easily eliminated than those resulting from the congregation of pleasure seekers or of school children. Brief exposure permitting transmission, the opportunities for contagion must be particularly great where, as in crowded street cars with constantly changing occupants, multiple exposures of each individual to a number of other individuals take place.

In institutions or cantonments in which considerable numbers of subjects live together, an ideal prophylactic measure would manifestly be the removal of many of the inmates, that the space allotted to each might be doubled and the conditions thereby rendered far less favorable for transmission. Again, attempts should be made to reduce the number—independently of the duration—of mutual exposures among the occupants, some of whom may harbor the infection. Reduction of the number of inmates being frequently impracticable, various other measures to reduce the opportunities for transmission must be tried. In military barracks and tents, apart from the prompt removal and segregation of subjects showing beginning signs of the disease, the expedient was been adopted of having the men sleep with their heads and feet alternating, in order to augment the distance between successive heads as much as possible. Increase of the distance between beds is also advisable, where space permits. In some instances the "cubicle system" has been employed in barracks, the ordinary service shelter tents being suspended between successive beds by means of a stick or a wire fastened to the ceiling, thus more effectually separating the inmates. At meals, it has been recommended that the tables be so disposed as to permit of all the men sitting on but one side of the table, or that those seated on opposite sides be separated by

means of a screen of cheese cloth hung over the middle of the table.

Other general measures that may be employed under such conditions, doubtless with advantage, include free ventilation at all times; exposure of beds, bedding, and clothing out of doors all day (except in wet weather); substitution of moist mopping for dry sweeping; occasional oiling of the flooring; careful and repeated cleansing of all objects by which the disease might be disseminated through contact; boiling of all dishes and utensils after meals; avoidance of common drinking cups; eradication of flies, where present; keeping the men out of doors all day, and a warning against their congregating in groups, when within the buildings.

Under both institutional and home conditions, early removal or isolation of the diseased from the healthy is a general prophylactic measure of obvious importance. The incubation period being short, the opportunity for transmission of the disease to a third person before the development of symptoms can at most be but very brief if isolation immediately upon the appearance of symptoms proves feasible. In barracks or institutions, such early sequestration of the sick is effected with relative ease through medical inspection of all the inmates once or twice every day. In the home, however, prompt isolation is difficult to secure, as some delay is apt to occur before the physician is summoned, unless it be among the most alert and enlightened of lay persons. Broadcast education of the public on the subject would appear to be the only available means of securing better prophylactic results along this line.

In hospitals in which influenza cases are taken care of, special isolation is required to obviate transmission of the disease to patients of other classes. Another necessary measure, particularly important since it bears directly upon the mortality from the disease, is the separation of cases already complicated by pneumonia from the other cases not as yet thus complicated. Chauffard, Netter, Vincent, and their coworkers have laid especial stress upon the contagiousness of the complications of influenza, and called attention to the frequency with which individual types of complicating conditions have become disseminated uniformly through separate groups of patients, one hospital, e. g., exclusively showing mechanical pulmonary disturbances tending toward asphyxia; another, more particularly symptoms of general infection or septicemia; a third, intestinal localization of the disease, etc. Variation of the microorganisms responsible for the secondary infection is held in part to account for such conditions. At all events, data have been collected showing plainly the advisability of separating cases of simple, mild influenza from the more severe uncomplicated as well as the complicated cases. The observers above referred to even recommend that the complicated cases be individually isolated. Only by dint of ample precautions based upon these special considerations can a definite reduction in the mortality from the complications of influenza, in the severe form recently witnessed, be hoped for.

(To be continued.)

Editorial Notes and Comments

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THE NECESSITY OF EARLY TREATMENT OF SYPHILIS.

It can be said on general principles that the resistance of syphilis to treatment is in direct ratio to the length of time that infection has been present. The luetic virus immediately attacks the nervous system, and within a few days after the appearance of the primary lesion the lymphocytosis of the cerebrospinal fluid increases, which is a sure index of the penetration of the treponema. Dind's recent observations are convincing in this respect. In fifteen cases studied on the eve of the roseola, this writer found a marked or mild hyperleucocytosis, frequently associated with hypertension, in all fifteen subjects. We clinically find the organism in a state of defense against the invader in the early days of the chancre, made manifest by the tumefaction of the neighboring lymph nodes, while microscopically the presence of numerous spirochetæ demonstrates that the condition is a specific symptomatic inflammation—a plasmona. On the other hand, it is known that distant lymph nodes are involved during the primary phase of the process, as has been demonstrated in monkeys inoculated and killed at this period.

Various writers from all parts of the world have described cases of preroseolar nephritis and meningitis. Finally, the Wassermann reaction becomes positive on the twentieth day following the appearance of the chancre, so that if twenty-

one days are admitted to be the time of incubation, it follows that the entire organism is invaded forty days after the date of the infection. Therefore, the reason why excision of the primary lesion has failed to prevent the ultimate evolution of the infection is readily explained. Experimentally, it has been shown that curettage of the surface of inoculation three hours after the virus had been applied failed to prevent the evolution of the affection from taking place. Therefore, infection of the organism occurs early, and once fixation of the treponema is an accomplished fact, penetration of the medicament becomes progressively more difficult in direct relation to the penetration and, consequently, of the lapse of time since contamination took place.

Barriers are set up by cell reaction at points where the spirocheta pullulates and a reactional sclerosis becomes established, forming an almost impregnable barrier to the medicament. From the shelter offered by this barrier, behind which he defies the physician, the spirocheta waits. The Wassermann reaction can no longer disclose it because it is no longer active, and the patient is erroneously supposed to be cured. But if some unknown cause breaks this barrier, the spirocheta, with renewed vigor, passes to new soil, again infects his host, and a new series of luetic accidents burst forth. From these data no hesitation is possible in concluding that long before the roseola the patient is profoundly infected, while each hour causes his condition to become worse, and if, allowing his affection to undergo its evolution either from want of care (indifference or ignorance) or from a want of technic in the treatment, he arrives at the secondary phase, his state, then becomes increasingly worse in enormous proportions on account of the exaggerated multiplication of the busy little spirocheta. At this moment the Wassermann reaction attains its maximum.

The fixation of the treponema on the nervous system becomes final and the obstinate character of the disease toward treatment appears to be closely connected with the nervous lesions because the older this fixity, the more it is generalized and and the more difficult treatment becomes, likewise the intensity and length of medication. Clinical facts confirm these affirmations, and from these considerations one can only conclude in favor of starting a rational treatment as soon as possible after contamination has taken place.

THE DOCTOR IN WAR.

The vigorous development of the men in camp under the wholesome regime of the soldier in training, has been a matter of surprise and delight to thousands of families in the United States. The good effects of modern military life is not less apparent in the mass than in the individual. The strict sanitation of the camps, the scientific nutritional control, the active out of door life, and the careful medical supervision of the physical condition of the men, have reduced the incidence of disease so that the total death rate in Great Britain both civil and military for the first three years of the war, was but very little higher than what would have been considered an average rate in the civilized countries of Europe sixty or seventy years ago.

The higher wages paid to munition workers and the shorter hours of labor have enabled the laboring classes of Great Britain and France to live with a degree of comfort and an abundance of food which has lowered the incidence of disease, drunkenness and crime to a hitherto unprecedented figure. The increased vigor due to better and more abundant food has caused such an increase in the birth rate and such a decline in the death rate that in spite of the losses in battle, the population of Great Britain has gained during the war.

In former wars, disease killed more than bullets. Napoleon lost 400,000 men by disease in his Peninsular Campaign and only 60,000 in battle. The death rate from disease in the Russo-Japanese war was reduced to two per cent. per annum and in the present war, prior to the advent of influenza, this figure was cut in two, the rate being one per cent., or the same as that of a similar body of men engaged in peaceful occupations.

Notwithstanding the devilish ingenuity shown by the Germans in adding new horrors to war, and the prevalence of infected wounds, the proportion of killed to wounded has been materially lowered by medical science. In earlier days, we are told by Woods Hutchinson in his interesting popular presentation of the work of *The Doctor in War*, which has just been issued by Houghton, Mifflin & Co., five were killed in battle to from ten to twelve who died of wounds. In our Civil War, 67,000 were killed and 43,000 died of wounds. In the Russo-Japanese war, 47,000 were killed outright and only 11,000 died of wounds. In the British Army during the first three years of this war, ninety per cent. of the wounded who lived to reach the ambulance re-

covered, ninety-five per cent. of those who reached casualty clearing stations, recovered, and of those who reached base hospitals in England, ninety-eight per cent. regained their health.

Doctor Hutchinson tells not only of the work of the doctor in the trenches and in the hospitals, but also of his less exciting but equally important tasks in the sanitation and in the supervision of the nutrition of the troops. The volume is based on extensive observations on the Belgian, the French, and the Italian fronts, and makes most interesting reading both for the physician and for the layman. We have heard so little, comparatively, about the work of the doctor on the Italian front, that what he has written about that sphere of the war will be found specially interesting.

RADIUM IN THE TREATMENT OF EPITHELIOMA OF THE LOWER LIP

The etiology of all forms of cancer is obscure, but it is freely allowed that, given the predisposition, irritation is an exciting factor in its development. Of course, numerous instances can be cited in support of the statement, and perhaps the most generally known is epithelioma of the lower lip, or what is popularly termed "pipe cancer." Dr. George Elliott, discussing in the *International Journal of Surgery* for December, 1918, the radium treatment for epithelioma of the lower lip, refers to chronic irritation, particularly by pipe, as the most frequent activating cause. He also explains to some extent why epithelioma is almost entirely confined to the lower lip, regarded from the point of view of chronic irritation. The weight of the pipe presses on the lower lip, its mouthpiece may be rough, and the tobacco juice assist in the process. However, when all is said that can be said on this subject, it is obvious that no definite statement can be made that the pipe or smoking in any form is an exciting cause of epithelioma of the lower lip. Nor will statistics aid in reaching a conclusion.

With regard to treatment of the disease in the situation, Elliott holds that radium is the treatment par excellence. Also his experience is that more intensive applications of radium are indicated for cancerous conditions of the lower lip than for apparently similar lesions on the face. According to statistics supplied by the Deputy Registrar General of Ontario, Colonel J. W. S. McCullough, cancer generally, and epithelioma of the lip in particular, are increasing year by year in Ontario. One point is especially emphasized that radium, to be successful, like the knife, must

be employed early, and, for obvious reasons, it must also go wider than the mere clinical aspect of the lesion.

Stress is laid on the fact that dosage is probably the most important phase of radium treatment, and attention is directed to the dependence which must be placed on each administration for the determination of the proper dosage. In the successful treatment of malignant disease in any of its protean forms, two essential points must be predicated. First, an early diagnosis is necessary, and, secondly, the best mode of treatment must be decided upon and promptly and effectively carried out. In some cases operation offers the only hope of amelioration or recovery, and in other cases, radium offers the best opportunity for a cure, and at the same time, do this with the least amount of disfigurement. In any event, early diagnosis and prompt treatment are the sole means by which the scourge of cancer can be successfully coped with.

WHAT IS LIFE?

To pack away the meaning of life into a few words is a bold undertaking; but it has been attempted by a number of philosophers. Every definition is incomplete—there is always something back of it, so that if a definition of life prove unsatisfactory it is not an exception among definitions. Life, being a most comprehensive thing in itself, it is to be expected that definitions would be more or less hazy and it is also to be expected that they should smack of the point of view of the definer. It pays, however, to define as clearly, as may be, any subject with which we deal and all definitions of life are, to the student of life, worthy of consideration.

The definition of Schilling that life is a "tendency to individuation" is certainly sufficiently condensed and free from "materialistic" or "spiritualistic" bias. De Blainville's summing up of life as "the twofold internal movement of composition and decomposition, at once general and continuous," omits the environment of the living thing, as does that of Lewes, that it is "a succession of definite and successive changes both of structure and composition which takes place within an individual without destroying its identity." The more recent definition of Dr. Adami, "life is a state of persistent and incomplete satisfactions and dissatisfactions of certain proteid molecules," savors strongly of chemistry and of an age of laboratory workers.

It is generally agreed by biologists that the most comprehensive definition is that of Herbert Spencer, that "life is the continuous adjustment of internal

relations to external relations" and "the degree of life varies with the correspondence." Doubtless the reader has pondered over its significance and its freedom from the narrowness of scientific specialization or of passing phraseology, but he may not be familiar with the commentary upon it of that free lance in modern scientific criticism, Samuel Butler:

"All our lives long," he says, "every day and every hour, we are engaged in the process of accommodating our changed and unchanged selves to changed and unchanged surroundings; living, in fact, in nothing else than this process of accommodation; when we fail in it a little we are stupid, when we fail flagrantly we are mad, when we suspend it temporarily we sleep, when we give up the attempt altogether we die. In quiet, uneventful lives the changes internal and external are so small that there is little or no strain in the process of fusion and accommodation; in other lives there is great strain, but there is also great fusing and accommodating power; in others great strain with little accommodating power. A life will be successful or not according as the power of accommodation is equal to or unequal to the strain of fusing and adjusting internal and external changes.

"The trouble is that in the end we shall be driven to admit the unity of the universe so completely as to be compelled to deny that there is either an external or an internal, but must see everything both as external and internal at one and the same time, subject and object—external and internal—being unified as much as everything else. This will knock our whole system over; but then every system has got to be knocked over by something.

"Much the best way out of this difficulty is to go in for separation between internal and external—subject and object—when we find this convenient, and unity between the same when we find unity convenient."

Butler's inevitable tendency to satire does not detract from the largeness of his view of what life—or a life—means. Whether definitely or indefinitely, consciously or unconsciously, we each of us define life in our own way and that definition forms the working basis for our own life and for our attitude toward other lives. As physicians we are, from the one sided training to which we have been subject, too apt to have evolved definitions of an extremely narrow sort. The study of the definitions of the great expounder and critic of Darwinism should help us to view the human being we are dealing with as something more than a collection of proteid molecules, whether satisfied or not, something more than an isolated individual, and certainly the fence we may have erected between matter and mind will fade into oblivion.

THE PREDETERMINATION OF SEX.

The old, old problem of the predetermination of sex, which has been a matter of much conjecture and hypothesis since, if not before, the days of Hippocrates, still remains an interesting one for solution. In a paper in the *Correspondenz-Blatt für Schweizer Aerzte* for November 2, 1918, P. Scheurer discusses some of the theories that have been advanced and seems to favor the one that assumes the sex to be determined by the age of the ovum on the day of conception. His only real contribution is his analysis of Siegel's observations in 180 cases in which the date of the beginning of menstruation of the wife was known, and the exact date of the cohabitation was fixed through that of the soldier husband's brief furlough. It was observed that when, in these cases, the cohabitation took place during the first nine days after the beginning of menstruation, eighty per cent. of the children were boys; when it took place between the fifteenth and twenty-third days after the beginning of menstruation eighty per cent. of the children were girls; when between the ninth and fifteenth days the number of boys and of girls were nearly equal. At first glance these figures seem to afford some support to the theory that the sex of the child is determined, to a large extent at least, by the age of the ovum on the day of conception, but a closer study shows that, aside from the fact that definite conclusions cannot be made from so small a number as 180 cases the evidence presented is inconclusive. The striking facts presented are that four fifths of the children conceived during the days immediately following menstruation were boys, and that four fifths of those conceived during the latter part of the intermenstrual period were girls, but in each case one fifth of the children were of the opposite sex. Early age of the ovum failed to produce boys in one fifth, late age to produce girls in the other fifth. The rule fails to work in one fifth of the cases at each end of the scale. The exceptions in both the early and the late days are too numerous, even in this small number of cases, to permit the conclusion that the age of the ovum definitely predetermines the sex of the child. So far as Scheurer has proved anything, it would seem to be that the age of the ovum on the day of conception appears to have an influence on the predetermination of sex, and that other factors which are capable of overriding its influence appear to exist. Inasmuch as the nature of these other factors remain unknown we seem to be as far as ever from a solution of the problem.

A NATIONAL INSTITUTE OF DRUG RESEARCH.

Dr. Charles H. Herty, secretary of the American Chemical Society, in a recent address before the New York Academy of Sciences, said that the plans for the organization of a national institute of drug research were steadily progressing. This project was first broached at a meeting held at the Chemists' Club in New York last fall which was participated in by leaders in pharmacology, therapeutics, chemistry, and in pharmaceutical manufacturing. It is only by the coordination of effort in all these branches of science and industry that the best results can be obtained. Doctor Herty is ambitious and names \$10,000,000 as the sum required for the establishment of the institute on an adequate basis. The need is urgent for some such institution where, in the words of Doctor Herty, "The ablest research workers among our chemists and pharmacologists can study life problems and can gain true insight of the fundamental reasons for the action of medicinals upon the body; an institute where through the creation of fellowships, manufacturers can submit specific problems for investigation and solution under the most favorable conditions of expert work and abundant equipment." The advent of prohibition will leave enormous breweries without an occupation. Such plants could be converted into laboratories for the use of the National Institute of Drug Research, most advantageously and economically and Doctor Herty speaks most hopefully of the possibility of this being done. There is no question but that such an institute if properly organized and conducted will do much to put the United States in the very forefront as a producer of new and valuable medicaments and it is to be hoped that the plans of the committee which is now at work on the proposed institute will offer a practical means of carrying out this project on a scale commensurate with its importance.

LOWERED RESISTANCE PAVES WAY FOR INFLUENZA.

An observant hospital corps man of the Navy became so thoroughly convinced that lowered resistance was always the determining factor in contracting influenza that he and some of his mates volunteered to test the truth of his theory. The offer was accepted and 100 enlisted men who volunteered were submitted to exhaustive experiments, by naval surgeons, the outcome of which seem to confirm the theory. These men were all in the best of physical condition, and during the experiment their health was looked after carefully. Live cultures of influenza bacilli were sprayed in their throats and noses hourly. The germs were introduced into their food. They were kept in close contact with patients suffering from the disease, and in order to obviate any possible individual immunity to one particular strain, the contacts were alternated frequently. Some members of the group received various preventive inoculations, but others were not thus protected. Not a single case of influenza was developed.

News Items.

A Police Hospital in New York.—Announcement is made that the Police Department will have its own hospital within three years. A campaign will be started in the near future to secure the \$5,000,000 which it is said the building will cost. The hospital will be for the exclusive use of policemen and their families.

Red Cross Sends Influenza Fund to Alaska.—An appropriation of \$25,000 has been voted by the war council of the American Red Cross to meet the situation growing out of the influenza epidemic in Alaska. In making the appeal, the governor of Alaska stated that the matter of relief had been taken up with the government, but that there was great need for immediate funds.

Columbia University May Control Lenox Hill Hospital.—It is reported that the College of Physicians and Surgeons, Columbia University and the Lenox Hill Hospital, formerly the German Hospital, are discussing possible methods of cooperation between the two institutions whereby Columbia University will gain control of the hospital. As yet no definite plan has been decided upon.

Clinical Society of Hospital for Deformities and Joint Diseases.—A stated meeting of the Clinical Society of the Hospital and Dispensary for Deformities and Joint Diseases will be held in the dispensary building, 41-43 East 103d Street, Tuesday evening, February 11th, at 8:30 o'clock. At the close of the executive session a scientific session will be held for which an interesting programme has been arranged. Interesting clinical cases will be presented by the staff, and the following papers will be read: The Correction and Cure of Congenital Dislocation of the Hip, Dr. Henry W. Frauenthal; The Mensurgraph, by Dr. Theron Wendell Kilmer; Arthritis of Gonorrheal Origin, by Dr. Leo Michel; The Modified Sluder versus the Snare Operation in Tonsillectomy, by Dr. Henry Rodman. A general discussion will follow.

Personal.—Lieutenant Colonel Richard Derby, son in law of the late Colonel Theodore Roosevelt, returned to America recently with his unit. He was awarded the French war medal for bravery in visiting aid posts without regard to artillery or machine gun fire.

Dr. Charles F. Dalton, of Burlington, Vt., has been appointed professor of hygiene and preventive medicine in the University of Vermont, succeeding the late Dr. Charles S. Caverly.

Dr. Abraham Jacobi has resigned as president of the medical board of Mount Sinai Hospital, after serving actively in that capacity for thirty-five years. Dr. Bernard Sachs succeeds him.

Professor Charles A. E. Winslow, of Yale University, was reelected president of the Connecticut Society of Social Hygiene at the eighth annual meeting held on December 18th.

Dr. Mary Sherwood, of Baltimore, has been named chief of the Bureau of Child Hygiene of the Department of Health, with Dr. Mary Cook Willis as assistant.

Distinguished Service Crosses for Naval Medical Officers.—Distinguished Service crosses have been awarded to Lieutenant Joel Thompson Boone and Lieutenant William Tignor Gill, Jr., Medical Corps, United States Navy, attached to the Sixth Regiment, United States Marine Corps, and to Lieutenant Ogden Doremus King, Medical Corps, United States Navy, attached to the Sixth Machine Gun Battalion, United States Marine Corps.

Obstetrical Society of Philadelphia.—The following officers have been elected to serve for the ensuing year: President, Dr. F. Hurst Maier; first vice-president, Dr. Stephen Tracy; second vice-president, Dr. Alfred Heineberg; secretary, Dr. Edward A. Schumann; secretary pro tem, Dr. Charles S. Barnes; treasurer, Dr. William E. Parkes; curator, Dr. Collin Foulkrod; councillors, Dr. John W. West, Dr. John M. Fisher, Dr. Barton Cooke Hirst and Dr. Daniel Longaker.

Pneumonia in the United States.—According to reports received by the Public Health Service in Washington from the health authorities of forty-six of the largest cities in the United States, a total of 49,265 deaths from pneumonia occurred in these cities from September 14, 1918, to January 25, 1919. Of this number 6,865 occurred during the month of January and 6,579 during December. The total deaths from pneumonia in New York city during this period numbered 13,795; 1,342 during December and 2,193 during January.

A Statistical Study of the Influenza Epidemic.—The subcommittees appointed by the American Public Health Association to make a statistical study of the recent influenza epidemic have organized and are now ready to begin their work. Dr. Edwin W. Kopf, assistant statistician of the Metropolitan Life Insurance Company, is chairman of the general committee and the heads of the subcommittees are: National statistics of the epidemic, Dr. W. H. Davis, of the Federal Census Bureau; State statistics, Dr. Otto R. Eichel, statistician of the New York State Department of Health; city statistics, Dr. C. V. Chapin, of Providence, R. I.; pathology, Professor C. G. Grove, of Columbia University.

Deaths from Automobile Accidents in New York.—According to statistics compiled by the National Highways Protective Society, there were approximately thirty per cent. more fatalities from automobile accidents in New York State during the year 1918 than in 1917. The total deaths numbered 837 in 1917, and revised figures show that in 1918 1,189 persons were killed by automobiles in New York State. Forty-nine persons were killed in automobile accidents in New York city streets during the month of January, eight were killed by surface cars and one was killed by a wagon. In the State outside New York city nineteen persons were killed by automobiles and three by trolleys. The total, fifty-eight, is the highest fatality figure yet recorded for January. In New Jersey seventeen were killed by automobiles, four by trolleys and two by wagons. Six persons were killed at grade crossings in New York and four in New Jersey.

The Packard Lecture.—Colonel Victor C. Vaughan, Medical Corps, United States Army, will deliver the Frederick A. Packard Lecture for 1919 of the Philadelphia Pediatric Society, at the College of Physicians, Tuesday evening, February 11th, his subject being The Relation of Measles and Influenza to Pneumonia.

The Volunteer Hospital's New Building.—Work of completing the building of the Volunteer Hospital, located at Beekman and Water Streets, is now under way. The foundation for the hospital, which was officially opened by Governor Whitman in 1914, was laid for seven stories and a solarium, but due to war conditions only three stories and the basement were completed, equipped, and placed in service. The other four stories and a solarium are now being added at a cost of \$175,000.

Philadelphia Clinical Society.—At the recent annual meeting of this society Dr. William Duffield Robinson was elected president to serve for the ensuing year, and other officers were elected as follows: Dr. M. P. Warmuth, first vice-president; Dr. Edward J. Moore, second vice-president; Dr. Charles S. Barnes, secretary; Dr. William McKeage, treasurer; directors, Dr. Moses Behrend, Dr. F. B. Devitt, Dr. Harry A. Duncan, Dr. S. C. Falls, Dr. Ambrose Hunsberger, and Dr. John Leedom.

Maternity Clinics in New York.—The Maternity Centre Association held its first annual meeting in New York on Tuesday, February 4th. A report of the year's work was presented and plans discussed for a future programme. The association was organized last February for the purpose of combating the lowered birth rate and increased death rate incident to the war, and it endeavored to establish a systematic maternity service in every tenement district in Manhattan. At the end of a year's work the association had twenty-two maternity centres and prenatal clinics in Manhattan and one in Brooklyn. Cooperating with the association are maternity hospitals throughout the city, the health department, New York Diet Kitchen Association, the Women's City Club, and other organizations interested in child welfare work.

Civil Service Examination for Medical Intern.—The United States Civil Service Commission announces that open competitive examinations will be held on March 12th, April 9th, and May 7th for medical intern, to fill a vacancy in Saint Elizabeth's Hospital, Washington, D. C., and future vacancies requiring similar qualifications. The positions are tenable for one year and pay \$75 a month and maintenance. During the year a postgraduate course in mental and neurological diagnostic methods is given, an examination is held, and promotions to the grade of junior assistant physician are made. Saint Elizabeth's Hospital has over 3,000 patients and 800 employees to care for, and excellent scientific opportunities in neurology and psychiatry are offered, in addition to the general medical practice. For further particulars regarding the scope of the examination and for the proper application blanks, address the Civil Service Commission, Washington, D. C.

Philadelphia Medical Societies.—During the coming week the following medical societies will meet in Philadelphia:

MONDAY, February 10th.—County Medical Society (board of directors).

TUESDAY, February 11th.—Pediatric Society.

WEDNESDAY, February 12th.—County Medical Society.

THURSDAY, February 13th.—Academy of Surgery; Esculapian Club; Pathological Society.

FRIDAY, February 14th.—Atlantic County Medical Society; Northern Medical Association.

A Red Cross Mission to Poland.—The American Red Cross War Council has decided to send a relief commission into Poland, which will be headed by Dr. Walter C. Bailey, of Boston, and Major F. A. Fronczak, Medical Corps, U. S. Army, former health commissioner of Buffalo, and at present the representative in Paris of all Poles in America. Major Fronczak has been detailed by the army to the Red Cross for this mission, which will leave Paris at an early date.

Reeducation of the Blind.—Sir Arthur Pearson, the blind founder and director of St. Dunstan's Hostel for Blinded Soldiers in London, told of the work being done for blinded English and Canadian soldiers, at a meeting held at the Century Theatre, Tuesday evening, February 4th, under the auspices of the Red Cross Institute for Crippled and Disabled Men. Douglas C. McMurtrie, director of the institute, presided. The first speaker was Colonel James Bordley, Medical Corps, United States Army, who is to carry on the same work at Evergreen, Baltimore, among blinded American soldiers, sailors, as that being done at St. Dunstan's.

Public Health Work in Venereal Diseases.—The United States Public Health Service, division of venereal disease, is conducting approximately 175 clinics. During the period from November 15 to December 15, 1918, there was a total of 19,456 visits to twenty-nine clinics, or an average daily attendance of 38.1 at each clinic. There were 2,489 new cases, which was an increase of 188 cases over the number of admissions of the preceding month. A total of 25,543 treatments were administered and 11,195 cases were remaining under treatment in the clinics, hospitals, and detention homes on December 15th. As a result of 1,845 "followup visits" made by the clinic nurses and social workers, there were 1,070 visits to the clinics.

Medical Society Meetings to Be Held in New York.—The following medical societies will meet in New York during the coming week:

MONDAY, February 10th.—Society of Medical Jurisprudence; New York Ophthalmological Society; Yorkville Medical Society; Williamsburg Medical Society, Brooklyn.

TUESDAY, February 11th.—New York Academy of Medicine (Section in Neurology and Psychiatry); Manhattan Dermatological Society; New York Obstetrical Society.

WEDNESDAY, February 12th.—Medical Society of the Borough of the Bronx; New York Pathological Society; New York Surgical Society; Alumni Association of the Norwegian Hospital, Brooklyn.

THURSDAY, February 13th.—New York Academy of Medicine (Section in Pediatrics); West End Clinical Society; Brooklyn Pathological Society.

FRIDAY, February 14th.—New York Academy of Medicine (Section in Otolaryngology); Clinical Society of the German Hospital and Dispensary; Eastern Medical Society of the City of New York; Flatbush Medical Society, Brooklyn.

Miscellany from Home and Foreign Journals

The Cooperation between the Spleen, Thyroid, and Bone Marrow.—L. Asher and M. Dubois (*Biochemische Zeitschrift* vol. lxxxii, Nos. 3 and 4, 1918) have found that removal of the spleen in rabbits to whom large quantities of iron were administered, produced a transitory increase of the hemoglobin and the number of erythrocytes. It must be admitted that, besides the disappearance of the hemolytic factor, there is a direct excitation of the bone marrow, because it constantly pours young types of red blood corpuscles into the circulating blood. Removal of the spleen does not change the number of white cells, but it just results in a decrease in the number of lymphocytes and an equivalent increase of the elements of the bone marrow. This phenomenon is considered by the writers as a lesion of the lymphatic apparatus. A differentiation of the leucocytes lead them to look upon this lesion as an excitation of the leucopoietic system. A lymphocytosis progressively takes place which the writers consider to be a phenomenon of hypercompensation. Since in the normal animal the excitation produced by the absence of oxygen is made evident by a very temporary decrease in the number of erythrocytes and hemoglobin, in animals having undergone splenectomy this decrease is very marked. The duration of convalescence from anemia is of much shorter duration in splenectomized animals than in normal animals. It brings about a hyperproduction of red blood corpuscles which does not occur under normal circumstances.

Removal of the thyroid glands results in a small decrease in the number of erythrocytes while the percentage in hemoglobin is not changed. This would seem to indicate that a paralysis of the erythroblastic system occurs, although it may be latent. Thyroidectomy at once results in a relative lymphocytosis.

The excitation from absence of oxygen does not cause any change in the blood formula in thyroidectomized animals even when the dose of substance avid for oxygen is doubled in quantity which, in normal animals, would result in a change of the blood formula. This fact may be explained by a lack of excitability of the hematogenous systems. The absence of the thyroid gland imposes a much longer convalescence in anemic animals than in those possessing the gland.

If both the spleen and thyroid are removed from a rabbit. The only results are a slight decrease in the percentage of hemoglobin and a relatively greater decrease in the number of erythrocytes. This phenomenon does not occur when thyroidectomy is done on an animal who has previously been splenectomized. In an animal thus rendered slightly anemic an excitation of the bone marrow subsists, because in these circumstances it still produces young types of red blood corpuscles. It is probable that this excitation is due to a paralysis of the thyroid system resulting from removal of the gland. The number of the white cells diminish after the operation. The equilibrium of the leucocytis is due to the splenectomy, while the paral-

ysis resulting from thyroidectomy only maintains a stability in the leucocytic formula after a rather long lapse of time. The effects of an artificial dyspnea are encountered if, besides removal of the thyroid splenectomy has been done. Temporary anoxxygenation changes the hematologic formula in every species of animal excepting those who have been thyroidectomized, in the sense that a leucocytosis is produced. Convalescence from anemia is the same in an animal from whom the thyroid and spleen have been removed as in a normal animal.

The anemia produces during convalescence an increase of the white cells of the bone marrow in all animals excepting those who have been thyroidectomized, which is a sign of hyperactivity of the bone marrow. Here, therefore, there is a paralysis of the bone marrow without any interference on the part of the thyroid.

These results allow one to conclude that there exists an antagonism between the spleen and the thyroid gland as far as the formation of blood is concerned upon the condition naturally, that no hypothesis as to the mechanism is offered. The thyroid accelerates this formation, the spleen delays it. Their regular cooperation results in normal functioning of the hematogenous systems, but this does not exclude the possibility that other glands of the vascular system do not play a part in these functions.

Medical Examination of Aviation Candidates.—G. A. Sutherland (*Lancet*, December 14, 1918) says that the aim of the medical examination is the selection of candidates who are constitutionally fit, or appear to be fit, for flying duties. The examiner should know that flying does not require special qualifications, other than those demanded in many branches of sport, and that the diseases and disorders of flying men are not different from those of civilian life. At the present stage of flying it is impossible for the examiner to recognize the proper flying temperament or an inherent tendency for disabilities to develop in the air. No special tests have yet proved acceptable as reliable and the best that can be done is to recognize certain essential physical qualifications, namely: A good physique, a sound cardiovascular system, and a strong and stable nervous system. Other matters should be left to the flying instructors and determined by the man's demonstrated capacities. In other words, the medical examiner should merely determine that the man is "fit for general service." He should try to determine how the vital organs and tissues are doing their work and how they are likely to react to stress and strain. It is not a question of the integrity of a single system of organs, but rather of general physical fitness. The importance of a careful investigation into the previous health and illnesses of the man cannot be overestimated, and the facts elicited should be checked up by cross-examination. The history of any constitutional or acquired condition which has rendered, or may render, the

candidate subject to loss of consciousness, lapses of memory, fainting, vertigo, loss of vision or its serious disturbance, or prostrating headache, should disqualify, irrespective of the general physical condition found. Particular inquiry should be made concerning the following diseases: Asthma, malaria, syphilis, rheumatism, chorea, digestive disturbances, migraine, epilepsy of any degree of severity, nervous debility, and joint diseases, and the dates and degree of recovery should be determined. The entire cardiovascular system must be investigated for organic and functional diseases. Aortic insufficiency and mitral stenosis are always definitely disqualifying. A systolic murmur should not be considered unless due to definite mitral insufficiency with enlarged heart, signs of cardiac disability, or recent or recurrent rheumatism. Sinus arrhythmia and occasional premature contractions are not of any significance. The area of cardiac dullness is of little importance unless there is evidence of definite dilatation or marked hypertrophy. In otherwise normal subjects slight thickening of the arteries or slightly elevated blood pressure is not disqualifying. The presence or absence of cardiovascular debility is best determined by the clinical history of the candidate's civil life, his response to effort, the heart rate, the pulse pressure, the tension of the pulse, and the state of the capillary and venous circulations. The nervous system is quite as important as the cardiovascular and should be investigated with especial reference to the presence of nervous stability and control. Every man should be passed or rejected only in the light of the results of a summing up of all of the findings, both in history and complete physical examination.

Eruptions Following Vaccination.—Jacob Sobel (*Archives of Diagnosis*, October, 1918), in a series of 4,160 vaccinated patients who returned subsequently to secure a certificate of satisfactory vaccination, observed eighty cases, or about two per cent., presenting generalized eruptions. The lesions embraced all types, from the erythematous to the bullous and hemorrhagic. The eruption generally appeared between the ninth and fourteenth days after vaccination—most frequently on the tenth or twelfth day. In some instances it occurred as early as the fifth day, in others as late as five weeks. It did not always follow that the seat of inoculation was "bad"; indeed, in some very extensive eruptions the local sore was typically normal in appearance. Among the types of generalized eruptions, the following were recorded: Erythematous, urticarial, papular, vesicular, pustular, erythema multiforme, morbilliform, bullous or pemphigoid, and scarlatiniform. The commonest generalized eruption was the urticarial, sometimes combined with contagious impetigo, from scratching. At times it was localized to the vaccinated arm. In a few instances there were small wheals with minute central vesicles, rendering differentiation from varicella necessary. In the less common morbilliform type, the eruption, while fairly typical of measles, was differentiated by the history of sudden onset, usual disappearance within forty-eight hours and absence of desquamation, oropharyngeal involvement, or Koplik's phenomenon. Vesicular eruptions

involved mainly the trunk or the extremities, and occasionally were quite generalized, simulating varicella; they were differentiated by not coming out in crops, by the lack of grouping in twos, threes, and fours, by the usual absence of oral involvement by the darker vesicular contents and by the greater firmness of the vesicular walls. Only four instances of generalized scarlatiniform eruption were recorded; they were unaccompanied by vomiting or pharyngeal inflammation and subsided in from twenty-four to forty-eight hours without desquamation. Pustulobullous lesions sometimes involved the palms and soles. Some patients showed conjoined eruptions, e. g., erythema and papulovesicles, scarlatiniform erythema and minute vesicles, and urticaria with erythema multiforme. The author concludes that when an infant or school child presents itself with an eruption resembling the exanthemata, examination for a recent vaccination should always be made.

Aleucemic and Myeloplastic Chloroma of the Skull.—H. Hirschfeld says (*Zeitschrift für Krebsforschung*, vol. XVI, No. 1) that examination of the bone marrow shows that the uncolored elements are composed of equal parts of myelocysts and myeloblasts. The elements made up of eosinophile granulations were very few in number. The spleen, which was not enlarged at the time of death, contained structurally normal follicles. In the interfollicular pulps only a very few areas of myeloid transformation could be discovered. This transformation was most distinct in the lymph nodes, especially in those of the mesentery. It is to be noted that the neutrophiles and eosinophiles were more numerous than the myeloblasts. In the liver the changes were trifling and only involved the myeloblasts. In the other viscera there were no leucemic changes. The diagnosis of myeloblastic chloroma was based in the first place on blood examination in this case. The majority of the leucocytes were large and medium myeloblasts with the characteristic delicate structure of nuclei and more frequently multiple nucleoli. It is true that these nucleoli did not give rise to the oxydase reaction, but this has often been observed in undoubted instances of myeloblasts. Not only the structure of the nuclei was typical for the myeloblasts, but histologic examination of the spleen and lymphnodes proved that an atrophy of the follicles was present as well as a proliferation of the myeloid tissues. Many of the myeloblasts had deeply indented nuclei (Rieder's nuclei). The protoplasm was mostly stained sky blue with Giemsa, but in certain cells there were a few very fine granulations which stained azure blue. In some cells one or several protoplasmic vacuolæ (fat droplets?) were seen.

The most notable discovery was that of granulations or rods of a special kind, one to each cell, occasionally quite long and thick, which were in part found in the vacuolæ. These represented inclusions belonging in particular to large lymphocytes and myeloblasts which have been described by Pappenheim in acute leucemia, also by the writer and Mosse and which were here discovered for the first time in a case of chloroleucemia. There is nothing certain known as to their significance. At the end

of life, when pulmonary symptoms and fever are important there is also an apparition of some myelocytes while at the same time a progressive anemia develops, characterized from the microscopic viewpoint by the appearance of poikilocytes, megalocytes, erythrocytes with a basophile punctuation, and by normoblasts with nuclei partially undergoing mitosis. It should be admitted that leucemic changes of the bone marrow, the liver, and lymph-nodes, and those of the spleen to a certain extent, were more marked in the beginning, after which they regressed under radiological treatment. The cranial tumor did likewise. The evolution of the affection leads the writer to suppose that in this case the periosteum of the floor of the orbit was first involved along with the external surface of the right upper jaw and then the other haematopoietic organs were progressively involved in their turn.

The Effect of High Carbohydrate Feeding on the Nausea and Vomiting of Pregnancy.—James W. Duncan and Victor John Harding (*Canadian Medical Association Journal*, December, 1918) give the following synopsis of the treatment recommended, with a résumé of the results obtained.

Divide into three groups—mild, moderate, severe. Daily routine examination of urine—total quantity, acetone reaction, and its intensity, specific gravity, albumen, sugar, bile.

Rest.—Mild cases—limit demands of housekeeping, and other work.

Moderate cases—rest in bed.

Severe cases—rest in bed with isolation.

Excretion.—Correct defects in functions of lung, skin, kidney, bowel.

Diet.—Mild and moderate cases, eliminate proteids and fats for forty-eight hours. Force carbohydrates (fruits, cereals, fresh vegetables). Severe cases—absolute rest from all food by mouth for about forty-eight hours. Begin carbohydrates as soon as patient may be able to retain them. To be given frequently and in small amounts.

Medication.—Mild cases—lactose solution, five per cent., one to one and a half quarts daily by mouth.

Moderate cases—lactose solution, five to ten per cent., one and a half quarts daily by mouth if possible—when not retained, this solution may be given by rectum, using a urethral catheter giving very slowly ten ounces and repeating every four hours. Severe cases—sterile glucose solution, five per cent.—200 c. c., under each breast for one treatment, then use method of rectal injection of lactose. In both moderate and severe classes, the administration by mouth should be resorted to as soon as possible.

When the nausea and vomiting are fully controlled, the amount of lactose per day may be reduced to fifteen grams, later this may be further reduced to a fifteen gram dose triweekly. In all cases the reduction of the treatment or its discontinuance must be guided by an examination for acetone bodies and lactose in the urine.

Return to a diet mixed with protein may be made as soon as the nausea and vomiting are under con-

trol, but a return to the fats must be made more slowly. In the mild and moderate cases the results from treatment along these lines were gratifying. Complete and continued relief occurred in twenty-eight cases within forty-eight hours; complete relief from vomiting but with occasional returns of nausea in twelve. Many of the relapses were traced to indiscretions in diet. Two cases showed a continual nausea with hyperacidity throughout entire pregnancy, but went on to full term with no graver symptoms developing. Fourteen moderate cases gave evidence of immediate and continued relief within one week of the installation of treatment. Three were more stubborn and showed some tendency to revert to the pernicious type, but with more complete isolation in hospital wards success was speedily obtained. In these mild and moderate groups pregnancy had not advanced past the first ninety days before treatment was commenced in forty-six cases; the remaining thirteen were between the third and sixth month. In the pernicious group of eleven cases (seven primiparæ) the severe vomiting developed within the first 120 days of pregnancy and only three showed any recurrence in the later periods. Among the multiparæ three had had previous pregnancies terminated for toxic vomiting, two of them on two occasions, but under this treatment all proceeded to full term.

Conservative Treatment of Puerperal Eclampsia.—Austin Flint (*American Journal of Obstetrics*, November, 1918), from comparison of the results of radical and conservative treatment of eclampsia at the Manhattan Maternity Hospital, concludes in favor of the latter. Attention is called to the many complications and obstetrical injuries directly due to methods of delivery, and to the fact that the patient suffering from eclampsia bears shock producing methods of treatment very badly. The advantage of time gained by a rapid delivery through an unprepared birth canal is more than counterbalanced by the necessity of repairing the damage done, and the patient's chances of ultimate recovery are greatly lessened. In convulsive toxemias the conservative surgical treatment should consist of absolutely nothing if the patient is in labor, and the introduction of a bag if she is not. Cesarean section is not indicated for eclampsia, though necessary when the pelvis is contracted in an eclampsia patient. The conservative medical treatment consists, in keeping the patient in a dark, quiet room. After catheterization and a bloodpressure test one half grain of morphine is given hypodermically, and the drug repeated in one quarter grain doses often enough to control the convulsions or to keep the respirations down to twelve. The stomach is washed out with a hot, one dram to the pint solution of sodium bicarbonate, after which two ounces of magnesium sulphate in solution is introduced and left in the stomach. According to the patient's condition, colon irrigations are soon started, using from four to six gallons of hot sodium bicarbonate solution every six hours. For high blood pressure the patient is given one fiftieth grain of nitroglycerin hypodermically every one or two hours until the pressure falls. Then,

or soon after, a bag is introduced to bring on labor. To obtain elimination through the skin, the author wraps the patient in warm, dry blankets and uses an electric light apparatus to induce a gentle perspiration. Where the cervix is long and hard, one may wait a few hours longer before introducing the bag, or may at once pass in a bougie or a small rectal tube into the uterus. Among forty-one cases treated radically, the maternal mortality was 29.2 per cent. and the fetal 73.1 per cent., while among thirty-three cases treated conservatively the maternal mortality was 15.1 per cent., and the fetal, 33.3 per cent. The author confidently expects to see the maternal mortality reduced to less than ten per cent. in the near future.

Operations on the Floor of the Female Bladder.

—W. A. Jewett (*American Journal of Obstetrics*, January, 1919) emphasizes the influence of retention of a portion of the urine in increasing the likelihood of bladder infection and its resulting symptoms. In the course of a number of postoperative cystoscopic examinations the author noted lateral pockets in the floor of the bladder, capable of holding a considerable quantity of urine and so situated as to make retention probable. Transverse folds that could not be smoothed out by bladder distention were also found. In one case, following a combined vaginal and abdominal operation for procidentia there was observed a central bladder pocket or depression which would favor retention of a portion of the urine after voiding. In five cases, including three interposition operations, one Emmett-Baldwin operation, and one Mann suspension, there was a central elevation producing lateral pockets. Lateral depressions also followed a Bissell-Rawls anterior colporrhaphy, a Kelly suspension and a Gilliam suspension. Transverse folds in the bladder wall were found in the cases that had had vaginal operations—four anterior wall repairs—and in one of the interpositions. Such a condition would tend to increase and prolong the bladder inflammation in the event of infection. One case of interposition showed a slight gaping of the ureters. In general, disturbances of the plane of the bladder floor proved more likely to follow vaginal operations involving the anterior wall than operations by the abdominal route. Such disturbances may definitely interfere with complete evacuation of the bladder, and this, in turn, may result in urinary stasis and inflammation.

New Method of Radical Cure for Genital Prolapse in the Female.

—Salva Mercadé (*Presse médicale*, November 11, 1918) lays stress on the fact that the prolapse always begins with a cystocele, and believes it irrational to depend merely on repair of the posterior vaginal wall, as is generally done, to overcome the condition. A better plan to provide resistance to the downward pressure from the abdomen at the very point where it is exerted, is to produce a firm musculofascial platform by means of the anterior portions of the levator muscles, in conjunction with the muscles of the urogenital floor. For proper results, anterior suture of the levator muscles must be carefully performed in definite stages. The author first exposes the anterior vaginal wall by pulling out the cystocele through trac-

tion on the cervix with forceps. The usual diamond shaped anterior colporrhaphy is next performed and the vaginal flap dissected up and excised. The vagina and uterus are now carefully separated from the bladder. The posterior aspect of the bladder is freed first, then the lips of the vagina detached, and finally the lateral aspects of the bladder liberated until the lateral vesical vessels come into view. The bands formed laterally, within and above the ischio-pubic ramus by the inner margins of the levator muscles are now identified. Four chronic gut U-sutures uniting the levators in the median and forming a floor for the bladder, which is pushed above it, are then inserted, and the urogenital floor below likewise sutured. Finally, the vaginal lips are sutured along an anteroposterior line with silkworm gut. The operation having been completed, the uterus is pushed up through the pelvic diaphragm and normally resumes its place. Postoperative treatment consists merely of a simple daily vaginal injection. The patient is allowed to go to stool whenever necessary and a purge prescribed on the third day. In seven cases in which the author's procedure was carried out for marked prolapse, perfect curative results were obtained. His method of anterior colpoperincorrhaphy is also applicable in hypertrophic elongation of the cervix, a condition always accompanied by a cystocele. In such cases suture of the levatores beneath the bladder should precede the actual amputation of the cervix.

New Developments in the Aftercare and Treatment of Poliomyelitis.

—Charles Ogilvy (*Journal A. M. A.*, November 23, 1918) has now followed 110 cases for two years and is able to make some interesting deductions. Where there is complete flaccid paralysis in a muscle or group of muscles further treatment is useless so far as return of function is concerned if there is no recovery in six months. The greatest factor in the restoration of lost function in muscles is rest and this should be prolonged over one year in some cases. The simplest and most efficient method of securing this rest is by means of properly molded and fitted plaster splints. Braces are of decided value in many cases, but must be light and should permit the maximum of joint freedom which is consistent with the prevention of deformity. A proper brace is the best safeguard against overfatigue, and the latter is the greatest source of delayed return of function. Two deformities may develop during the second year—lateral deviation of the spine and equinovarus of the foot—and both must be watched for and prevented by the wearing of a light canvas and steel corset or a shell plaster posterior splint for the foot. So far as the employment of muscle training is concerned, it must be said that to be really profitable it must be done by specially trained person and cannot be left to the parents. It is of little value in children less than six years old because they cannot cooperate properly, and the results obtained depend as much upon the patient as upon the trainer. The training should be continued for at least two years. Bath exercises are of the greatest value, especially at the stage when function is returning just sufficiently to produce motion.

The Symptomatology and Treatment of Primary Polycythemia. Ludin (*Zeitschrift für klinische medicin*, Nos. 5 and 6, 1918) reports the case of a female servant twenty-seven years of age who had been subject to headache, vertigo, hot flushing of the face, and an exaggeration of the color for three years. Later on epistaxis, scintillating scotoma, temporary amaurosis, tinnitus aureum, loss of flesh, profuse sweating, and pruritus occurred. The menses were small in quantity. Examination showed a bluish red color of the face, pronounced redness of the mucosa, no increase in size of the spleen and a blood pressure of 114 millimetres Riva Rocci. The heart and lungs negative. Wassermann positive. The urine contained a considerable amount of urobilin and urobilinogene. Blood examination: haemoglobin, 145 per cent.; red blood cells, 7,300,000, whites, 11,100, of which 0.3 per cent. were myelocytes. There was a little albumin in the urine which disappeared by rest in bed. There was a diminished resistance of the erythrocytes (0.52-0.24), viscosity, 8. Coagulability very greatly diminished on account of the decrease in the thrombokinase and fibrinogene. After discussing the various pathogenic theories of this affection Ludin is of the opinion that one should unquestionably admit that this morbid process is due to hyperfunction of the bone marrow. With the röntgen rays it was possible to bring the hemoglobin down to 100 per cent. and the number of erythrocytes to 4,880,000.

All of the bones received the rays in turn and during seven weeks ninety-four doses were given according to Gabowand's method, with hard rays and rays filtered through three and four millimetres of aluminium.

Cause of Prostatic Urine Retention.—F. Leguen (*Bulletin de l'Académie de médecine*, November 19, 1918) asserts that the commonly accepted view of the mechanism of prostatic urine retention is far from correct. Comparison of existing adenomatous enlargements with the degree and form of urine retention reveals strange contrasts. Thus, among the author's 300 prostatectomized cases, only fourteen, or four per cent. showed prostatic adenomas weighing over 150 grams; in 141 the weight was less than thirty grams, and among these, in seventy-eight it was less than fifteen grams. In thirty-two out of forty-seven cases of complete retention of urine of over six months' standing, an adenoma weighing less than thirty grams was found; in only two cases did the adenoma weigh over 100 grams. Hence, there is no relationship between the size of the adenoma and the severity of the functional disturbance. The location of the adenoma seems to have greater significance, though in the classic type of enlargement, with two lateral lobes compressing the urethra, retention is generally but incomplete, acute, or transitory. In cases of small adenoma situated in the urethra, retention is often complete and chronic. But there are also cases in which no adenoma exists or, at least, in which it is represented microscopically only by a glandular hyperplasia in the midst of a general hypertrophy of all the cellular components of the neck of the bladder; and in these cases complete

retention is very frequent. Here there can be no question of a mechanical obstacle to urination; the neck itself is the obstruction, and its removal restores to the patient the power to empty his bladder. Even in the presence of a large adenoma, pressure by it is not the only obstructive factor. Leguen has seen patients without retention in whom finger palpation showed far more lateral compression than it did in others with free urethrae, yet suffering from retention. The origin of this apparent discrepancy lies in concomitant changes in the tissues of the neck. Acute retention due to periprostatic congestion, acute inflammation, or a nervous reflex, likewise affords evidence in favor of this view. In subjects free of marked changes in the neck of the bladder, retention is but transitory, while in those in whom a pathologic substratum exists, retention is permanent. In brief, the prostatic disease is actually a hypertrophy of all the tissues of the neck; where adenoma is a relatively prominent feature, retention is less troublesome than where the adenoma is subsidiary to overgrowth of the other tissues of the neck.

Renal Forms of Influenza.—R. Dalimier (*Bulletin de l'Académie de médecine*, November 19, 1918) points out that influenzal infection often involves the kidneys, either in the earlier stages of the disease or in the presence of its pleuropulmonary or nervous complications. Daily urine examination reveals, in a rather large number of cases, albuminuria, which is generally pronounced and sometimes massive. This is an entirely different condition from the so called febrile albuminuria, which is much milder and devoid of special clinical significance. Influenzal albuminuria is, in fact, of great diagnostic and prognostic import. Among the many patients recently under the author's observation, the grave and rapidly fatal cases were the very ones in which a massive albuminuria had previously been discovered. Any patient whose kidneys remain sound may recover in spite of concomitant septicemia or of lung infiltration of the bronchopneumonic, pneumonic, or congestive type; or, at least, will succumb only after a more or less prolonged period, corresponding to the ordinary course of such disorders. On the other hand, any influenza patient who presents a massive albuminuria, with or without added visceral involvement, is likely to succumb within a short time. In several cases encountered, acute or even hyperacute uremia was observed, with marked liguria, frequently hematuria, high fever, and rapid, hard pulse, dusky facies, dry tongue, abundant sweats, delirium, unconsciousness, coma, and death in two to four days. Auscultation reveals a flooding of the air vesicles, especially at the bases. Between these cases and those of massive albuminuria there are transitional cases. Asphyxial forms of influenza are ascribed by the author to renal involvement and a flooding of the lungs so rapid as to give no time for the appearance of uremic symptoms. The urine of all influenza cases should be examined daily. Where large amounts of albumin are noted, the patients should be treated as renal cases. Where renal insufficiency becomes still more marked, they should be regarded as uremics.

Mortality from Influenza.—*Deutsche med. Wchnschr.*, 1918, 44, 1129-30) states that the mortality from influenza in recent years at Charlottenburg has been low and confined mostly among elderly people and to the winter months. In the coldest weather of 1917 the monthly mortality was under ten and in June, 1918, it had decreased to zero. On the other hand deaths from pneumonia have increased since 1916 and of late have reached as high as thirty a month. In summer the rate was decreased to from twelve to twenty-five. During April, May and June of 1918 the average was about thirty. There were forty-one deaths from influenza in July the majority between July sixth and fifteenth. There were forty-nine fatal cases of lobar pneumonia thirty-three of these occurring between July sixth and fifteenth, children were almost immune, while adolescents and middleaged people were attacked chiefly by these diseases. The epidemic had passed within three weeks which was a very short period for an epidemic of this type.

Chronic Vasoconstriction Spots and Their Significance.—Edward A. Tracy (*Boston Medical and Surgical Journal*, January 2, 1919) says that chronic vasoconstriction spots, observed in the forearms, hands and face, are found associated with nerve and brain lesions. One or more pigment spots are found nearby. These spots imply an increased flow of nerve stimuli over the vasoconstrictors involved in the production of the spot—a true hypertonia of the vasoconstrictors involved. The cause of the hypertonia of the vasoconstrictors involved in the chronic spots is probably mechanical—an enmeshment of the fibers in glial or hypertrophic connective tissue, and a consequent constant irritation of the neurones by the pressure of this tissue. The cause of the intensification of the spots at times observed, especially in idiopathic epilepsy, is probably a toxin in the blood stream, the product of a faulty metabolism, that further irritates the abnormal sympathetic neurones. Chronic vasoconstriction spots, in cases in which peripheral nerve and cord lesions are excluded, point to an organic brain lesion.

Influence of Diet on Teeth Formation.—May Mellanby (*Lancet*, December 7, 1918) says that much has been done in the study of the causes of early dental caries and the importance of hypoplasia of the teeth has been noted, but not sufficiently recognized or investigated. She then records the results of an extensive series of observations, made upon puppies, which show that dental hypoplasia is largely due to a deficient diet; that the deficient factor in the diet which is responsible for defective calcification is of the nature of an accessory food factor or vitamine; and that this factor has a distribution quite similar to that of the fat-soluble A fraction which is associated with normal growth. Dogs fed on diets lacking this factor, but otherwise adequate, showed marked degrees of dental hypoplasia, including delayed eruption of the permanent teeth, deficient calcification of the teeth, and defective enamel formation. The results were not attributable to acute illness or malnutrition. Control experiments were conducted upon animals of the same litters as those fed the deficient diets.

Trench Fever Cachexia.—R. D. Rudolf (*Lancet*, December 14, 1918) cites McNee as having described a short and a long form of trench fever, the latter being marked by recurrences over periods of weeks, or even months. Another type, trench fever cachexia, is described by the author from a number of observations made in the Canadian hospitals in England. In this form the patients are debilitated, anemic, and suffer from pains, chiefly in the shins. The temperature will often be found to be slightly raised, or when charted for several days will show a tendency to run more above than below the "normal" line. Other cases, however, remain entirely afebrile. Examination in these cases usually reveals an enlarged, hard spleen, slight anemia, and slight leucocytosis with slight relative lymphocytosis. Often the characteristic skin hyperesthesias of trench fever can also be found. The maximum duration of this trench fever cachexia has not yet been determined, but one case has been known to have lasted for over a year. The condition is often diagnosed as tuberculosis, to which it has many resemblances. It is closely analogous to the malarial cachexias.

Toxic Effects of Traumatism.—P. Duval and A. Grigant (*Presse médicale*, November 14, 1918) had previously demonstrated that, under the influence of traumatism, the threshold of nitrogenous excretion of the tissue cells is lowered and part of the toxic nitrogenous residuum of the injured tissues passes into the blood stream. They now report chemical researches showing that, among cases of war traumatism, there occurs, concomitantly with a diminution of the nonprotein nitrogenous substances in the traumatized tissues, an increase of the nonprotein nitrogenous substances and residual nitrogen in the blood, and that this increase bears a definite relationship to the accompanying manifestations of intoxication. The increase of the nonprotein nitrogen of the blood in shock recalls the azotemia of chronic nephritis. An essential difference, however, exists, viz., that whereas the nitrogenous retention in nephritis is a retention of urea, in shock it is a retention of the residual nitrogen.

The Administration of Novarsenobenzol per Rectum.—Leo E. Grajewski (*Urological and Cutaneous Review*, January, 1919) describes the technic as follows: The night before the injection the patient is given a mild laxative, and on the following day takes one light meal, and the bowels are evacuated by a copious tepid irrigation. Then a pill of one centigram of opium is given to keep the bowel quiet so that the solution can be retained. The selected dose of the novarsenobenzol is dissolved in fifty c. c. of freshly distilled water, drawn up into a sterile glass syringe and injected into the rectal ampulla through a large calibre catheter. The dose for adults is .9 gram and for children .6 gram repeated every six days for six injections. If the Wassermann reaction is still positive the course is repeated and combined with mercury. The advantages of the rectal method are suppression of local and constitutional consequences; ease of application in the young; rapidity and simplicity of preparation; rapid absorption, and equivalence of results.

Proceedings of National and Local Societies

NEW YORK ACADEMY OF MEDICINE.

Annual Meeting Held Thursday, January 2, 1919.

The President, Dr. GEORGE D. STEWART, in the Chair.

The meeting was opened by the retiring president, Dr. WALTER B. JAMES, who, before turning the chair over to his successor, Dr. George D. Stewart, made a brief address in which he gave testimony to the loyalty and support of the members of the medical profession to the academy during the four years of his incumbency in office and this had made what might otherwise have been somewhat of a task a constant pleasure. This was a time in which all were perhaps too busy looking into the future to look into the past. Keen interest was felt, of course, in what had occurred during the stirring events of the past few years, but all were intent on what was yet to come, for the science of medicine had a tremendous future ahead of it and the Academy of Medicine, which stood for all that was highest in aspiration and effort, had also a tremendous future before it. Doctor Stewart, who would occupy the position of president of the institution for the next term, was to be envied for his opportunities of being in close touch with the important events that were destined to transpire during this period.

President's Address.—Dr. GEORGE DAVID STEWART, in assuming the duties of his office, promised to make his remarks short, contenting himself with calling attention to the increased responsibilities of the teacher and practitioner of medicine in America today. Over a large part of the civilized world there was chaos because the formula of civilization had failed. This failure was nothing new, but had occurred again and again through the centuries; in England, in the reign of John, when the nobles wrested from their monarch the Great Charter; again in England, in the reign of Charles I, when it was necessary to separate that monarch from his head, and in France, in the great revolution of 1789. In the French Revolution, civilization had broken down despite the fact that Roman law and Roman civilization had been introduced into France prior to the Christian era and had held sway there for several hundred years. The French believed they were struggling against the monarch. The truth is that people and monarch were both victims of a vicious system; there had been a lamentable failure of education and of all the agents of civilization which might or could have taught the people how to ballast their Ship of State, or what course they were in the future to steer. There was invented a new and specious formula, "Liberty, Equality, Fraternity" and the people waded through the bloody time of the Terror to prove that all men were born free and equal, or, rather, to prove that the proposition could not be proven. The same thing happened again. We were witnessing this last colossal failure of civilization, and, as Henry Adams said, "political progress seems to be only by assassination." Once more we were groping for ideals. "Pacifism" and the "League of Nations" was the

new formula now offered. To the pessimist they seemed much like "Balance of Power," and even few of the optimists dared to hope that eternal peace could be achieved. When it came, the true millennium would have arrived, "the lion lie down with the lamb, and the child play on the cockatrice den." Until that event, even if we could not attain perfection, we were all the better for making the attempt, just as the teacher might ennoble his soul by an effort which lulled his hearers into somnolence. The standards of medicine had always been high, medicine had always borne on its banners an inscription to the "brotherhood of man," and it was a duty in this trying time to see that no lowering of these standards was permitted. During the war medical education in the warring countries had suffered tremendously, and on the profession of America had fallen great responsibilities. In keeping up these standards, indeed, in elevating them to higher levels, the New York Academy of Medicine had borne a worthy part, for which altruistic work the officers and committees of the academy deserved hearty thanks, particularly the public health committee, and by his unrelenting vigilance, the retiring president, Dr. Walter B. James, even under war conditions, and by his industry and influence had provided intensely interesting meetings, thus spreading the message of the academy afar.

In concluding, Doctor Stewart thanked the members of the academy for the courtesy of electing him president; he would enter upon his duties with a haunting fear that he might not prove a worthy successor of Doctor James; he would not dare the challenge, did he not feel that he could always turn for aid and counsel to Doctor James and all the other officers and members of the New York Academy of Medicine.

Experiences of a Surgeon in the War Zone.—Colonel GEORGE E. BREWER, Medical Corps, U. S. Army, opened his address by expression his pleasure at being back in New York and meeting so many of his friends. He had been very glad to come to the academy to talk over some of the problems in the theatre of war, and of the progress surgery had made in the treatment of battle casualties. The wounds encountered in this war had been very different from the wounds of civil life, in character, in extent, in deadly virulence of infection which so often accompanied them, and in the shock resulting from high explosives. Of all the factors which contributed to the high death rate in the beginning of the war and to total disability, infection led the list. Therefore, how best to combat infection became the first problem of the military surgeon. That much progress in this direction had been made there was no question.

In the late spring of 1915, toward the close of the first year of war, when the speaker was in charge of a small military hospital attached to the Sixth French Army, during a period of great activity, the wards were full of battle casualties that had been brought in as rapidly as possible but without having as yet received any attention. The hos-

pital was full to overflowing. There were compound fractures, abdominal wounds, wounds of the thorax, brain, cord, every type. During the first visit to these wards, the impression conveyed was of almost universal infection and of the most virulent order. The last impression was that up to that time certainly military surgery had not been able to cope with the type of infection received on the battle field. A large number of those who lived could look only for a life of chronic invalidism or disability in one form or another.

In the spring of 1917 on a second visit to France with the Presbyterian Hospital unit a very different impression was received. They were in touch with British Hospital Number 1, the wards of which were filled with the same type of battle casualties, but they presented an entirely different picture. The great majority of the patients were sitting up in bed smoking and chatting; some wounds were absolutely clean and in process of healing, other patients were suffering from infection, but it was under control, and those brought in showed that the previous treatment they had received was so successful that the wounds could be closed by secondary sutures. In a Belgian hospital where they carried out these methods with excellent technic one could hardly find a drop of pus; all the cases were either entirely free from infection or approaching that point. In another British hospital they were equally successful, by this safeguarding against infection, in treating the worst kind of compound fractures, and these are everywhere considered a serious surgical problem. In this hospital, Colonel Sinclair was particularly successful in treating compound fractures of the thigh. They had 152 cases of compound fractures of the femur in the hospital, all being treated with the Carrel-Dakin method carried out with the most complete technic, and of that large number, with the exception of a few recently admitted, or which had a residual osteomyelitis, practically every one showed a wound free of infection. This was truly marvellous. Some of the soldiers were seen about the place fully dressed and it had been only a little over six weeks since they were wounded. They wore steel braces, but the wounds were closed and the fractures sufficiently united so that with a simple brace they could get up and walk about.

It was fortunate that the American soldiers entered this war after these great results had been accomplished, and our surgeons did not have to go through that long tiresome period of experimentation; and we were not obliged to lose thousands of men. The American surgeons started where those of the Allies left off.

Three things were important. In the first year of the war, the plan to have treatment carried out well in the rear was discovered to be wrong; so instead of having the best hospitals in the rear they moved them up as near as possible with any degree of safety to the front line. The second factor was the discovery and perfection of the Carrel-Dakin method of disinfecting wounds. It was not necessary here to go into details regarding this method for the Academy had already had the privilege of hearing this from Doctor Carrel himself; but that

method, if thoroughly carried out, with the technic practised by those who knew it best, was perhaps the most important advance in antiseptic treatment of the century. The third factor was probably the most important of all, and that was the acceptance of the suggestion of Colonel Gray of the British Army, of Major Duval and other French surgeons, that there was a golden time between the receipt of the injury and the period when the wound could be said to be definitely infected. Anaerobic infection caused the greatest loss of life. It was therefore decided that if in the twelve or fourteen hours following the receipt of the injury, they could remove not only the foreign body, but the damaged tissue as well as all devitalized tissue, that wound could immediately be closed with a fair prospect of primary healing. That principle was carried out in the latter part of 1915 and in 1916 and 1917 and was the method of choice in the British and French armies. In the three methods of the treatment of wounds, therefore, the first was to receive the patient in time to do a complete cutting away of all damaged and infected tissue and, under favorable circumstances, to close the wound immediately; and, where this was not practicable or where one was not sure of having removed every vestige of infection, to leave the wound open, send the man to the ward and watch him. If at any time during the next eight days the temperature was normal, the wound looked well, and was bacteriologically satisfactory, that wound could be closed by delayed primary suture. If the wound was of a character that made it impossible to close it, the same process was carried on as far as possible, but it was treated by the Carrel-Dakin method and then, when bacteria free, was closed. These were the three methods in use today, and they had revolutionized the treatment of battle wounds.

When the American medical men began to go over in great numbers in 1917 they received exceedingly cordial cooperation from both the French and British medical men which was extremely valuable, for they went into the best hospitals where they were taken on as assistants. So in the beginning of January, 1918, when our soldiers began to go in the line and our own hospitals were established, they were staffed by men of broad surgical experience who also had served with the masters of military surgery in the French and British hospitals.

The results were extremely interesting. For instance, Evacuation Hospitals No. 1 and No. 2, separated by thirty or forty miles, were located in a quiet area, and received a comparatively small number of battle casualties a day, from fifteen to forty or thereabouts. If there was a raid or a period of special activity that number increased to 100 or 150. But there was an adequate number of surgeons and abundance of help, so these cases could be treated deliberately and in consequence the results were exceedingly satisfactory. There was much friendly rivalry between these two hospitals. The speaker was in charge of one and Lieutenant Colonel John Gibbon, a Philadelphian, was in charge of the other. In the first eight weeks Hospitals No. 1 and No. 2, each received between five and six hundred battle casualties. These included every type of wound and were mostly of the more severe

grades. In Hospital No. 1, 206 of these wounds were closed immediately on the operating table as soon as they were brought in; of that number ninety-three and one half per cent. healed without a drop of pus or a particle of infection. There were a number of other cases which could be grouped as the second type; when they were clean and sterile they were closed by delayed primary suture, and 100 per cent. healed without any infection at all. The third group comprised those that were known to be infected and in which the Carrel-Dakin method was used. Of those eighty-five per cent. healed without suppuration. Doctor Gibbon's report was almost identical. Results such as these conveyed a very good idea of what could be done under favorable conditions by this newer type of treatment of battle casualties.

On the other hand, many people ask why so many wounded had come home in so many varying states of disability. The reason for this was not far to seek and in no sense reflected on any one; it could be found in the unavoidable delay in reaching the hospital, thus not allowing for the early inauguration of treatment, say under twelve hours, before the bacteria had a chance to grow and invade the damaged tissue. Another point was that it was necessary that the patient remain in hospital under the care of the operating surgeon for at least ten days; if they were evacuated too rapidly, and necessarily being moved about in the process, the very effort was enough in many cases to light up the infection by the few organisms which might be present in the wound. Therefore it was unwise to attempt primary suture in these cases. The third factor was that they must have a surgeon who understood the technic of handling these types of infections. It was impossible for a man to be able to recognize the various types of anaerobic infections, particularly gas gangrene, unless he had seen them a number of times. The principal thing was the necessity of recognizing gas infection at the earliest possible moment. There were a number of signs that led inevitably to the correct conclusion to the experienced eye; for instance, the muscle lacked lustre, the color was brick red not carmine, when cut it did not bleed, and on percussing the limb often it was as resonant as a pneumothorax.

During the period of the active offensive of the spring of 1918 the medical department of the American Army had its first experience of working under terrific pressure. There were eight American divisions in the line at Chateau Thierry and that was an exceedingly bloody battle both offensively and defensively. Our men, in spite of the terrible casualties and tremendous losses kept on going and to this was due the fact that the triangle was cleared out. There had been no advance knowledge of the counter attack of General Foch, so the medical department was not as prepared as it might have been. The evacuation hospitals were at a railhead far back of the front, and there the men had to be taken. The condition of the roads was very bad, for though many roadmakers were continually making repairs the ground was constantly being retorn by shells and the heavy traffic, so it was difficult for the ambulances to get over them and there was de-

lay in getting the patients back to the hospital. The average time between the receipt of the wound and the time when it received surgical attention was about twenty hours. During that period the congestion in the hospital was so great that one could often go through and see every bed occupied, every operating table being used, and occasionally hundreds of soldiers on the ground outside awaiting their turn. When it was found that many cases could not be reached in a reasonable length of time, they were loaded on a hospital train and moved still further back to a base hospital. Working under those conditions, for long periods of time without stopping, under terrible pressure, thinking of the men waiting outside, was not conducive to the best surgical results; but, in spite of all this, good surgery itself was not lacking. It seemed inevitable that there would be a great surgical disaster for, owing to the unavoidable delays in getting the men back where they could receive attention, an enormous amount of sepsis might reasonably have been looked for. Nevertheless, when Colonel Brewer subsequently visited twenty-six large base hospitals after that battle, very much to his surprise he heard not a story of disaster but a story of brilliant success. These hospitals averaged from 1,000 to 2,500 beds; and the statistics of them all regarding gas gangrene were remarkable. Three of the hospitals had none and one had but eight cases; the others varied between these two figures. Out of about thirty cases developing later, only eleven were fatal. In regard to the cases of delayed primary union, they varied from ten to sixty per cent., the average being thirty-five per cent., which were in condition to be closed by the time they reached the base hospital. Of those treated with the Carrel-Dakin method the average was seventy per cent. The cases were received late, many were moved before recovering from the anesthetic, and the only explanation for these splendid results, was the very good surgery at the front.

This rather remarkable account of what had frequently been achieved should not create a misunderstanding, for it was not universal; there were a great many distressing casualties. Conditions of war made it impossible to give all the patients early treatment. Think of the men who fell in the front line and lay there for two, perhaps three days, in shell holes, and partially constructed trenches. When rescued they were of course hopelessly infected and the lives of many of them were only saved by major amputations. Those were the cases which constituted the surgical disasters of this war.

Doctor Brewer felt that he could not let this occasion pass without some reference to the truth of the accusation that the Germans bombarded hospitals, and in connection with this he could only relate his own experience. On August 17, 1917, he happened to be serving at the British front in a casualty clearing station with many surgical teams which had been working under high tension for many days. The British plan was to group together three or four casualty clearing stations, generally hospitals under tents, for convenience. In this particular area there were about fifteen such hospitals. For six weeks the weather had been fine and enemy

airplanes had been over every day, so they knew the location of the hospitals, but no one at the hospital anticipated hostile intentions, because there were plenty of legitimate targets outside. Late on the evening of the 17th, an airplane was heard above, and twelve or fifteen search lights were converged upon it. A few minutes later a buzz of another airplane was heard. All of a sudden there was a violent explosion immediately followed by a shower of debris. A British medical officer and three of the nursing sisters were wounded. In an adjoining hospital there were sixty-six other casualties. The German airplanes had deliberately bombed these hospitals. Another hospital where Doctor Crile and Doctor Cabot were working was bombed and there were seventy casualties. The hospital where Doctor Darrach was working was bombed and there were seventy-five casualties. Of fifteen casualty clearing stations, nine were bombed in five days, with a casualty list of over 300, mostly patients, nurses, enlisted personnel, and some doctors. It was an insult to a man's intelligence to say that this was accident or chance. When later the Harvard Unit was bombed, a certain number of officers were killed, some nurses, and a large number of the personnel.

In the beginning of the last great offensive, the so called "peace offensive," Doctor Brewer was with the Fourth French Army. Two American hospitals had been established in the area. At the advanced hospital they knew when that battle was going to break and were ready for the work that would pour in. It was on the 14th of July, after twelve o'clock at night, that the barrage started, and ten minutes later a large shell came directly over the hospital. In four or five minutes others came and it was decided, as no patients were coming in, to move the patients already there to the dugouts under ground. About two o'clock the wounded began to come in and from then on it was a steady stream, seven teams working in the four operating rooms and everyone was taxed to the utmost. These huge shells continued to burst on the outskirts of the grounds to the west of the hospital. Later one burst to the north of the hospital with a different sound, and the only conclusion to be drawn was that another German gun was getting a range on the hospital. Each shell exploded nearer and nearer, and at four thirty they were coming directly over the operating room and bursting outside the front door. Just before six o'clock there was a crash and the postoperative ward was hit, and two men killed. There was a general exodus to the dugout, and in the next thirty-five minutes there were seven direct hits, but only one other patient was killed from a flying fragment while on a stretcher that was carrying him to safety. After the range had been found the hospital was deliberately bombarded until seven a. m. On that night in which the hospital was bombarded for six and a half hours there was not a single enlisted man, doctor, or nurse who failed to do his or her full duty, nor was there a single instance of loss of self control on the part of any one of the organization. The nurses were magnificent. Twenty-two of them were from the New York Presbyterian Unit, and eight from other hospitals. On four other nights this hospital group

was attacked. On the third night an enemy airplane dropped two bombs; on the fourth and fifth night, a low flying airplane attacked the hospital tents with machine guns.

One could judge for himself if these attacks were all accidental.

SOUTHERN SURGICAL ASSOCIATION.

Thirty-first Annual Session, Held in Baltimore, Maryland, December 17, 18, and 19, 1918.

The President, Dr. ISAAC S. STONE, Washington, D. C., in the Chair.

(Continued from page 219.)

A Gauze Sponge Spontaneously Expelled from the Urinary Bladder.—Dr. G. PAUL LA-ROQUE, of Richmond, Va., stated that five years ago a woman was operated upon in a city near her home in North Carolina and was told that the appendix and left ovary were removed and the uterus suspended. No drainage was employed. She remained perfectly well for five years and was then suddenly seized with agonizing bladder tenesmus, spasmodic incontinence of urine, an enormous quantity of foul smelling pus; x ray was negative for stone; there were no clinical evidences upon examination. Cystostomy was not attempted on account of the violent pain and inability to hold water in the bladder. Her temperature varied from normal to 101°, pulse was normal to 100. Vaginal examination detected a small mass in the right fornix. There were no menstrual symptoms. On two occasions she had retention of urine and the catheter withdrew on the first occasion a quart of foul smelling pus containing urine, and a week later upon attempting to catheterize her again, a piece of gauze was discovered in the ureters. This was pulled out and proved to be a surgical gauze sponge about two inches wide and ten inches long. The symptoms immediately subsided. In a week's time she was well, cystostomy showing a very small, almost completely healed fistula in the right side of the bladder. The mass could no longer be felt in the pelvis. In a week she left the hospital perfectly well and has so remained.

Malignant Papilloma of the Gallbladder.—Dr. T. P. WARING, of Savannah, Ga., reported the case of a woman, forty-two years of age, who had two attacks of puerperal insanity, one of them after an abortion. She had one attack of jaundice after the second attack of puerperal insanity. She had borne four children, three of them without trouble. The family history was negative as to cancer. Present history dated back three years, and started with pain in the right hypochondrium and a feeling of relief on pressure. Three weeks before admission to the hospital she felt a lump in the right side, followed a few days later by pain, which was not severe. There was no fever or jaundice. The only symptom of cholecystitis was a constant feeling of indigestion. A distinct globular mass could be felt in the right hypochondrium, which was a little sensitive to pressure, but otherwise causing no discomfort. At operation a large gallbladder presented, color rather dark and glistening, walls not very

thick. Several masses could be felt in the gallbladder, and two small lumps along the cystic duct forming part of the tumor mass, apparently in the gallbladder itself, but proved to be enlarged lymphatic glands. The pathologist reported papilloma. The subsequent history bore out the malignancy of the papilloma, for although the dissection was clean and not other enlarged glands could be felt, an obstructive jaundice developed in the patient three months later. This was relieved by establishing a hepaticoduodenal anastomosis over a rubber catheter, making use of the sinus wall to attach to the duodenum, covered and protected by the gastrohepatic and greater omentum. This gave absolute relief for four months. The patient declining further operation, she died two months later from the obstruction.

Congenital Diverticula of the Intestines.—Dr. WILLIAM T. BLACK, of Memphis, Tenn., stated that when the vitelline duct failed to disappear at the end of the seventh week of intrauterine life, a diverticulum was left. These diverticula were present in about two per cent. of the people. They varied in size from a pea to the size of a small intestine, at times being several centimeters in length. They were usually found about eighty to 100 cm. above the ileocecal valve. Through an error in development, they might be found in the large gut. It was Meckel who first described and showed it to be of importance to the surgical world. It was frequently the cause of intestinal obstruction and other abdominal symptoms. A fibromucous peritoneal polyp, weighing 4,260 grams, occurring in a female patient, fifty-nine years of age, was discovered while operating October, 4, 1918. This tumor sprang from the peritoneal coat of the tip end of an apparent congenital diverticulum in the lower sigmoid. A preoperative diagnosis was made of a subserous uterine myoma, with cystic degeneration, or an ovarian tumor. The growth probably could be attributed to an embryological condition or fetal rest, or might have followed a diverticulitis, ulceration or perforation of the diverticulum. The presence of a fecal fistula or mucus appearing at the umbilicus suggested the remains of the omphalomesenteric duct. Tumors or cysts, likewise, suggested a similar condition in this region. The continuance of symptoms of acute or chronic appendicitis, after its removal, suggested a diverticulitis. The patient recovered. Bize, Deve, Denuce reported cases of small pancreatic tumors growing from the tip end of a Meckel's diverticulum. Raesfeld described an enterocystoma that developed from a Meckel's diverticulum. Cullen, Cowardine, Rimbach and others reported cystic tumors connected to the remains of the omphalomesenteric structure. Rimbach reported a case of cystic tumor the size of a man's head, adherent to the omentum, springing from a congenital diverticulum. In the author's case, the tumor was not connected with any other intraabdominal structure, except the tip end of a diverticulum. However, a large cyst in the upper portion of the tumor was adherent to the anterior abdominal parietal wall. All diseased diverticula should be removed. Very small or cordlike structures should be excised. Those connected with a

large gut, which contain solid feces, should be removed. Where we had a lumen that was large as the small intestine to which it was connected, and was not diseased, it should be left alone for fear of increasing mortality.

End Results in the Treatment of Undescended or Maldescended Testis.—Dr. WILLIAM B. COLEY, of New York city, read a paper on this subject in which he reported 415 cases and drew the following conclusions:

1. That in most cases of undescended or maldescended testis the etiology points to a congenital origin, often influenced by the element of heredity and frequently associated, particularly in the double variety, with other developmental defects.

2. While the question of the functional value of the undescended testis cannot be definitely answered in an individual case, it is probable that in a considerable number of cases, at least ten per cent., the testis retains the power of spermatogenesis.

3. The testis should rarely be sacrificed, especially in children, for two reasons: a, Because of its possible functional value; b, because of the interstitial cells which are present in all cases and which have an important influence in the development of the male characteristics of the child.

4. The tendency to malignant disease is relatively considerably greater in the undescended than in the normal testis.

5. Operation should be advocated in children who have reached the age of eight or ten years, for the following reasons: a, For the radical cure of the hernia with which the undescended testis is practically always associated and which often cannot be controlled with a truss without causing pain and irritation to the testis; b, by bringing the testis down into the scrotum at this period there is a possibility of causing further and more normal development of the testis.

6. Operation in adults over the age of fourteen, should be even more strongly urged for the following reasons: a, In order to cure the accompanying hernia; b, in order to place the testis in a position in which it is much less liable to trauma thereby lessening the chances of malignant degeneration; c, for the mental and moral effect upon the patient.

Resection of the Cecum and Ascending Colon.—Dr. J. SHELTON HORSLEY, of Richmond, Va., discussed the underlying causes of the abandonment of lateral intestinal anastomosis and the adoption of the end to end method. Cannon and Murphy had shown that in animals with the end to end method there was no stasis of food at the site of operation, whereas in lateral anastomosis peristalsis was abolished where the bowel was united. Doctor Horsley called attention to the triangular space at the mesenteric border of the intestine which was sometimes infected by the operator before it was closed, and to the necessity of cleaning the bowel ends with antiseptics before suturing. He believed that a valve should be made when the small bowel was united to the large. The author described a new operation based on these principles in which the end to end method was used and the ileum was projected into the end of the transverse colon and sutured in a manner similar to that used in his

method of uniting the small bowel. In addition to this, in order to promote valve formation and increase safety, there was placed a row of interrupted mattress stitches of catgut. To relieve gas accumulation he suggested an enterostomy after the Coffey principle. He reported seven cases which were all the operations of resection of the cecum and ascending colon that he had done for ten years. All of these patients recovered from the operation satisfactorily. Two of the operations were for intussusception in infants, two for severe intestinal stasis and three for hypertrophic tuberculosis. In one of the cases of tuberculosis, there was a resection of several feet of diseased ileum after the cecum and ascending colon had been removed, thus making a double resection in this case.

(To be continued.)

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Burns and Their Treatment, Including Dermatitis from High Explosives. J. M. H. MACLEOD, M. A., M. D., F. R. C. P., Physician for Diseases of the Skin, Charing Cross Hospital, Royal Flying Corps Hospital, etc. London: Hodder & Stoughton; New York: Oxford University Press, 1918. Pp. xvi-160. (Price, \$2.)

The treatment of burns has undergone a veritable revolution during the last few years. The old fashioned methods with greasy applications and occlusive dressings have given way to a more rational and open method of treatment, whereby dressings are largely avoided and the terrible ordeal of pain associated with their removal, which did more to weaken the patient with an extensive burn than did the actual pain of the burn itself, is rapidly becoming a thing of the past. The writer presents a thoroughly scientific and at the same time practical treatise on the subject of burns in which is considered burns from heat, electricity, ray, radium, sun, and corrosives, and a particularly valuable chapter on dermatitis produced by high explosives. The book is the best of its kind we have reviewed and represents the final deductions of the various forms of treatment from the experience of an observer of wide experience.

Epidemiologic Studies of Poliomyelitis in New York City and the Northeastern United States During the Year 1916. By C. H. LAVINDER, A. W. FREEMAN, and W. H. FROST. Published by direction of the Surgeon General. *Public Health Bulletin No. 91*, July, 1918. (Treasury Department. United States Public Health Service.) Washington: Government Printing Office, 1918.

The delay in the appearance of this report, which has just come to hand, is satisfactorily explained by the conditions under which it was compiled, but now that it is published it will prove a mine of information on poliomyelitis. The report opens with a history of the disease and then goes on to describe in detail the epidemic, first in New York City, and then in contiguous regions. Included are a few experimental studies on animals which appear to have

been without result so far. Pages 209-214 contain a summary which should be read by every physician if he has not time for the entire report. The last third of the book is taken up by statistical tables and a number of epidemiological maps. The bulletin as a whole is a valuable contribution to the study of poliomyelitis.

II. Congreso de la Asociación Española de Urología. Madrid, 1917.

This is the report of the transactions of the Spanish Urological Congress held in Madrid, October 24 to 28, 1917. The articles may be divided into those on the kidney, on the ureter, on the bladder, on the prostate, on the urethra, and on the testicles. Articles of special interest are one on the Thermic Treatment of Gonorrheal Urethritis, by A. Sanchez de Val, another on Two Cases of Testicular Tuberculosis Cured by Heliotherapy, by Julio Esquivel, and lastly one on Pyelonephritis of Pregnancy, by Carlos Negrete. The report contains twenty-seven articles and the work recorded and the opinions voiced therein are in full accord with the best work being done in other countries.

Births, Marriages, and Deaths.

Died.

BLAISDELL.—In Goffstown, N. H., on Thursday, January 16th, Dr. Frank Blaisdell, aged sixty-seven years.

BLAKE.—In Boston, Mass., on Wednesday, January 29th, Dr. Clarence J. Blake, aged seventy-six years.

BROWN.—In Oakland, Cal., on Tuesday, January 21st, Dr. William Mainland Brown, aged seventy-eight years.

CARTY.—In Ames, N. Y., on Tuesday, January 21st, Dr. James H. Carty, aged forty-one years.

CHASE.—In Boston, Mass., on Monday, January 27th, Dr. Walter Greenough Chase, aged sixty years.

CLAFIN.—In St. Albans, Vt., on Thursday, January 16th, Dr. Alphonso Albert Clafin, aged sixty-three years.

FERRIS.—In Brooklyn, N. Y., on Wednesday, January 29th, Dr. George Newton Ferris, aged sixty-four years.

GLEASON.—In Newburgh, N. Y., on Monday, February 3d, Dr. W. Stanton Gleason, aged fifty-eight years.

GOLDBERG.—In New York, on Saturday, February 1st, Dr. Jacob M. Goldberg, aged forty-five years.

HAYDON.—In Newark, N. J., on Friday, January 24th, Dr. Joseph H. Haydon, aged sixty-eight years.

HAZEL.—In Hoopeston, Ill., on Monday, January 20th, Dr. John B. Hazel, aged sixty-nine years.

HICKS.—In Langres, France, on Friday, January 3d, Dr. John Ravenswood Hicks, Major, Medical Corps, U. S. Army, of Staten Island, N. Y., aged forty-seven years.

HUNTINGTON.—In Portland, Me., on Wednesday, January 22d, Dr. Frederick Wills Huntington, aged sixty-seven years.

REICHARD.—In Hagerstown, Md., on Monday, January 27th, Dr. Valentine Milton Reichard, aged sixty years.

RILEY.—In Baltimore, Md., on Thursday, January 23d, Dr. Charles H. Riley, aged sixty-two years.

SANDERS.—In New York, N. Y., on Wednesday, January 29th, Dr. Edward A. Sanders, aged fifty-two years.

SAWIN.—In Brimfield, Mass., on Sunday, January 19th, Dr. Robert V. Sawin, aged sixty-three years.

SHEPPACH.—In New Haven, Conn., on Thursday, January 30th, Dr. Henry A. Sheppach, Lieutenant, Medical Corps, U. S. Army, of Newark, N. J., aged forty-three years.

SHROM.—In Philadelphia, Pa., on Sunday, January 26th, Dr. Ralph E. Shrom, Lieutenant, Medical Corps, U. S. Naval Reserve Force, aged thirty-seven years.

WERNER.—In New York, N. Y., on Thursday, January 30th, Dr. Frederick H. Werner, aged forty-three years.

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THE ETIOLOGY OF CHOREA.*

Report of Postmortem Findings in an Acute Case.

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AND

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Chorea takes its name from a Greek word, *Χορεία*, meaning dance, which describes the most striking symptom of the disease. Under this name, chorea, are grouped several clinical conditions which differ considerably from each other. The common name, St. Vitus's dance, applied to chorea, has come to us from the middle ages, when, under the influence of religious fervor, there were epidemics characterized by great excitement, gesticulations, and dancing. For the relief of these symptoms, when excessive, pilgrimages were made. In the Rhenish provinces, particularly, these pilgrimages were made to the chapel of St. Vitus in Zabern. Epidemics of this sort occurred during the nineteenth century and descriptions of them among the early settlers of Kentucky have been given by Robertson and Yandell. It was unfortunate, Osler (1) asserts, that Sydenham applied the term, chorea, to an affection in children, totally distinct from this chorea major which is in reality an hysterical manifestation under the influence of religious excitement. Chorea major is pandemic and was the original "St. Vitus's dance."

Before discussing chorea minor, otherwise called acute or Sydenham's chorea, it will be well to dispose of chronic hereditary chorea, otherwise called Huntington's chorea, an affection characterized by irregular movements, disturbance of speech and gradual dementia. Huntington considered its salient points to be its hereditary nature, its association with psychical troubles and its late onset—between the thirtieth and fortieth years. Lyon traced this disease through five generations. The symptoms are sharply differentiated by Osler from those of acute (Sydenham's) chorea. Very few autopsies have been made in this form and these have shown chronic meningoencephalitis with atrophy of the convolutions. Beside the three chief forms of chorea, namely, major or pandemic, chronic or

Huntington's and acute or Sydenham's, Osler (1) classifies in this group habit spasm of childhood and saltatory or jumping spasm, depicted most strikingly in the "jumping men" of Maine and Canada who are liable on any sudden emotion to jump violently and utter a loud cry or sound and will obey any command or imitate any action without regard to its nature.

The form of chorea upon which the case to be reported may throw some light is what Osler terms acute or Sydenham's chorea. This affects children chiefly and is characterized by irregular, involuntary contractions of the muscles, a variable amount of psychical disturbance and a remarkable susceptibility to acute endocarditis. The etiology of this form is its point of greatest interest at present and has been the subject of considerable investigation, inquiry having been directed particularly along the lines of heredity, syphilis, and infection.

That a tendency to the disease runs in some families is not to be disputed, but it is probable that this tendency is due to susceptibility inherited in connection with nervous and constitutional weakness rather than to inherited susceptibility of any specific tissue cells or to any inherited specific causal agent, as in the case of inherited syphilis. Burr (2) concluded, after years of experience in the University of Pennsylvania, that direct heredity played practically no part and indirect heredity only a small part. The psychic factor was remarkably shown in Starr's (3) clinic in New York. A patient had chorea so apparently typical that Doctor Starr was about to show her to the students. For the relief of a headache of which she complained she was taken aside and treated by hypnosis. On awakening not only the headache disappeared, but the entire chorea. After this a large number of choreics were treated psychically in the clinic. It was found that in some the chorea disappeared at once; in others, after a few treatments.

Syphilis probably plays no rôle in the etiology of chorea in children. This was shown fairly conclusively by Morse and Floyd (4). They carefully reviewed the literature on this point and added that there was nothing whatever in eighty-one per cent. of their twenty-six cases to suggest syphilis. In five cases there was a history of miscarriages by their mothers. No one of the patients, however, had been born prematurely. The blood of three of the five gave negative Wassermann tests, the spinal fluids not being examined. The blood

*Read before the Jefferson County Medical Society, January 6, 1919.

of one was positive, but how positive was not reported; the spinal fluid was not examined. The blood of the fifth patient, whose mother had had miscarriages, gave a doubtful Wassermann reaction three times, but its spinal fluid was negative. In all twenty-six children no stigmata of syphilis were found. The evidence against syphilis was strengthened by the fact that the proportion of positive Wassermanns in this series of cases was probably not so high as would be found in the average of the hospital class of children in Boston. In twenty-five of the twenty-six children studied, the tuberculin test was positive in twenty-one or eighty-four per cent. One might better argue on such evidence that tuberculosis was the cause of chorea, which would be absurd.

More and more evidence accumulates to indicate that bacterial infection is the cause of chorea. A causal relationship between rheumatism and chorea has been claimed by many since the time of Bright. Osler says we find two groups of cases in which acute arthritis is present in chorea. In one the arthritis antedates by some months or years the onset of the chorea and does not recur before or during the attack. In the other group the chorea sets in with or follows immediately upon the acute arthritis. Some writers have believed endocarditis to be the cause of the disease, holding that chorea is an embolic process occurring in the course of a rheumatic endocarditis. This theory was first advanced by Kirkes, and Osler is of the opinion that, while it has a solid basis of fact, it is not comprehensive enough, an opinion supported by post-mortem findings. However, endocarditis is by far the most frequent lesion in Sydenham's chorea, the records of seventy-three autopsies collected by Osler showing it in sixty-two cases.

Morse and Floyd studied the literature with particular attention to infection. They discovered that many investigators had found bacteria in the blood of choreic patients, including *Staphylococcus pyogenes albus* and *aureus* and *Streptococcus viridans*. They found practically no data as to bacteriology. Donath found *Staphylococcus aureus* in one case. Passini found the cerebrospinal fluid sterile in five cases, but the fluid was under pressure and he noted relief following lumbar puncture. Timme made a similar observation. Collins reported one case cured by treatment with an autogenous vaccine prepared from a coccus obtained by lumbar puncture. In our case the spinal fluid was negative as to cells, smears, and cultures. In the twenty-six cases studied by Morse and Floyd in the Children's Hospital smears and cultures from the spinal fluid were negative in every case. Blood cultures were negative in twenty-six instances. In five cases organisms were obtained. In one case it was a gram negative diphtheroid, nonpathogenic for rabbits. In this case the tonsils were large, the teeth slightly carious, and the heart normal, and there were no rheumatic symptoms. Diplococci were found in smears of centrifuged blood in one case, but no organisms were cultivated. In this case the tonsils were submerged and there were several carious teeth, one of which had a pocket of pus about its root. The heart was normal and there were no

symptoms of rheumatism. In two other cases short chains of cocci appeared in litmus milk in the initial culture, but attempts to subculture failed. The tonsils were normal in both these cases, but the teeth were carious. The heart was normal in each and neither showed symptoms of rheumatism. In the fifth case the blood culture yielded streptococcus pathogenic for rabbits and giving slight hemolysis on blood-agar plates. The teeth were carious. The patient had acute endocarditis and had had several attacks of rheumatism. Concerning this case Morse and Floyd say:

"The fact that the streptococcus obtained from the fifth patient caused lesions in the endocardium and joints of rabbits makes it very probable that it was the cause of the endocarditis in the child. The fact that it caused lesions in the brain and meninges of rabbits similar to those found in the brain and meninges of fatal cases of chorea suggests that it was also the cause of the chorea in the child. Further than this it is not safe to go. It must also be remembered that there was a local focus of infection in all the cases in which cocci were found in the blood and that the organisms might have been derived from this focus and have had no etiological connection with the chorea. The absence of organisms in the cerebrospinal fluid in all the cases in which it was examined is also an argument against the bacterial origin of chorea, because it would seem reasonable to suppose that in a disease in which lesions are located in the nervous system the causative organism would be more constantly present and more abundant in the cerebrospinal fluid than in the blood. The absence of organisms in the cerebrospinal fluid and in the blood of most of the patients in this series may be explained, however, by the fact that the majority of the cases were mild or only moderately severe in type. It is also possible that the failure to detect organisms more often, either in smears or cultures from the blood, may have been due to the fact that they are only temporarily present in the blood stream and tend to locate themselves in the meninges, endocardium or joints."

If chorea is caused by a microorganism, Morse and Floyd argue, the source of infection is ordinarily in the tonsils or teeth. Their investigations, they concluded, tended to confirm the belief that there is an intimate relation between chorea, rheumatism, and endocarditis. To the infectious theory of the etiology of acute chorea, Osler offers the prominent psychical element as one of the most serious objections, since there can be no doubt that ordinary chorea may rapidly follow a fright or a sudden emotion. The predominance of the disease in females and its onset at a time when the brain is rapidly developing are etiological facts which Sturges has urged in favor of the view that chorea is an expression of functional instability of the nerve cells. May it not be possible that the toxins of certain bacteria increase the susceptibility of central nerve cells to external stimuli, thereby increasing their instability? Certain it is that often, when these accompanying infections are cleared up, the disease seems to be greatly improved or cured.

The symptoms and signs of chorea are fully de-

scribed in any standard textbook of medicine. From eight to ten weeks is the average duration of an attack of moderate severity. The tendency to recurrence has long been noted. Recovery is the rule. The following case under consideration is reported because of its rather acute onset, apparently simultaneously with "rheumatism," its associated endocarditis and its post mortem pathology. An excerpt from the clinical chart sent to the laboratory with the autopsy permission is as follows:

Patient admitted June 24th, died July 10th. Provisional diagnosis: Chorea and mitral regurgitation. History: Mother states child was taken sick about five days before admission with rheumatism and became unable to stand alone. Later lower extremities were involved. Had been more or less nervous all her life. No history of bite of any animal. Says little boy beat her and she had bruises all over her body. Physical examination (Doctor Tuley) June 24th: Loud blowing systolic murmur at apex transmitted to left and posteriorly. Heart slightly enlarged. Apex beat displaced downward and to left. Examination of child while nearly asleep showed irregular muscular contractions, affecting chiefly muscles of thorax and abdomen, legs and feet, with occasional crossing of hands. July 6th: When asleep during the day has been entirely quiet. Since admission there has been great difficulty in giving child any fluids. Any attempt to swallow liquid almost produced convulsions. Foaming of mouth suggestive of rabies. This also occurs when colon irrigation is given. Spinal fluid obtained perfectly clear, but under considerable pressure at first. Bacteriological report, July 8th (Doctor Graves): Smears negative, cultures negative after three days, globulin negative. White count (Doctor Zwick), July 5th: Leucocytes 20,600. Temperature: On admission 99. Rose to 100 (axillary) on July 6th, 101.4 July 4th and continued 100 to 103 (axillary) until death. Pulse: On admission 118. Continued 84 to 102, rising to 148 on July 8th. July 9th, 152. Respirations: On admission 24. Varied between 20 and 28 until July 8th, when they rose to 60. On July 9th, 74.

The necropsy findings pertinent to the study of chorea include the following:

Body is that of a fairly well developed, rather poorly nourished white female child. Over left knee there is moderate swelling on inner surface capped with a small, superficial abrasion. Both knee joints normal.

Heart.—Eighty grams. Along edges of mitral valves throughout most of their extent seems to be a line of very fine, colorless granulations which appear distinct through a reading glass. Other valves are normal. Foramen ovale closed. Muscle appears normal.

Lungs.—Left, eighty grams; right, 150 grams. In lower left lobe posteriorly near diaphragm is a slightly raised, reddish gray area, seven mm. in diameter surrounded by a deep purple zone. On section former extends inward six mm. and is bordered by a purple zone two to four mm. in diameter. Upper two thirds of right upper lobe is firm, purple mottled with reddish gray, has diminished crepitation and, on section, appears dark reddish gray and smooth. In lower lobe are three

scattered spots similar to those in lower left lobe. Over largest pleura appears dull and reddish gray. On section outline is fairly distinct, areas extending inward about two cm. and presenting a bright, reddish gray cut surface. Peribronchial lymph nodes small and black. Bronchi slightly congested.

Spleen.—Twenty grams. Organ smooth, purple, and presents distinct markings on section in a dull red cut surface.

Gastrointestinal.—Scattered in lower ileum are dark red areas involving whole circumference mostly. In cecum are three pedunculated pear shaped, purplish bodies hanging from mucosa and apparently covered with mucous membrane.

Liver.—500 grams. Organ pale and smooth. On section markings are distinct, but cut surface has an ochre tinge. Gallbladder contains green bile.

Kidneys.—100 grams. Cortex seven mm. thick with distinct markings. Capsule strips easily, leaving smooth surface.

Brain.—1,250 grams. Apparently normal, in every respect.

Middle ear.—Some pus in right.

Omitting the descriptions of the microscopic appearance of the sections, the final gross and microscopic diagnoses are: Lobular pneumonia, vegetative endocarditis, acute, toxic splenitis, toxic enteritis and appendicitis, toxic hepatitis and mid-zonal necrosis, toxic nephritis (early tubular), polypoid adenomata of cecum and brain negative.

In connection with the brain the record of the microscopical examination appears:

Brain.—Sections from blocks through cerebral cortex anterior to fissures of Rolando, across pons and of cortex of cerebellum show normal histology. Meninges, nerve cells, neuroglia structure and capillaries show no abnormality.

The bacteriology worked out by Miss Paige showed pneumococcus from the lungs and heart's blood (septicemia five hours postmortem) and *Staphylococcus aureus* with pneumococcus from the right middle ear.

This case offers several interesting features. Apparently a typical acute chorea made its appearance synchronously with acute infection. The spinal fluid was negative for bacteria, syphilitic antibody and globulin, but was under pressure. Associated with the chorea was acute endocarditis and lobular pneumonia with marked toxic lesions in nearly all the parenchymatous organs. The post-mortem Wassermann was negative. Histologically the brain was negative. If the blood and spinal fluid are examined repeatedly bacteriologically and serologically in every case of chorea, evidence will be accumulated of great value in the study of the etiology of this disease. It is possible that acute or Sydenham's chorea is due to the action of bacterial toxins, perhaps a selective action, upon central nerve cells in persons whose inherited nervous instability makes them more readily subject to such toxic action.

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(A Commission to prepare a report by the Surgeon General,
U. S. Army.)

MEDICAL AND SURGICAL HISTORY OF AMERICAN PARTICIPATION IN THE EUROPEAN WAR.

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By a special order, issued from the Adjutant General's Office under date of August 23, 1917, a board was created for collecting and preparing material for the *Medical and Surgical History of American Participation in the European War*. The board, as thus organized, consisted of Lieutenant Colonel Champe C. McCulloch, Jr., Medical Corps, United States Army, librarian, Surgeon General's Library, director; Lieutenant Colonel Fielding H. Garrison, Medical Corps, United States Army; and Lieutenant Colonel John S. Fulton, Medical Corps, United States Army. An advisory council, consisting of Colonel Victor C. Vaughan, Lieutenant Colonel William H. Welch, and Lieutenant Colonel Casey A. Wood, was subsequently appointed to assist the board in passing upon applications for commission or employment, expansion of the board, and other matters arising in connection with the work in hand. In the absence overseas of Colonel McCulloch, Colonel Wood was appointed acting director of the board.

At the suggestion of Colonel Wood, justification for the publication of the contemplated medical and surgical history of our part in the great war was sought in the records of previous wars. Andrew Smith, director general of the British Army Medical Department during the Crimean War, under whose direction the first medicomilitary history was published, bore forceful witness to the importance of such histories. Each successive war has added its own particular emphasis to this justification.

In his preface (1) Smith relates the predicament in which he found himself when he vainly endeavored to learn, from the records of previous wars, something that might guide him in obtaining a knowledge of all that would probably be found necessary for the wants of sick and wounded during a European war. "The untoward position in which I found myself," he said, "led me immediately to require the records of the department to be searched, in a hope that they might, by supplying information in reference to the events which were observed and the wants that arose during the campaign in Spain and Portugal, afford what under existing circumstances was so greatly needed. The search, however," he continued, "proved unproductive, as only two or three valueless documents were found, which merely indicated the number of staff medical officers serving in Spain during a few months of 1812. The only efforts, then, I was able to make to secure satisfactory information having failed, I was constrained to depend entirely on my own judgment. The doubts and indescribable anxieties which resulted from the absence of all details calculated to instruct, under existing circumstances," led Smith early to determine that his

successor should never have to encounter the many difficulties and perplexities which had fallen to his share. Accordingly, he laid before the Minister of War and the Commander in Chief the following proposal:

"First, To have prepared a *Précis* or descriptive index of all letters bearing on matters relating to the army, despatched or received by me between February 11, 1854, the day on which I received the notice, to which I have already referred, and the final evacuation of the Crimea after the restoration of peace; secondly, to secure an analysis of the professional documents and returns which might be forwarded to this office, during or immediately after the war, by the medical officers of the army, and so have, at any time, the means of easily ascertaining all that had operated to the prejudice of health, as well as the diseases and wounds from which the troops had suffered, and the treatment that had proved the most beneficial in each affection; in fact, a Medico-Chirurgical History of the War."

This *Précis* consisted of two volumes folio, of 769 and 707 pages respectively. The medical and surgical history proper consisted of two volumes, of 559 and 480 pages respectively. The first volume of the history deals with the military medical history of individual corps; the second volume, in two parts, includes: 1, the history of diseases; 2, the history of wounds and injuries.

Being constrained to depend entirely on his own judgment, Smith considered himself warranted in believing that the provision he made "would in no respect have been insufficient had not cholera, in a severe form, a circumstance not to be foreseen, assailed the army in July, and continued to prevail with periods of intermission, nearly as long as the troops remained in the Crimea." "The list of medicines," he continues, "medical comforts, and hospital stores will show the enormous provision it was necessary to make, chiefly on account of the great severity of the disease mentioned, and the at one time almost universal occurrence of diarrhea."

It is fair to assume that if Smith could have benefited by the guidance of dependable records of the experience of previous wars, the frightful epidemic of cholera would not have been a "circumstance not to be foreseen," and the occurrence of diarrhea would at least have been less than "almost universal."

The British medical and surgical history of the Crimean War, which appeared in 1858, was followed, in 1865, by the medical and surgical history of the French participation in that struggle (2), in one volume, 732 pages, by J. C. Chenu. A very brief account of the Russian participation in the Crimean War (3), was published in Berlin, in 1871.

Of the three medicomilitary histories cited above only the first, the British, may be said to have served as a real guide to the Medical Department of the United States Army at the beginning of the Civil War. In view of the time consumed in the completion of our own monumental medical and surgical history—approximately twenty-six years for its entire preparation and publication—it is

interesting to note the dispatch with which the British history of the Crimean War was prepared. The volumes bear the date 1858, so that within two years after the end of the war the history was completed and available for reference.

It is further interesting to note, in this connection, the fact that the British Government organized its Sanitary Commission after the deplorable collapse of the medical department in the Crimean War, whereas in the Civil War our sanitary commission was organized within two months after war was initiated by the incident of Fort Sumter (April 12-13, 1861). On May 22, 1861, an official communication was addressed to the Secretary of War by the acting surgeon general of the army, Dr. R. C. Wood, suggesting the advisability of organizing "A Commission of Inquiry and Advice in respect of the Sanitary Interests of the United States Forces." "It must be well known," continues this communication, "to the department of war that several such commissions followed the Crimean and Indian wars. The civilization and humanity of the age, and of the American people, demand that such a commission should precede our second war of independence—more sacred than the first. We wish to prevent the evils that England and France could only investigate and deplore."

The official warrant or order for the organization of the sanitary commission was issued from the War Office on June 9, 1861, and signed by the President four days later. The general object of the commission was, "through suggestions reported from time to time to the medical bureau and the War Department, to bring to bear upon the health, comfort and morale of our troops, the fullest and ripest teachings of sanitary science in its application to military life." The work of the commission throughout the war forms an important part of the history of that struggle. Among other accounts of the work of the commission, the most notable is the volume edited by Austin Flint, published in 1867 (4). The author of the latter section, Professor Joseph Jones, was a Confederate medical officer, and the report is an official account of personal investigations made by authority of the surgeon general of the Confederate Army, which stands today (5) as the most noteworthy contribution to medicomilitary history. It may be said to have had its beginning when, on May 21, 1862 (more than a year after the commencement of the war), Surgeon General William A. Hammond took steps to secure important modifications in the returns from medical officers in order to obtain more detailed and exact reports of the sick and wounded. Announcement was made by the Surgeon General's Office, June 9, 1862, of the intention of preparing a medical and surgical history of the war. Surgeons J. H. Brinton and J. J. Woodward had already been ordered to the Surgeon General's Office for the conduct of this work.

The execution of this task was materially fostered by the establishment in Washington of an Army Medical Museum, for which medical officers in the field were ordered "diligently to collect and to forward to the office of the surgeon general, all specimens of morbid anatomy, surgical and medi-

cal, which may be regarded as valuable; together with projectiles and foreign bodies removed, and such other matters as may prove of interest in the study of military medicine and surgery." The order (Circular No. 2) by which this undertaking was inaugurated was dated May 21, 1862.

Brinton (6) tells of being directed by the surgeon general, on August 1, 1862 (two months after the announcement of the intention to publish a medical and surgical history of the war), to arrange all specimens of morbid anatomy, both medical and surgical, which had accumulated. "Many of our army surgeons," according to Brinton, "entered into the scheme of the museum with great zeal and earnestness, but some few there were, and these mostly the least educated, who failed to see its importance. But in the course of time a belief in the importance and value of the growing museum spread throughout the army, and an active and faithful cooperation was elicited from the medical staff generally. The publication of the first catalogue, in January, 1863, exerted a good effect, and the opening of the museum to the public, and especially to medical visitors, was not without its influence." This catalogue showed a collection of 1,349 objects, of which 988 were surgical, 106 medical, and 133 extracted projectiles. Once established, the museum was rapidly enlarged and extended, so that when constructive work was begun on the proposed medical and surgical history, a mass of valuable material had been accumulated.

The preliminary volume of the history, known as "Circular No. 6," which may be said to correspond to the *Précis* of the British history of the Crimean War, though less extensive, was issued November 1, 1865 (7). The surgical part was presented by George A. Otis, the medical part by J. J. Woodward. The volume comprised 166 pages, with many illustrations and statistical tables.

From the surgical side it is stated, with reference to the material available for the history, that over 40,000 monthly regimental reports of sick and wounded were on file, which furnished the total number of wounds, accidents, and injuries in the army, and the resulting mortality, as ascertained by the regimental medical officers. These reports having served their purpose of informing military commanders, month by month, of the extent of the losses in their commands, became available for estimating the entire losses of the army from diseases and wounds.

In addition to these monthly reports, the formal reports of medical directors of different armies furnished a connected narrative of the service rendered by the medical staff. "These papers," said Otis, in the introduction to Circular No. 6, "will guide the future historiographer of the surgery of the war, and enable him to put in evidence the immensity of the task that devolved on the medical department, and to vindicate its achievements, in showing the extent of the succor given to the wounded in despite of almost incredible obstacles."

There were also on file in the Surgeon General's Office, to serve as supplementary reports, individual narratives of observations in active service from

each member of the regular or volunteer medical staff. These correspond to the "interim publications" which the British, particularly, and other countries engaged in the present conflict, have been collecting, and which we are collecting in the papers submitted to the board of publications of the Surgeon General's Office, and in various individual reports and reports of special commissions appointed to investigate camp epidemics.

The remaining papers which were available for use in compiling the surgical part of the great history were reports based on boards on surgical improvements and appliances, or methods of transport for the wounded; 17,000 descriptive lists of surgical cases; 4,200 reports from the manufacturers of artificial limbs of cases of recovery after amputations; and the surgical essays and dissertations that had been contributed.

From the medical side, the material available, as reported in Circular No. 6, was partly statistical and partly pathological. Under the first category were included the medical statistics of the several armies and general hospitals. The second included a number of memoirs and reports by medical officers on the causes, symptoms, and treatment of the more important camp diseases, of numerous histories of cases and autopsies, of the fine series of medical and microscopical specimens in the Army Medical Museum, and of the results of the pathological studies, conducted under the direction of Woodward, on the basis of these collections. In addition to all these sources of information, there were many descriptions and plans of general hospitals, reports on hospital organization, and other miscellaneous matters.

Woodward called particular attention to the fact, previously mentioned, that at the commencement of the Civil War the only important work which could serve to give correct notions as to the nature of the diseases of armies, and the direction to be given to the activity of those whose duty it was to combat them, was the official medicomilitary history of the British Army in the Crimean War. The value of such an undertaking to those who, subsequently, find themselves face to face with the exigencies of war, and with the task of preventing disease and caring for the sick and wounded, was recognized by Woodward. He stated that while the British history referred to a comparatively small number of troops serving in a climate very different from our own, it had proved of great value in giving direction to our efforts. "What was the direction these efforts took—what were the results attained—why our soldiers died, and how this can be best and most economically prevented in future wars—are questions upon which the experience of the present struggle, as recorded in the official reports and documents, can throw a flood of light." Such a publication, therefore, in Woodward's opinion, "becomes one of the most important duties of the medical department of the Army; a duty the evasion or neglect of which would be a grave crime against the Army of the United States, and against every American citizen who in future wars volunteers in the defense of his country."

Even a casual examination of the six large volumes of approximately 1,000 pages each, which followed the publication of Circular No. 6, will serve to convince one of the sincerity of the purpose which called forth the words quoted above. For this work (5) stands today as the most monumental accomplishment of its kind, no other medicomilitary history equalling it in the scope of the medical and surgical material involved, or in the literary and bibliographic excellence of the finished volumes.

The history was issued in three parts, each part consisting of a medical and a surgical volume. There are, therefore, medical volumes 1, 2, 3, and surgical volumes 1, 2, and 3. Part I (both volumes) was published in 1870, with a second issue of both in 1875. Part II was published in 1876 (surgical volume) and 1879 (medical volume). Part III was issued in 1883 (surgical volume), with a second issue the same year, and in 1888 (medical volume). The first two medical volumes were supervised by Woodward, the third by Colonel Charles Smart. The first two surgical volumes were edited by George A. Otis, the third by Otis and the late Colonel David L. Huntington.

The first medical volume consists of a series of statistical tables, summarizing the sickness and mortality of white and colored troops during the period from July 1, 1861, to June 30, 1866, as given in the monthly reports made to the surgeon general, with regard to sickness, death, and discharges from service on surgeon's certificates of disability. An appendix of 367 pages (edited by Woodward and Otis) contains the historical reports of medical directors and other medical officers on battles and military operations, arranged in chronological sequence, so as to make a more or less connected narrative. This appendix, which has since been drawn upon by secular historians, is important, inasmuch as it indicates the great value of the anticipated reports of division surgeons and other medical officers on the military operations of the American Expeditionary Force on the Western Front during the present war.

The second medical volume treats of the diarrheal and dysenteric diseases, then known as "Alvine Fluxes," which, it was held, "usually cause more sickness and mortality among troops during war than any other groups of diseases." It is noteworthy, in this connection, that this entire volume is devoted to these diseases, occupying 869 pages, and including forty-two photorelief cuts and forty-one plates, some of which are chromolithographic reproductions of original drawings showing various pathological conditions of the gastrointestinal tract. It may be noted in passing that these original drawings, made by Faber (8), together with copies of the reproductions, are bound in a large volume. This remarkably well preserved volume forms a part of the medicomilitary history collection of the library of the Surgeon General's Office.

Woodward's study of the historical aspects of this group of diseases, with his very careful and elaborate bibliographies in the footnotes, has been pronounced the most exhaustive ever made.

The third medical volume, prepared by Smart, was the last volume of the great work to be issued.

It includes the medical statistics of the war, with an analysis of sickness and mortality among the United States forces, medical statistics of the Confederate armies, prevalence and mortality of disease among the United States troops in Confederate prisons, and prevalence and mortality among Confederate troops in United States prisons; camp fevers; various other fevers; and miscellaneous affections—measles, mumps, etc. This volume contains the first account of the now well known trench nephritis, trench jaundice, irritable heart in soldiers (the familiar "D. A. H." of the present war); a most exhaustive consideration of cerebrospinal meningitis; and the first account of the systematic prevention of venereal diseases in war times. The chapter on general hospitals shows the transition from the extemporized hospitals set up in churches, theatres, and barracks, to the hospital of standard pavilion type presented in the base and general hospitals of today.

The first surgical volume begins with a valuable chronological summary of the engagements and battles of the war, giving the Union and Confederate losses in killed, wounded, and missing, with sources of information. The remainder of the volume is devoted to injuries of the head, neck, and cheek, and their treatment. The histories of important cases are attributed to the surgeons reporting them. The illustrations are of extraordinary merit, and the historical summaries and footnote bibliographies of Otis reveal the same scholarly accuracy noted in Woodward's work in the medical volumes.

The second surgical volume deals with injuries of the abdomen, pelvis, back, and upper extremities, maintaining throughout the standard of thoroughness found in the medical volumes.

The third surgical volume includes injuries of the lower extremities and various other surgical operations; ligations for hemorrhage; tetanus; gangrene; traumatic erysipelas; pyemia. Anesthetics and methods of transportation of wounded are also considered. Each surgical volume concludes with an index of reporters and operators, an index of authors cited, and an index of subjects.

The Crimean War gave to the world the first great medicomilitary history, and led to the Geneva Conference and the inauguration of the great Red Cross movement. The Civil War established a precedent in preventive medicine and sanitation, and gave to the world the greatest medicomilitary history to the present moment. The Franco-Prussian War (1870-1871), the next great struggle in the sequence of outstanding wars, is unique in the sequence of outstanding wars, is unique in "opening out a vast and comparatively new field for organized patriotic benevolence." It offered also "the first great occasion for the exercise of international sympathy and assistance." It likewise added to the list the third great medicomilitary history.

Thomas W. Evans, president of the International Sanitary Committee of Paris, gives a history of the American ambulance established in Paris during the siege of 1870-71 (9). This committee was formed, according to Evans, immediately after the declaration of war, "for the purpose

of being a direct agent of American charity in behalf of the victims of the war. It was, moreover, the only foreign association created for the general succor of the wounded that succeeded in preserving throughout the war, on belligerent territory, a complete independence in the direction of its operations and in the immediate distribution of its assistance."

It is interesting thus to note that the only civilized country of importance not represented at the Geneva Conference (because of being engaged in the Civil War at the time) was the first country, in the next great war, to maintain "a complete independence in the direction of its operations,"—in other words, to carry out in its entirety the spirit of international neutrality.

The medical and surgical history of the Prussian participation in the war of 1870-1871 (10) was prepared by the Medical Section of the German Ministry of War, and was published in nine volumes (eight volumes of history and one of bibliography). The publication of this work required seven years (1884-1891), so that the time consumed in its entire production (1871-1891), granting that constructive work was begun on it at once, was approximately twenty years.

The medical and surgical history of subsequent wars was recorded in volumes of limited scope, none even approximating in importance the three great histories,—the British account of the Crimean, our own Civil War history, and the history of the German side of the Franco-Prussian War.

Six years after the Franco-Prussian War came the Russo-Turkish War (1877-78), which called forth several contributions to medicomilitary history. One of these, in the Russian language (11), was compiled by the Army Medical Inspector of the occupying troops, V. I. Lvov, and published in 1879 and 1884. An account, in French (12), by N. Kosloff, was published, in one volume of 260 pages, in St. Petersburg, in 1887.

The British medical history of the South African, Boer, or Transvaal War (1899-1901), is given officially in an Epidemiological Essay, by Lieut.-Colonel R. J. S. Simpson, C. M. G., R. A. M. C. (13). Various individual contributions to the medical and surgical history of this war appeared.

Of the more recent wars, the one which has given to the world the most notable and striking example of the value of preparedness is the Russo-Japanese War of 1904-1905.

The purpose of a medical and surgical history of any war, aside from being merely a matter of record, is to serve as an experiential guide, so to speak, for those who may be preparing for the next war or for subsequent wars. It has been charged that no lessons seem to have been learned from the frightful experiences of the past, and that the history of warfare for centuries has proved that in prolonged campaigns twenty per cent. of the total mortality may be attributed to battle and eighty per cent. to disease.

Longmore's figures (14) have been quoted as authority for the statement that there rarely has been a conflict of any duration in which at least four men have not perished from disease to every

one from bullets. In the Civil War three quarters of the fatalities resulted from disease. In the French Campaign in Madagascar, in 1894, of the fourteen thousand men sent to the front, twenty-nine were killed in action and seven thousand perished from preventable diseases. In the Spanish-American War, the story of which was related in such interesting fashion by the late Nicholas Senn (15) the proportion of fourteen dead of disease to one lost in battle was the startling record.

The exception to this apparently universal rule is found in the Russo-Japanese War on the part of Japan. In that conflict the Japanese lost four from bullets to one from disease. Only one and two-tenths per cent. of the entire army died from disease. Only one and one half per cent. died from gunshot wounds, although twenty per cent. were wounded. Seaman (16) gives a total mortality, from all causes, of 64,938. Of these there were 40,954 more from casualties than from disease. How was this unparalleled record obtained? Seaman's answer to this question is doubtless the correct one: The Japanese studied the statistics of other wars, as they did every other phase of warfare, with the minutest care and detail, and so, when war came upon them, they were promptly able to apply the principles of preventive medicine and sanitation, as suggested by the experience of other countries, in a manner never before employed. This amazing chapter in the medicomilitary history of the world's wars makes interesting and instructive reading, and will stand for all time as the pioneer accomplishment in the "conquest of the silent foe."

The official Japanese history (17) of this war was published by the Bureau of Medical Affairs, Navy Department, Tokyo, 1911. This volume, of 789 pages, followed the Japanese edition, and was printed in English. It deals with Sanitary Institutions and Principal Organs of Medical Administration (Book I); Sanitary Conditions During the War (Book II); and Battles and Injuries (Book III). An account, in German (18) was issued in Tokyo in 1907. This contains 162 pages of reading matter, with numerous illustrations and charts. The British (19) account of this war is given in one volume of 571 pages issued from the General Staff, War Office, April, 1908. An illustrated account in French (20) is given by J. J. Matignon. Quite naturally, this conflict called forth a large number of individual volumes and articles dealing with the various phases of the medical and sanitary history.

The World War now ending has furnished, on all sides, an enormous volume of material from which to draw for the medicomilitary histories of the various belligerent countries, and in due time, no doubt, formal histories will appear. Plans for our own history are progressing rapidly. A statement, soon to be issued by direction of Surgeon General Ireland, outlining the general scope and plan of the volumes, with the names of the officers detailed to formulate the different parts, justifies the belief that the high standard of thoroughness, fidelity to fact, and general literary excellence established by our Civil War historiographers will be maintained throughout in the present undertaking.

The forthcoming history, however, will differ materially from the Civil War History in certain important respects. The plan of organization, soon to be printed, has proceeded so rapidly, under the direction of the surgeon general, that it is now fairly certain that the various volumes which will constitute the record of American medical and sanitary work in the great war will appear within the next three years. The history, thus completed, will serve not only as a repository of records, which will give the profession at large a source of information concerning the latest accomplishments of medical and sanitary science, but it should also be the authoritative sourcebook upon which our Army medical department must draw for guidance and information relative to any future war in which our country may be engaged.

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BACTERIOLOGICAL EXAMINATION OF THE SPUTUM IN INFLUENZA.

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As it is desirable that bacteriological examinations in cases of influenza from many different localities should be on record, the following results of cultures from sputum are reported from the Buffalo City Hospital. The work was done while the epidemic was at its height and when nurses and attendants were so overworked that it was wholly impossible to have the sputum collected in sterile cups. However, that fact probably does not constitute a serious source of error, as the examinations were made as quickly as possible. Mucopurulent masses were selected and washed in sterile salt solution, streaked on blood agar plates, and smeared on slides. The smears were stained by Gram's method, followed by dilute fuchsin. The cultures were examined after twenty-four hours and again after forty-eight hours of incubation. Colonies of small gram negative bacilli were streaked again on blood agar and on plain agar; when necessary a transfer was made from the first to a second plain agar tube. Minute gram negative bacilli, short or oval, very rarely threadlike, that grew on blood agar, but not on plain agar, or that grew slightly on the first but not on the second plain agar tube, were considered to be Pfeiffer's bacilli of influenza.

Oval gram positive diplococci, sometimes in short chains, that showed capsules in the sputum smears, whose growths usually produced a slight greenish tinge in the adjacent blood agar, were provisionally counted as pneumococci. Blood agar seemed not a very favorable medium for pneumococcus. As serological tests were not performed, and their behavior in inulin media and their solubility in bile were not tested, it is realized that the identification of the organisms regarded as pneumococci is only probable. The same is true of those counted as streptococci, which were classified chiefly by their morphology. Small gram negative diplococci proved to be very common organisms and these were usually more prominent relatively in the cultures than in the corresponding smears of sputum. Frequently the cocci were excessively minute and were with difficulty distinguished from Pfeiffer bacilli. It is possible that the rapid growth of such cocci obscured the growth of the Pfeiffer bacilli. Where the two organisms plainly occurred together it was not found possible to separate the Pfeiffer bacillus in pure culture; in fact this bacillus was not secured in pure culture in a single case. The only instance in which we have isolated the Pfeiffer bacillus during this epidemic was at an autopsy on a case of lobar pneumonia where the Pfeiffer bacillus occurred in association with pneumococcus.

The chief aim of these examinations was to determine the frequency of Pfeiffer's influenza bacillus in the sputum during the late epidemic. It was quickly seen that the sputum did not contain Pfeiffer's bacillus in overwhelming numbers. Phagocytosis of any organism was rather uncommon in our observations. The bacteriology of the sputum

was apparently very different from that described for influenza by Pfeiffer and his followers. (See Beck in Kolle and Wassermann III.) In our experience the sputum always contained two organisms in considerable numbers, and frequently three or more; for which the presence of spirilla and of epithelial cells from the mouth or pharynx offered a ready explanation. Taking into consideration the results of the study of the original sputum smears and the blood agar and subsequent cultures, an attempt was made to tabulate the predominating organisms in fifty-three cases in which the conditions attending the examination were considered satisfactory; a few examinations of throat swabs are included. I am indebted to Dr. Charles A. Bentz for valuable assistance.

Approximate occurrence of predominating bacteria in the sputum in fifty-three cases of clinical influenza:

Pneumococci (probable)	in 33 cases.
Streptococci (probable)	in 17 cases.
Staphylococci and terads.....	in 24 cases.
Gram negative cocci.....	in 42 cases.
Pfeiffer bacilli	in 16 cases.
Other bacilli	in 30 cases.
Hemolysis present	in 23 cases.

24 HIGH STREET.

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VENEREAL DISEASES IN THE ARMY,

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As far as infection after entry into the army is concerned, the venereal problem has been pretty well solved. The educational campaign which has been carried on for many years and the use of prophylactic have made new venereal infections very rare in the army. The venereal problem in civil life is a very serious one and will require much educational work and the active cooperation of many agencies before it will be solved. The solution is made much more difficult because the general public does not fully realize the great importance of the subject and the far reaching effects of venereal infection. It is to be regretted that the army has not data to show the exact location from which the venereal cases drafted into the service came. It was my intention to collect such data from the November draft. However, the signing of the armistice prevented the draft from coming. I therefore made a study of the venereal cases in the development battalions at Camp A. A. Humphreys. The data for the colored battalion have been published in another place. The data here presented are for the cases in the white development battalion and comprises 273 cases. They were distributed as follows: Gonorrhea 208, or 76.4 per cent.; syphilis sixty-seven, or 24.5 per cent.; chancroid one, or 0.4 per cent. There were three men with a double infection. The distribution of the cases is about the same as in the colored development battalion.

In 182 instances the infection under consideration

was the primary infection, while in ninety-one instances there had been a previous infection. Of the gonorrhea cases in eighty-three there had been previous gonorrheal infection, and in one instance a previous chancroidal infection. Of the syphilitic patients seven had previously had gonorrhea. From this we see that 216 of the 273 patients had suffered from gonorrhea. Previous study of the relation of venereal infection to the draft seemed to show that about ten per cent. of the cases were infected shortly before their arrival in camp. In other words there was a letting down of the moral tone during the excitement incident to leaving home for the war. In the following table is shown the relation of the infection in the cases under consideration to their arrival at camp:

	PERCENT.	
Six months to more than one year prior to arrival in camp.....	129	47.3
From one to six months prior to receiving notice to appear at camp..	53	19.4
Less than one month prior to entering the army.....	38	13.9
After arrival at camp.....	53	19.4

From this we see that a majority of these cases were chronic at the time they arrived at camp; 19.4 per cent. of these cases were infected after joining the army. This last is higher than at some other camps. The following table shows the number of years prior to November, 1918, that the infection was received:

Years prior to Nov., 1918	NUMBER
Less than one year.....	94
1.....	34
2.....	34
3.....	26
4.....	13
5.....	11
6.....	13
7.....	11
8.....	9
9.....	10
10.....	6
11.....	2
12.....	3
13.....	0
14.....	3
15.....	3
Unknown.....	1
Total.....	273

From this it will be seen that forty-one per cent. of these men had been infected for more than three years during which time they have been a danger to the public. It speaks very strongly for better clinical facilities for treating these cases. While in the development battalions these men received intensive treatment, the result being that at the time of this writing, January 1, 1918, most of them have been cured. A well managed dispensary would accomplish similar results in civil life. The source of infection is of the greatest importance both from the standpoint of the physician and from the point of view of the public official. This matter was very carefully studied in all of these cases with the following result: Infected by prostitutes, 258, or ninety-five per cent.; "friends," eleven, or four per cent., and unknown, four, or one per cent. All recent writers have emphasized the danger of the prostitute, and the studies which I have made of cases coming under my care in the army lead me to

believe that the danger has not been exaggerated. Surely the study here presented shows that the prostitute is a very dangerous individual.

The experience of the army with venereal diseases during the present war shows that there is a serious venereal problem before our people and that its solution will not be arrived at by any one method of attack, but by a combination of various agencies of which the most important are education, reporting of cases, free treatment of those infected, and the full, hearty cooperation of the public. The time is passed when the parent in his or her happy home can ignore this problem while the least favored parts of the community are exposed to the temptations of the prostitute. Nor are we secure in our homes, for the wayward boy bent on sowing his "wild oats" may become infected and after an apparent cure may marry the daughter of our home only to infect her with gonorrhea or syphilis and so ruin her life.

THE TREATMENT OF THE ANEMIA IN CHRONIC AILMENTS.

BY ALBERT C. GEYSER, M. D.,
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We speak of diseases as being in an acute, subacute, or chronic stage. It seems to me that if we would consider the patient's condition as being acute, subacute, or chronic, our therapy would be materially influenced. In the same ratio as our therapy would change, so would the prognosis for the patient. I shall confine myself strictly to the title of the paper and deal only with the chronic condition, the anemia of the same, and the treatment. In order for a patient to be in a chronic condition from some disease process, it may be assumed that at some time previous he must have been in the acute stage, later in the subacute and now in the chronic condition. It seems wrong to think, at least for therapeutic and prognostic reasons, that the disease has changed; it is far better to think that the patient's anatomy and physiology have undergone a change in consequence of the long continued disease process.

Under ordinary circumstances it is perfectly natural for a patient to do one of two things, after a disease process has invaded his system. Either he recovers, or else he succumbs to the disease. During the process of recovery his system has reacted to the best of its ability to the invading infection, toxine, trauma, or psychic shock. This attempt at repair may have been adequate, inadequate, or excessive. If the response on the part of the economy was adequate, then a complete recovery from the acute attack followed and the cure was perfect, there was no subacute or chronic condition. If the systemic response was inadequate, then the economy became used to the disease process, habit was established, and the entire system and the invading forces were in a state of siege, neither making much headway and the patient is in a subacute condition. From this as from the preceding, it is still possible to turn the tide in favor of the patient. There is something lacking in the patient's make up, he is

not able to overcome his antagonist. As a result of this inability on his part, nature causes certain changes in his system, such as hypertrophy, atrophy, adiposity, wasting, fibrosis, ankylosis, sclerosis, suppuration, gangrene, and other pathological alterations. From a reparative point of view this may seem all wrong, because it frequently happens that the patient suffers more from the excessive attempt at repair than from the original acute invasion.

Let me illustrate just what I mean: In a child perfectly well there suddenly develops a high fever, in three or four days the extremities are paralyzed, but the fever may have subsided. The germ, toxin or virus, has attacked the gray matter of the cord. Inflammation, leucocytosis, and diapedesis result in the affected area as a reparative process. If inadequate or excessive, fibrosis or scar formation with the destruction of the trophic cells occurs. Strange as it may seem, it was the best the system could do. The acute process has passed, but the patient suffers from the inadequate or excessive attempt at repair; he is paralyzed.

Another patient suffers from a toxemia with localized pain, inflammation, swelling, and loss of function in one or more joints. Whatever additional changes we may find, we call it arthritis (septic, gonorrheal, rheumatoid, etc.). If the attempt at repair was adequate, in due course of time, the patient recovers completely without a trace of the acute condition. If the attempt at recovery was inadequate or excessive we have fibrosis and ankylosis with more or less impairment of function. Neither is such a fibrosis limited to the particular joints or areas originally involved, it may affect distant tissue and organs as the heart, kidneys, and blood vessels. When the blood once begins to manufacture fibrous material it may eventually distribute it almost anywhere. The mere labeling of this present condition as arteriosclerosis, valvular disease of the heart, parenchymatous degeneration of the kidney, arthritis deformans, etc., helps the patient but little. Nevertheless all of these conditions are the result in many instances of either an inadequate or an excessive attempt at repair of some acute condition.

What ever reparative process is inaugurated the material necessary for such repair must be furnished by the blood stream. Unless the red blood corpuscles carry a sufficient amount of oxygen, fever as a reparative process cannot occur. If the white blood corpuscles are not formed as fast as they are destroyed leucocytosis and diapedesis will not occur. When the function of the plasma ceases the debris is not removed and the system suffers accordingly and we have the chronic stage, anemia. One of the first manifestations that occurs in any acute disease process is a low red blood corpuscles count and a correspondingly low hemoglobin index, in other words anemia. It is this anemia, when continued too long, which prevents not only the recovery from the acute condition, but frequently lays the foundation for the chronic condition to follow.

There are many ways of combating the acute anemia, there is just one successful way of treating the chronic anemia and that is by the exhibition of

perhaps one of the oldest and at the same time most abused of blood remedies, namely iron. Arsenic and iron have, for a long time, vied with each other for supremacy in this respect. The main drawback to the use of either was the uncertainty of their action when administered by mouth and their localized effect upon the digestive organs.

Since the intravenous iron and arsenic compound has been placed in the hands of the physician, these two drugs have come into their own. When these drugs are given by mouth in the form of Bland's mass, months, even years are required before any real therapeutic benefit manifests itself. Even the intramuscular treatment required weeks and months owing to the smallness of the dose. In fact the intramuscular method never deserved to become popular on account of the pain and frequent abscess formation, which was not always due to carelessness on the part of the administrator. The drugs were a foreign body and as such were obliged to remain too long in a small circumscribed area.

Since the introduction of the intravenous method all this has been changed. The solutions are free from all irritating qualities, they are injected directly into the vein and so are spread over the entire body surface in a few seconds, they perform their therapeutic function at once and in the right place. With the iron and arsenic intravenous solution the dose of iron contained in each five c. c. of the solution is one grain of iron cacodylate. This one grain actually enters the circulating blood stream. In most cases the peculiar odor of garlic is obtained in the breath of the patient less than one minute after the injection. The therapeutic effects on the blood count and the hemoglobin index are demonstrated after the second or third injection. The constitutional symptoms respond to other treatment in exact ratio as the blood picture is improved.

Now and then it happens that the blood count does not improve after the four injections. In such cases there is usually a lymphatic involvement. This sign is almost pathognomonic. Twenty c. c. containing thirty-one grains of sodium iodide are then injected until six to eight doses have been given, then followed by four weekly doses of iron and arsenic. This has never failed in my experience to produce the proper blood picture. There is another pathognomonic sign that has almost become established. In cases of chronic asthma, if the intravenous injection of four doses of sodium iodide fails to give noticeable relief, we may be reasonably sure that we are not dealing with a true case of bronchial asthma, but some reflex condition.

The certainty and the rapidity with which the intravenous method frequently shows results is well illustrated by the following cases:

Mrs. G. Influenza, followed by pneumonia, four weeks later still anemic. Solution of iron and arsenic five c. c. every fifth day. On October 20th the red blood count was 4,000,000 with a hemoglobin index of 55, on November 28th it had increased to 4,850,000 and an index of 90. Mr. S. Referred by Doctor Satenstein in 1916. Arteritis obliterans, both lower extremities. Toe scraped at People's Hospital, followed by recurrent gangrene, same toe amputated at Beth Israel Hospital, then treated

with diathermia, four months later able to dance again (professional). Returned in 1918 toes blue with dark spots, marked anemia. Five doses of iron and arsenic. September 19th the red blood count was 4,500,000; the hemoglobin index 55. It increased by October 25th to 5,800,000 and 85. Mr. O. Influenza, August, 1918, followed by pneumonia, slow recovery, anemia. Six doses of iron and arsenic. The red blood count on September 22d was 3,700,000, the hemoglobin index 58. It went up to 5,400,000 and 88 by November 10th. Mr. A. In August, at Atlantic City. Ptomaine poisoning, a former urethritis reappeared, treated with serum until November when he came under my observation, marked anemia and loss of thirty-eight pounds, joints swollen and painful, urethral discharge still present, Neisser intracellular, iron and arsenic alternated with sodium iodide intravenous. October 23d the red blood count was 3,200,000 and hemoglobin index 55; on December 24th, 5,650,000 and 92. Mrs. A. General anemia for some time, lost much weight, menstruation deferred. Could find no special reason for anemia. Five c. c. iron and arsenic every fifth day, six doses. The red blood count was 3,500,000 on October 15th; the hemoglobin index 60. It went up to 4,500,000 and 95 by November 28th. Miss F. Marked anemia following treatment for extreme obesity. Five c. c. iron and arsenic, weekly for seven weeks. The increase was from 4,000,000 to 5,000,000 for the red blood count and the index increased from 65 to 95 from August 1st to September 10th. Mrs. McK. Anemia following influenza and pneumonia. Blaud's mass, iron tonics failed. Five c. c. iron and arsenic, six doses. July 1st the red blood count was 4,000,000 and on August 26th, 4,800,000. Mrs. W., secondary anemia due to loss of blood from uterine fibroid. August 1st the red blood count was 3,000,000 and the hemoglobin index 45, on September 10th it had increased to 4,300,000 and 90.

Technic.—The nurse cleanses the selected area with alcohol, then applies the blood pressure apparatus and records the mean reading. As soon as the selected vein, usually the median basilic, stands out well, it is grasped between the thumb and fore finger of the left hand and pressed outward toward the skin surface. A twenty-three to a twenty-five gauge hypodermic needle is attached to an all glass syringe, the fluid drawn into the barrel and the needle inserted in a direction parallel to the vein. If the vein has been properly entered, dark blood will show in the syringe. The nurse releases the pressure and the fluid is slowly injected into the vein. Care must be taken that the fluid does not enter the muscular or cellular tissue. As soon as a localized swelling occurs, the injection must be stopped and the needle properly inserted. If the technic has been correct, there is neither pain, swelling, nor reaction. The anemia in subacute or chronic cases is very promptly overcome. Even in late stages of tuberculosis or cancer the blood picture is favorably influenced without, of course, any appreciable effect on the disease process. When the blood of a patient can be made practically normal, other measures, if they are based upon the laws of physiology will cause such patients to respond most rapidly.

TONIC SPASM: ITS SIGNIFICANCE AS A CLINICAL PHENOMENON.

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As personal experience grows in certain aspects of subacute and chronic disorders, the significance of tonic muscle spasm becomes more practically helpful. Remarks are offered on the diagnostic directions and indicia which spasmodic states often supply as guides in treatment. Irritations long continued produce so wide a field of symptomatogenesis we often omit to select from them those capable of suggesting courses of clinical procedure and of affording promises of both solution and remediation. Any clinician will be impressed by the observations of Major Joel E. Goldthwaite in a paper entitled: *The Challenge of the Chronic Patient*, to the effect that even the best of diagnosticians cannot always—or do not always—determine on courses of action which meet the problems involved most economically. While we may reach accurate conclusions as to the causes and the significance of familiar morbid phenomena in certain chronicities, yet so many difficulties exist to be overcome we may readily omit to consider various contributory features which should receive practical attention.

Let me cite in illustration the significance of tonic spasm, describe certain phenomena, and offer from experience points which have served me to gain, step by step, command of clinical situations which had puzzled me and better physicians until these had received their due meed of attention and progressive correction. It has been my lifelong custom to examine the backs of all patients in whom disorders had passed the acute stage, or where the phenomena pointed to the possibilities of there existing secondary sources of irritation of the spinal subcentres. From this exploratory experience there are now emerging improvements in technic which often enable me to supply varieties of relief which seem obtainable in no other way.

By reason of increasing tactile apperception I am better enabled to determine—among other phenomena—certain alterations in tonus of the muscles, showing spasm, rigidity, tenderness, contractures, and hence slight deformations which seem to bear particularized relationships to, 1, disturbance of spinal reflexes; 2, the nutritional or metabolic status of the cell bodies in the cord at corresponding levels also; 3, to oversensitiveness or impaired responsiveness in the subsidiary sympathetic spinal subcentres; 4, to the nature and extent of local areas of irritation (peripheral, e. g., of some organ or delicately organized group of structures); 5, to graphic motor phenomena (spasm, tenderness, and alteration in shape and consistency) shown in muscles and muscle masses in the line of innervation, and 6, to such possibilities for relief as reside in mechanical, manipulative or other simple biokinetic means of influencing the effects of long continued irritation, hence of exhaustion in subcentres. By the same line of reasoning and proceeding from the symptoms backward, a diversified multitude of sudden distresses and disorders are thus revealed capable of

being interpreted as due to spasmodic states as the chief, if not the essential, causation. Among these are painful states such as the group of "colics," intestinal, uterine, cholecystitic, nephritic, cystitic (bladder), pyloric, and a host of others; likewise disturbances of function nonsensory, such as suppression of urine, of defecation, of respiration, e. g., hiccough, cough, dyspnea, asthma, and the like; also vertiginous states, disorders of special sense of eye or ear or throat and various forms of backaches.

For general diagnostic exploration it is well to proceed as follows: The patient should lie face down, arms horizontal to the shoulders, forearms parallel to the body, the hands a little above the level of the head, the feet separated twelve to eighteen inches in order to secure a position of advantage to induce relaxation of all the back or static or paravertebral muscles. The examiner gently palpates the back with the open hand; if any group of muscles seems rigid he makes a few gentle alternating pushes, e. g., push one shoulder from and pull the opposite hip toward him; then he reverses this action, alternately, three or four times. This action diverts attention and encourages the body to become tranquil, to reach an equipoise. Next he explores the paravertebral structures with the finger tips, the inner sensitive surfaces (tactile corpuscles), imitating the methods of the blind. This nicety of contact awareness is a valuable accomplishment for any physician and deserves more practice than it is usually given. Much experience in teaching students of medicine, both graduate and undergraduate, impresses me with its rarity. Incidentally it is rare to find a nicety of touch whereby alone can tactile awareness be achieved.

There may be required some time and effort to induce complete relaxation, to accustom the structures to the touches, to overcome the tendency to instinctively resist, hence to stiffen. It is well to divert attention by resting the hands on the back while making some indifferent remarks, and while talking to cautiously continue the finger gropings or reachings down into the upper structures.

Familiarity with norms is of course the first essential in determining contrasts. Soon there will be revealed anomalies in resistance which are localized spasms or contractures in muscles and bundles which bear direct relationships to irritated centres, and these again to sources of irritation on the periphery. There will also be found under certain conditions tendernesses on firm pressure. Hence there is both morphologic and sensory response furnishing indications of the nature and location of the disorder. The source of irritation can be thus confidently inferred to lie in a particular area and to be most pronounced on one or other side as indicated, whether it was heretofore known or suspected or on the other hand not known. Where the innervation is distributed to a mass of structures as the intestines or the liver or heart, or great vessels, it may not be readily determined precisely where the trouble lies, but only whether the innervation is positively to one or the other side. It will usually be fairly definite, however.

This much of definiteness is obtainable: Whereas there may have been, heretofore, no reason for sus-

picion of such a disorder or lesion, which is oftentimes a complex of spasm, tenderness, or rigidity and altered sensitiveness, and shown to lie on one or other side. The inference is thus plain that fuller explorations are indicated in the suspected area. Now, it is especially interesting to know that judicious gentle manipulation, especially pressures and relaxations on or over or near to the area of spasm and tenderness, brings about a marked mitigation of both, and at the same time relief is afforded (reflexly) to the overwrought centre and efferently to the lesion or disordered area. The action is a blend of interactions, one involving spinal centres and sympathetic centres—and explainable through the autonomic nervous system. It was these facts, empirically observed and reasoned on, which seized the attention of the brothers Griffin in the early forties of the last century. These facts were laid by me before Professor J. George Adami some years ago and we had a short but interesting correspondence about them. The diagnostic spasm and tenderness is most pronounced in the paravertebral structures close to the back bone. There they are very definite and circumscribed. The significance of the spasm in the adjacent and larger muscle masses and the release of tension as described along with the relief to sensory and other symptoms are later observations which help to simplify and corroborate the facts learned long ago and which were known to and recorded by the brothers Griffin as mentioned.

Another point of clinical interest in this connection is the significance of *Flatulence and Shock*, which is the title of a little book by F. G. Crookshank, Paul B. Hoeber, 1913. Flatulency is an humble and familiar phenomenon which is rarely considered as of importance. Yet it will be found to deserve much attention and differentiation as to cause, origins, structures involved, and the like. For example, I met recently a robust boy of fifteen years on whom at the age of eight months I wrought a cure so graphic as to be pronounced miraculous. And indeed it was a profound surprise to me, although I hoped to produce a predicated result.

In brief the conditions were these: This baby had screamed with pain almost incessantly for weeks. It was breastfed by a robust mother, and no other evidence of disturbed digestion was apparent. A professor of pediatrics had arranged for an abdominal operation. Before submitting the infant to him the case was brought to me. I inferred a spasm of the pylorus and by pressure on the third to sixth dorsal region he promptly recovered. I saw several other cases later, almost precisely analogous. In innumerable instances I have relieved infantile colic by the same means. So in adult colic, not only gastric (pylorospasm), intestinal, colonic, but uterine, nephritic, and cholecystitic. I have been so fortunate as to relieve agonizing pains which unchecked must have seriously shocked the organism as a whole. Of course other means of relief are available, but most of these are either partial or tardy or objectionable (as hypodermics or morphia, etc.). If space permitted I could fill much by vivid descriptions of similar sudden relievements by these simple, rational, and eminently scientific procedures,

which I have taught to many who appreciate and use them.

It has been my privilege to bring to a sudden end some distressing and alarming disorders of pelvic organs by introducing my finger into the rectum and exerting pressure on the pudic nerve as it passes over the inner rim of the pelvis; also by pressure on the ganglion impar. As Furneaux Jordan says, "Many of the immediate consequences of shock are really efforts of the organism to combat trauma (to adjust the neuromuscular mechanism, etc.)" The effects competent to produce shock seem to be expended upon profound and sudden perturbations of the ductless glands. Cannon says the adrenal system being the major part of the circulatory mechanism may become so completely exhausted by vain efforts that it becomes suddenly bankrupt, hence death ensues. The common phenomena of shock include psychogenic perturbations. These may pass off; the individual seems to have recovered poise. Later physical disturbances are manifested especially by spasms of the visceral functions and prominent among these are flatulence, eructations, dyspnea along with varieties of vasomotor imbalances.

The autonomic nervous system is often thus thoroughly disorganized, probably from inhibitions from above; the connection at the synapses being broken and unless contact is reestablished death may ensue or protracted, diversified, puzzling psychophysical anomalies. Of deep significance here is the psychogenic element. Inhibition is overapplied; the brakes are put on too suddenly; the power is not shut off, and explosions result, often most salutorily. The phenomena presenting may be cardiac, vasomotor, respiratory, gastric, nephritic, uterine, intestinal or other. An important secretion may be suppressed, doing vast damage until released, as of urination. A burst of tears may afford the needed vent of energies, and the secretion becomes reestablished. If self control is too fiercely exerted there may be retroaction, "backfire," psychopathy, stupor, an abeyance of reparative automatisms, even death. The phenomena of irradiation (Seelig) may occur whereby the effects of intense nervous impacts spread to units of the autonomic nervous system, to segments other than the proper ones.

Crookshank likens the autonomic nervous system graphically to an intercommunicating telephone system, one may be used and another omitted. Skin areas call up visceral areas or vice versa; or a general alarm occurs, stations all being rung up simultaneously. If the operator be a fool all these alarms or wires may be set in motion to their own harm. In shock something of this sort seems to occur; too much power in one and too little in another; hence ensues disharmony, destructive disarrangements. Flatulence and dyspeptic phenomena accompanying and following shock are evidences of a true "nervous dyspepsia," and are in line with acapnia, vasoconstriction; a diminution of carbon dioxide in the tissues and blood; also respiration is slowed until carbon dioxide accumulates up to a stimulating strength, hence hyperpnea or dyspnea returns (Yandell Henderson, Crile, etc.).

The control a person is capable of exhibiting at all times and under all circumstances is closely allied

with his shock value or coefficient of equipoise. People do not so often die of organic disease as of shock, profound perturbation of function, of all the controlling mechanisms which should automatically come to equilibrium. Doubtless this also effects secondarily structure.

"Home they brought her warrior dead,

She nor wept nor uttered cry;

All the watching maidens said,

'She must weep or she will die.'

And many have so passed the boundary shocked between conflicts of conscious control, automatic selfadjustment and such confusion of warring energies as proved destructive. It is fair to assume such catastrophies are preventable and by many simple common sense means.

CONCLUSIONS.

The element, or phenomenon, of spasm is an exceedingly common denominator, affording the key to diagnosis and to relief, or even at times to cure, of manifold distresses and disorders. Until this spasmodic state is relieved much suffering and often serious peril continues. In any exigency, when the phenomena of spasm can be reasonably inferred, it is the part of wisdom and economy to focus attention upon its relief, which may also readily become a cure of remoter conditions. Excess, unrelieved spasm stress leads to shock, at least, of one variety, and yet one which may prove actually fatal through strain.

1504 PINE STREET.

INFLUENZA AND EPIDEMIC PNEUMONIA.

BY HYMAN I. GOLDSTEIN, M. D.,
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There has been much written recently concerning the terrible pandemic of epidemic pneumonia and so called "Spanish" influenza. The large hospitals, and the other institutions usually given to careful study of the various cases, were compelled to give all their time and facilities to handle the large volume of work in treating the hundreds of patients in this emergency and, therefore, had to forego any very complete studies. Some facts can, however, well be brought forward, even though they be more or less a review of what may be well known. The recent outbreak of what appears to be a new virulent or malignant form of influenza, so called, has in a large majority of the more severe cases been associated with a pneumonia, usually of the bronchopneumonia type, but also frequently with an atypical lobar pneumonia. So often has the pneumonia been a part of the disease, that I am led to believe that the pneumonitis was not a complication, but actually the disease, or a very serious part of the disease. Dr. Henry A. Christian (1) found evidences of pneumonia in every case in a series of necropsies, and he states, that in practically all of the fatal cases of epidemic influenza there was a pneumonic process in the lungs before death. He believes that all of the cases died of "bronchopneumonia and epidemic influenza." In the 126 consecutive cases studied by him, not a single patient failed to show physical signs of bronchopneumonia.

There were, doubtless, many mild cases that

really had only influenza, or an attack of epidemic grippe, Holt (2). The disease manifested itself, in typical cases, by an onset, strikingly sudden. After an incubation period of one or two, or at the most, three days, the patient would be seized with severe body pains, headache, and chilliness and at times would even collapse and fall to the floor. The three most common of the early symptoms in many of my cases were chilliness, diffuse headache, and backache, and nosebleed. Then the patient would complain of general malaise, and an uncomfortable feeling of tightness and soreness in the throat, nose, and chest, with a slight dry cough. On the second or third day some of the patients became much worse, others would feel better. In some cases, there was a great desire to sleep the entire day and at times this somnolence was the chief symptom. There seems to have been two distinct types of cases—those whose chief complaints and fever kept up for three or four days and those whose fever and pains, somnolence, photophobia, and cough, would keep up for six, seven or eight days.

This epidemic came upon us very suddenly, and was probably brought by ships coming to Boston. The disease probably started in Spain, just as the pandemic of 1889-90 probably began in Russia. We, therefore, now have what are known as the "Spanish" influenza of 1918 and the "Russian" influenza of 1889-90. It is not yet known whether these two epidemics are due to the same identical disease—certainly the mortality rate of the 1918 pandemic far exceeds that of 1889-90, although the morbidity rate of the "Russian" epidemic was greater than that of 1918. The recent epidemic disease was certainly extremely contagious—several members of a family would be affected and in many instances all the members were down with the disease. In numerous instances attendants, nurses, and doctors, were stricken down shortly after their first, limited exposure to droplet infection caused by the sneezing and coughing of patients.

ETIOLOGY.

The exact cause is not known. It may be a mixed infection of several organisms (of more virulent strains)—including the *Bacillus influenzae*, streptococcus, *Micrococcus catarrhalis*, and the pneumococcus. In the great majority of cultures made by the Department of Health Laboratory from a large number of my cases, the streptococcus was the predominant or the only organism isolated. In a few instances the *Micrococcus catarrhalis*, and pneumococcus were present and in only four was the Pfeiffer bacillus found. Of course, this does not necessarily mean that the *Bacillus Pfeiffer* was not present in some of the other cases—as it may have been very difficult to isolate the organism by the cultural methods used, or the cultures had been taken from parts not infected with the influenza bacillus at the time. In some of the cases, cultures showed only some small gram negative bacilli—with or without other organisms, such as the streptococci or *Micrococcus catarrhalis*. The blood cultures were all negative.

SYMPTOMATOLOGY.

The incubation period was short, usually one, two or three days. The general symptoms at the

onset of the attack were as described above. Other symptoms that occurred in some patients were as follows: a very severe backache, similar to lumbago or one of the other acute infections, such as smallpox; sweating, insomnia, flushing of the face, epistaxis, anorexia, hoarseness, dysphagia, sore throat, fever of from 102° to 106°, the pulse ordinarily appeared to be relatively slow in comparison to the temperature—similar to the pulse temperature ratio of meningitis, typhoid fever, malaria, and yellow fever. The cough was frequently followed by bloody expectoration, at times almost pure blood, again a bloody fluid would be brought up, much thinner than that seen in cases of typical lobar pneumonia. Some patients vomited, and in several instances the vomitus was bloody or coffee ground in appearance. Some patients had severe cramps in the abdomen, with tympanites.

PHYSICAL SIGNS.

The liver was enlarged in many of the patients. The cardiac dullness was increased in a fairly large proportion of the cases. The heart sounds were muffled and without tone. The blood pressure was low—both systolic and diastolic, especially the diastolic. Numerous fine râles could sometimes be heard on the second day, with evidences of impairment on percussion, and at times there was a distinct consolidation, especially at or near the base of one or both lungs, most often over the left lung at first. At this stage there would also be found tubular or bronchial breathing. However, the majority of the cases of epidemic pneumonia failed to give the classical signs of a typical lobar pneumonia. The cases, as a rule, were chiefly bronchopneumonias, and in some instances it was easy to detect, on careful examination, an area of typical lobar pneumonia near the angle of the scapula or base of the left lung, and distinct areas of bronchopneumonia in the other lung. Both lungs were distinctly involved in a number of the cases. In some of these cases, the respiration rate was not especially high. Pleural effusion was apparently rare, although a number of the cases had a definite pleuritis with the attack of influenza. Many of the women stricken with the disease had their menstrual periods whether they were due or not. Cases of miscarriages and abortion have been reported by physicians—and in some hospitals almost all of the pregnant women who had the disease miscarried or aborted. A large, yes, a very large proportion of the pregnant women who were ill, died early in the attack. Some hospitals report a 100 per cent. mortality in the pregnant woman, others shows from forty to fifty per cent. mortality. The influenzal pneumonitis was particularly fatal among young people between twenty and thirty years of age. The negroes seem to have escaped the disease, at least in the northern States. The very old, and the very young, also showed immunity against the disease, only a comparatively small number of persons over forty-five years of age were attacked and a comparatively few children under six to eight years were affected. In the epidemic of 1889-90 old people were also attacked.

Convalescence is slow; the majority of patients do not recover their strength for eight to ten days or more after getting up. The most characteristic

physical signs appear about the end of second day or early on third day—namely, a toxic appearance, heavily coated tongue and peculiar “sweaty” odor about patient; injected conjunctivæ and evidence of acute inflammation of whole mucous membrane of mouth, tongue, and gums. The nasopharynx is congested, and the gums bleed easily. The breath is foul and heavy; the temperature is highest at this time. The highest temperature recorded in my cases was $106\frac{1}{5}^{\circ}$ in a small boy—this temperature dropped promptly after the use of combined influenza vaccine. The pulse is relatively slow; death may occur on the fourth or fifth day in the massive bronchopneumonic form. As a rule there is some bronchitis. The urine is scantier than normal. It is highly colored, and contains albumin in from eighty to ninety per cent. of the cases. Some granular and hyaline casts were found in forty to fifty per cent. of the cases. The casts were present for very short time. Albumin could be found in traces for eight or ten days. Slight tenderness in the loins may be elicited. The splenic enlargement so often noted in the 1889-90 epidemic was not present. Another peculiarity that might here be noted is the presence of a leucopenia at the height of the fever, 3000-4000 W. B. C. per cubic millimetre. On the fourth day a moderate leucocytosis was present. It is stated by Gotch and Whittingham (3) that a marked relative neutrophilia during the leucopenia was present, followed by a slight increase of the small lymphocytes, when the leucocytosis set in, shown by daily differential leucocyte counts. In cases of true Pfeiffer's bacillary influenza, there leucopenia was present followed by leucocytosis, and accompanied by lymphocytosis and the leucocytosis by neutrophilia.

The present epidemic strongly suggests a micrococcal rather than a bacillary infection. There is a marked fall or almost total absence of eosinophile cells during the fever. In malaria, at the height of the fever there is a leucopenia—with a relative neutrophilia; followed by a mononuclear increase in a few hours. Influenza may occur in an old malaria case—and in these instances the mononuclear increase does not appear until four or five days after the height of the fever. Gotch, Whittingham, and Nuzum found all blood cultures negative. In the majority of cases there was little coryza—the absence of physical signs in the early stages at least were remarkably absent. The facies, apart from the absence of coryza, resembled that of a measles patient, a day or two before the appearance of the rash.

Cyanosis was certainly an interesting and prominent phenomenon in a number of the cases. It was a bad sign. There was a dusky blueness of the face, finger nails, and entire body. The face and lips were almost blueblack in color. The exact cause is not known. Some men attribute it to a right sided cardiac dilatation, others to respiratory failure or pulmonary edema, and still others think there may be some change in the blood itself. Dr. David Riesman attributes the cyanosis to some methemoglobin disintegration and likens it to acetanilid or gas poisoning. He considers that it is neither a cardiac nor a pulmonary cyanosis, but a hemo-cyanosis. Doctor Riesman also calls attention to the

fact that there were few cases of other forms of acute illness, during the epidemic wave. He says the infrequency of other diseases during the epidemic, such as follicular tonsillitis, is a curious fact. Another striking circumstance in this epidemic was the great number of physicians and nurses who became ill, and the large number of deaths among the physicians and nurses. In some hospitals seventy-five to eighty per cent. of the nurses and residents contracted the disease. Herpes was certainly much less common during this epidemic than in the usual forms of gripe and influenza meningitis, malaria, and pneumococcal pneumonia. The great frequency of acute nephritis in these cases has been emphasized by Dr. Napoleon Boston. There was an absence of a distinct chill, in practically all of the cases that went on to a pneumonia—there was some shivering or chilliness, but never a distinct chill. Attention has been called, by a number of observers, that in Philadelphia, Camden, and vicinity, the left side was most often involved in the beginning of the influenzal pneumonia cases—especially just above the bases, posteriorly, and along the posterior axillary line near the angle of the scapula (Riesman). The physicians in Boston reported that the right side was more often the first involved. The earliest physical signs were given by percussion, shown by a greater resistance and greater impairment, a sort of wooden resistant note, and auscultation—which revealed a shower of very fine râles at end of expiration. Symmers (4) compares this pneumonic process with that of bubonic plague. Doctor Boston states that ninety to ninety-five per cent. of his cases showed marked dilatation of the heart. In my own cases the diameters of the heart were certainly increased, but not in such a large proportion of the cases. He found regularly the heart dullness to be increased to ten and eleven inches, and in only a few of the cases studied by him were the diameters less than ten inches. He believes the cyanosis to be of a cardiac origin.

Frequently, even in very sick patients, the respiratory rate was slow, considered by some a favorable sign. The appearance of an increased respiratory rate, from forty to fifty or sixty, indicated not only an increase in pulmonary involvement, but also an increase in the toxemia. A definite air hunger suggestive of a severe acidosis, made its appearance at times (Solomon Strouse). Strouse and Bloch consider an increased respiratory rate even though the temperature and pulse did not become elevated, as of more unfavorable significance than almost any other sign. These men found an absence of the dilatation of the right heart indicative of cardiac failure. Another fact, which I wish to call attention to, was the great frequency of nosebleed, especially in young children.

BACTERIOLOGY AND PATHOLOGY.

Dr. Randle C. Rosenberger found at necropsy evidence mostly of an acute condition, dilatation of the heart, congestion, edema and massive bronchopneumonia, and congestion of the kidneys. In only six or seven cases did he find, in the throat, a small influenza like bacillus, but never in pure culture. By far the most common organisms encountered by him were in the order named: *Pneumococcus*, *Mi-*

crococcus catarrhalis, streptococcus and staphylococcus. He made no lung punctures and hence has no statistics of cultures from the lungs. Nuzum and others report that acute asphyxiative bronchitis was present clinically in the fatal cases. At necropsy the pleural cavities contained from 300 to 1,000 c. c. blood tinged fluid. Large quantities of blood tinged, frothy fluid exuded from the air passages. The consolidation was always lobular in type and most frequently involved the lower lobes. Marginal compensatory emphysema presented itself with marked regularity. Large quantities of bloody serum bathed the fibrinfree, smooth cut surfaces of the lung. The right heart was acutely dilated. The liver and kidneys were heavier than normal and the seat of fatty changes and parenchymatous degeneration. Edema of the leptomeninges were not uncommon. Bacteriological studies and reports of the pandemic in Europe show that the influenza bacillus was found infrequently while pneumococci, streptococci, and Micrococcus catarrhalis were recovered with considerable regularity from the sputum, nose, and throat cultures. Gruber and Friedmann in Berlin failed to find the influenza bacillus, and reported streptococci and pneumococci as the common agents of the complicating pneumonias. Kolle in Frankfort failed to find *Bacillus influenzae* (Pfeiffer's) in any of the cases which he had thoroughly examined. As stated elsewhere, Gotch and Whittingham (1) isolated *Micrococcus catarrhalis* with which they claim to have produced the disease in man, whereas, Park in New York and Keegan (5) in Massachusetts have isolated the influenza bacillus in a large proportion of the cases (in soldiers and sailors). Nuzum and his associates think that the highly virulent strain of pneumococci may be the causative factor in the production of these highly rapid and fatal lobular pneumonia cases. Cultures taken from some of my cases, and examined and studied by workers in the State Department of Health Laboratory, were taken from sputum, nose, or throat. Ninety cultures showed streptococci, twenty-five cultures showed staphylococci, eight cultures showed pneumococcus, two cultures showed streptococcus and pneumococcus, six cultures showed *Micrococcus catarrhalis*, six cultures showed *Micrococcus catarrhalis* with staphylococcus, eighteen cultures showed *Micrococcus catarrhalis* and streptococci, five cultures showed *Micrococcus catarrhalis* with a small gram negative bacillus, three cultures showed streptococcus and small gram negative bacillus, one culture showed staphylococcus and small gram negative bacillus, two cultures showed small gram negative bacillus, one culture showed streptococcus and staphylococcus, thirteen were unsatisfactory, and eleven cultures revealed a small gram negative bacillus, three or four showed Pfeiffer's bacillus with or without other organisms, so that in about 190 cultures, the streptococcus was present alone or with other organisms in about 122 cultures. E. E. Ecker (7) suggests that the difficulty in isolating the Pfeiffer bacillus, by plating on blood agar alone, was due to the fact that other organisms, such as pneumococci, staphylococci, and *Micrococcus catarrhalis* tend to obscure the colonies of influenza bacillus and overgrow them. Cantani showed that

bile did not destroy the virulence of influenza bacilli. Therefore, Ecker used bile or bile salts, because of the dissolving action of bile on pneumococci and its inhibitive effect on other accessory organisms. He used sodium taurocholate 0.5 per cent. solution, mixing the bronchial secretions with it for twenty minutes and streaks were made on human blood agar plates after exposure. The organisms stain well with aqueous fuchsin—are gram negative and look often like *Bacillus coli*.

At Camp Sherman, Ohio, Friedlander and McCord (8) report about 11,000 cases out of a population of 33,000—over thirty-three per cent. were attacked by the disease. Pneumonia developed in over 2,000 of these cases. Of the total number affected with influenza, nearly eight per cent. died (842 deaths occurring in the 2,000 cases of pneumonia and influenza). They did not demonstrate the *Bacillus influenzae* as the causative organism. *Pneumococcus Type IV* was the predominating organism. The pneumococcus was detected in fifty-three per cent. of necropsies. The hemolytic streptococcus occurred in forty-seven per cent. of thoracic exudates. Cultures from the throat and nasopharynx of influenza patients showed pneumococci in fifty-four per cent. and hemolytic streptococci in four per cent. of all examined. Cultures from the sputum of influenza pneumonia cases showed eighty per cent. characteristic of *Type IV pneumococcus*.

An attack of influenza does not afford immunity; relapses are common; it increases susceptibility to pneumonia, typhoid fever, tuberculosis, and ear and sinus disease.

SEQUELÆ AND COMPLICATIONS.

Neurasthenia and confusional psychoses may follow such attacks. Two of my patients had a mild type of paralysis of one side, arm, or leg. One of these cases, a man of sixty, also had a hemianopsia. The other case was that in a young woman, who had a complicating endocarditis and probably the paralysis developed as the result of an embolus. The old man had some arteriosclerosis and a small hemorrhage occurring in the internal capsule. Whether the severe toxemia and acidosis had anything to do with these paralyzes, I do not know. One case, a little girl, who had an attack of influenza and pneumonia four weeks ago, developed a meningitis and a tentative diagnosis of tuberculous meningitis was made. The first lumbar puncture gave a clear fluid which was under considerable pressure, no organisms could be demonstrated after a prolonged search, although about fifty c. c. of fluid was withdrawn. The Wassermann test of the spinal fluid was negative. The Noguchi globulin test ++++; cell count 920 per cu. mm.—polynuclears seventy per cent. and mononuclears twenty-six per cent. Upon standing a fine velum developed. At the second spinal puncture forty c. c. of slightly turbid fluid was withdrawn. On this occasion a purulent sediment formed on centrifuging the cerebrospinal fluid—eighty-five per cent. polynuclears; cell count 2,500 per cu. mm.; meningococci were present intracellularly in small numbers. Thirty c. c. antimeningitis serum was given by the gravity method. So far the child has received three intrathecal injections of the serum. Several cases of empyema

have recently been reported by Philadelphia surgeons. Dr. Moses Behrend at a recent medical meeting stated he had operated on seventeen empyemas in less than two weeks during the epidemic, following influenza. I saw a number of cases in which otitis developed without suppuration and therefore did not demand paracentesis. Appendicitis has also been reported as being on the increase during and following the epidemic. Splenic, renal, pulmonary, and cerebral embolism may occur. One of my patients had an embolic splenitis probably associated with a similar condition in the kidney. Retinitis, with hemorrhage into one or both eyes, may occur. Several of my patients, in addition to remaining nervous, irritable, and at times melancholic, also complained of an annoying intercostal neuralgia. Dilated, weakened heart conditions will no doubt be more frequent for a number of weeks to come, and will be seen by all of us during the coming winter months. In my own practice, therefore, the most common complications and sequelæ were pneumonia, pleurisy, otitis, endocarditis, paralysis, and cardiac dilatation; meningitis, psychoses, appendicitis, mastoiditis, splenitis, retinitis, and insanity, may occur in some of the cases. Heart failure was not common.

ACIDOSIS.

Palmer, states that the metabolism during the febrile stage of pneumonia results in the production of considerable amounts of acid substances. The increased ammonia and acid excretion, the low carbon dioxide content of the blood, the diminished affinity of the blood for oxygen, and the retention of large amounts of alkali, indicate an excessive acid production during the febrile stage of the pneumonia. There is excreted in the urine, of subjects ill with acute lobar pneumonia, a large amount of organic acid. My own impression is that the great majority of deaths and various complications were due to the very malignant toxemia with the associated acidosis.

PROPHYLAXIS.

The disease is highly contagious, as much so as measles, and is probably most readily transmitted by the nasal pharyngeal and bronchial discharges—especially in coughing, spitting and sneezing and probably also by blankets, handkerchiefs and clothing used by careless patients. The most important step is early recognition of the first cases and prompt and complete isolation. Every patient should be confined to bed until symptoms have completely abated. Isolation should be maintained throughout convalescence. Health authorities prohibited public gatherings, closed moving picture houses, churches, icecream parlors and beer saloons, as well as the public schools. Emergency hospitals were opened in many cities. People exposed to infection or in danger of being exposed, and all members of families where a case of this epidemic influenza is already existing, should be inoculated and immunized with combined influenza vaccine in fairly large doses. There is now absolutely no doubt as to its great prophylactic value of freshly prepared vaccine. Vaccine containing *Bacillus influenzae*, *Micrococcus catarrhalis*, pneumococci, streptococci and staphylococci and probably also *Bacil-*

lus Friedlander. Hundreds of the employees of the Bell Telephone Company of Pennsylvania were immunized with the mixed vaccine and the results were most encouraging. Over the entire country most satisfactory results were obtained from the prophylactic use of these vaccines. Very few of those persons inoculated early, developed the disease. Even the few who were immunized and then stricken with the disease, did not have a severe attack and were quite free from complications. In my own experience, in only a few there developed slight symptoms of the disease and these recovered promptly. A large number were inoculated for prophylactic purposes. Dr. Solomon Solis Cohen believes that the mixed, bacterin vaccines are as valuable and efficient in the treatment and prophylaxis of influenza and its complications as mercury is in syphilis and quinine in malaria. Dr. William E. Robertson has used the mixed vaccines in hundreds of cases, intravenously, in the treatment of the disease and its complications, with wonderful results.

Thousands of soldiers were inoculated, in several of the army camps. Thousands of people were successfully inoculated and saved from serious illness in New York city, Chicago, Philadelphia and other places. I, personally, preferred the No. 4 and No. 5 combined influenza vaccine. Another type of vaccine is prepared by Rosenow, called pneumococcus vaccine or "antigen," which he believes has greater protective power against pneumococcus infection than vaccine made according to the usual method. Each c. c. of this vaccine contains twenty million partially autolyzed pneumococci. I have not used it. Out of the 670 cases in which prophylactic immunization was done by Dr. Napoleon Boston the disease did not occur.

Prophylactic immunization has been practically demonstrated in many of the large industrial plants in the vicinity of Philadelphia. Notably, among the largest plants, was the Philadelphia Electric Company, the American International Shipbuilding Corporation, the American Bronze Corporation, and many others from which reports have not yet been published.

Doctor Bowes, physician in charge of the Philadelphia Electric Company, undertook the immunization of over 4,000 men. On October 17th, three weeks after the second injection, only three men had contracted influenza. These cases were light, in one, pneumonia developed and all the patients returned to work within three days. Some of the employees of the Philadelphia Electric Company, who had contracted influenza before the course of prophylactic immunization was instituted, were treated with the influenza vaccine, and none died. The initial dose given to patients suffering from influenza was one mil in cases which were not serious and 1.5 mil, or more, in desperate cases. The injections were continued, if necessary, every twenty-four hours with the same dose until a favorable prognosis was noted. These favorable results prompted other large industrial plants and public institutions, including the boards of health, to employ immediate prophylaxis toward preventing the spread of this influenza epidemic. Among these institutions were the United States

Steel Corporation, American Steel and Wire Company, of Ohio, Bell Telephone Company, of Pittsburgh, Pa., and others. Eyre and Lowre (9) report vaccines used in 1,000 cases for prophylactic purposes. They conclude that 1, there may be no reaction. 2, There may be slight reaction—this is the most likely sequela and will probably occur during the first twenty-four hours after inoculation and, apart from a possible tenderness at site of injection, may produce a slight malaise, and stiffness and headache. 3, There may be a severe reaction. In my experience, reaction was of no consequence, and if it occurred, was very slight. The tenderness and stiffness of arm injected passed off in twenty-four to forty-eight hours. Immunity probably lasts from two to six or eight months.

The employment of properly made gauze masks to prevent the transference of the infection to others and to the attendant has proved a valuable prophylactic measure. The importance and value of such face masks has been noted and emphasized by Weaver (10), Capps (11), Haller and Colwell (12), Lyon and Doust (13), Hamilton, 1905, Meltzer, 1916. Many of the masks used were mere camouflage—being made of one, two, or three layers of thin gauze and absolutely worthless. Masks should be made of good size, of six or seven layers of gauze, or else several layers of gauze with some sterile absorbent cotton in between in sandwich like fashion. I employed the latter method. It was advisable to use a spray of three to five per cent. dichloramine-T in chlorosane on the face masks—this is not irritating, does not wet, or soak the gauze, and is efficient; repeated spraying should be resorted to. The mask should have an appropriate or suitable mark on the outer side, so that if the mask is removed for a few minutes, it will always be replaced with the same side out. As these masks are cheap, it would be advisable to change them often, or to use a new one, when the mask worn is temporarily taken off. Doust and Lyon (13) conclude that: 1. During ordinary or loud speech, infected material from the mouth is rarely projected to a distance of four feet, and usually less. A four foot danger zone exists about the patient under these conditions. 2. During coughing, infected material from the mouth may be projected at least ten feet. The danger zone about a coughing patient has, then, a minimum radius of ten feet. 3. Masks of coarse or medium gauze or medium gauze of from two to ten layers do not prevent the projection of infected material from the mouth during coughing. Such masks are worthless, therefore, in preventing the dissemination of respiratory infection. 4. A three layer buttercloth mask is efficient in preventing the projection of infectious material from the mouth during speaking or coughing. It is a suitable mask, therefore, to be worn in connection with respiratory diseases.

The use of mild antiseptic washes for nose and throat are recommended. Dichloramine-T in oil and chlorosane solutions may be used as sprays in nose and throat. Ayerill, reports good results, from the use of acroflavine solution, one in 1,000.

I used 1, liquor thymolis comp., diluted with sev-

eral parts of warm water, or 2, liquor antisepticus alkalinus comp. Formula for 1:

Ac. boric,	gr. xxxij;
Thymolis,	gr. iv;
Mentholis,	gr. iv;
Ac. benzoic,	gr. xvj;
Ol. eucalypti,	gtt. ij;
Ol. gaultheria,	gtt. ij;
Ol. cassia,	gtt. ij;
Alcoholis,	fl. oz. j;
Glycerin,	fl. oz. j;
Aqua,	q. s. fl. oz. iv.

To this may be added very minute quantities of ethylhydrocuprein hydrochloride or dihydrochloride of quinine. To be used as gargle, mouth wash, and with a nasal douche (not atomizer) in the nose.

Formula for 2:

Mentholis,	gr. ij;
Thymolis,	gr. ij;
Liq. antisept. alkalinus,	fl. oz. iv.

To be diluted with warm water.

The principal treatment is by mixed or combined influenza vaccine or combined catarrhalis vaccine or by serum from convalescent patients. Then the proper care of the hygiene and diet and also symptomatic and supportive measures.

TREATMENT DURING CONVALESCENCE.

The alkaline treatment, the acute nephritis treatment, the anticipatory treatment, and the expectant watchful treatment, all have their supporters and all have reported good results. Of course, the ideal method would consist of immunizing the patient's family with vaccines or, if it were possible, with an efficient toxin-antitoxin, as in diphtheria, and the use of specific antiserum or antitoxins. Unfortunately, we have no such efficient agents as yet, as we have not been informed by the numerous research men and investigators as to the exact cause of this most contagious and infectious disease—probably the most contagious disease of all infections, when occurring in pandemics of this nature. In view of the fact that we have no antitoxin, I started out to use rather large doses of freshly made combined influenza vaccine and combined catarrhalis vaccine. The results obtained were indeed most satisfactory and most encouraging. Indeed, in some of the cases the rapid improvement was nothing short of remarkable. There were no ill effects whatsoever, and even when used in young children, temperatures of 105° and 106° came down four, five and six degrees in twenty-four hours—and I am convinced that such drops in temperature and such remarkably rapid improvement in many of the cases would certainly not have occurred did I not use the vaccines promptly and repeatedly where necessary. As stated elsewhere in this paper, I usually used the No. 4 and No. 5 combined vaccines (influenza and catarrhalis), and in a few cases the D mixed bacterins (influenza) sero-bacterin.

Formula:

No. 4, each c. c. contains:	
200 millions Bacillus influenzae.	
200 million Micrococcus catarrhalis.	
200 million Bacillus Friedlander.	
200 million pneumococci.	
200 million streptococci.	
400 million staphylococci.	

No. 5, each c. c. contains:
400 million of each of the above-mentioned organism.
800 million staphylococci.

Dilution D contains 1,000 million of each of these organisms in each c. c.

The smaller doses (No. 3, or B C dilutions) may be used at first, and if repeated injections are indicated then the larger doses should be used. One may use these vaccines either in bulk or in individual syringe packages. I preferred the latter. Numerous doses of Sherman's No. 38 vaccine (influenza) were given during the last week or two of the epidemic in Philadelphia. It is to be regretted that this vaccine treatment was not given to more patients and their families, prophylactically and therapeutically, during the early part of the epidemic. Many lives might have been saved, much illness prevented, and serious complications avoided. There is no scientific reason for the use of diphtheria antitoxin in this disease, and as a therapeutic measure absolutely worthless, except, of course, where diphtheria was complicated with an attack of influenza.

Using the serum of patients who have recovered from influenzal pneumonia is rational, and its use has been followed with satisfactory results. McGuire and Redden (14) have reported the results of the use of such convalescent human serum. They state that all of the deaths in the Naval Hospital at Chelsea, Mass., were due to the pneumonia complication and none to the influenza, as such; the mortality varied from thirty to sixty per cent.

Flexner and Lewis (15) and Amoss and Chesney (16) reported valuable and encouraging evidence in the use of convalescent serum from poliomyelitis patients in the treatment of anterior poliomyelitis and it was, therefore, thought advisable by Redden to use the serum of convalescent influenza pneumonia patients as a curative measure, because of probable antibody content. Out of about forty patients thus treated, only one died. They used seventy-five to 125 c. c. of the serum intravenously. The convalescent serum was obtained within a week after the temperature dropped to normal. The majority of the patients received a total of about 300 c. c. The improvement was noticed in the first twenty-four hours after its use. Of course, Wassermann tests and compatibility tests of donors' serum with recipient's corpuscles were made as soon as new cases appeared in the ward. The further study as to the potency of convalescent serum is advisable. Intravenous injections of hexamethylenamine were used by Loeper and Grosdidier (17) in doses of 1.5 to two grams. It is harmless, according to these men, and in fifteen pneumonia cases all were improved and cured; in five cases the disease was aborted, defervescence occurring the following day. It would seem to me the frequent presence of albumin and casts in the urine of these influenza pneumonia patients, would certainly contraindicate the free use of urotropin. I did use, at the beginning of the attack, a urotropin compound capsule, consisting of phenacetin, one and one half grains, acetylsalicylic acid, three grains, and urotropin three grains, every two hours. This relieved the pain and aching sensation. Where the kidneys

were affected or where the patients were not seen early in the attack the urotropin was not used.

Another favorite prescription I used was

Caffein citrat,	gr. 2;
Cinchonidin sulphat,	gr. 2-3;
Ac. acetyl-salicylici,	gr. 3-5.

I did not use quinine sulphate, quinine and urea hydrochloride, nor salicin, Dover's powder, nor a great many other drugs used by many physicians. I used small doses only, of aspirin, phenacetin, urotropin, and other pain alleviating preparations—these were stopped at the end of thirty-six to forty-eight hours, or sooner, if the patient felt relieved. For the cough, I found nothing better than codeine—in doses of one eighth to one quarter grain, and citrate of soda or citrate of potash in doses of five to ten grains, every two hours. Mistura glycyrrhiza comp. was used occasionally, however, the tartar emetic contained in this preparation is depressant and this must not be forgotten, especially in our weak, enfeebled, sweating patients. My patients received tincture of nuxvomica in fairly large doses or strychnine sulphate in doses of one twentieth to one thirtieth grain, frequently repeated. Digitalis did not seem to act so well, and failed utterly in some of my urgent, seriously sick cases. Digipuratum was the digitalis preparation mostly used, and in a few cases, seemed to help over the crisis where the ordinary tinctures failed.

Counterirritation was, in my estimation, of great value, in the cases of early pulmonary congestion. The home made mustard paste, made with mustard, flour, vinegar, and white of egg, or the hot turpentine stupes applied to the chest front and back at the beginning of trouble in the lungs was an efficient measure.

Dr. F. J. Kalteyer recommends the use of stimulating remedies, in an anticipatory manner. He prefers digalen. Some physicians used camphor in oil hypodermically in the cyanosed patients, along with oxygen. I doubt whether either one of these measures do much good in the cyanosis occurring in this epidemic pandemic disease. Weaver (18), of New Orleans, says that in an adult, forty to sixty grains of citrate of soda, every three hours, should be continued day and night until the lungs are entirely cleared. He states further that if the citrate is discontinued before complete resolution, there will be an immediate relapse. He has treated thirty-six cases of pneumonia with this method thus far, and the rapid recovery has resulted in each instance. In cases of relapse, recovery occurs again under the influence of the citrate. This, in his opinion, is absolute proof that the citrate is responsible for the recovery by lysis. Doctor Brown and Doctor Sweet (19), of El Paso, Tex., report the use of whole citrated blood in the treatment of influenza pneumonia. They think that the corpuscles are also valuable as probably containing some of the antibodies and have, therefore, used citrated blood transfusion. Doctor Boston treated all of his cases as cases of acute nephritis. Some physicians gave very little in the way of drugs. Dr. M. H. Fussell thinks his results just as good with rest in bed, fresh air, and plenty of good nourishing food, provided these patients went to bed immediately on the very first

appearance of the slightest symptoms, such as coryza, or headache, or chilliness or cough. He tried this with the nurses of a large hospital. However, in general practice, we always found our patients very sick when we were called in—and treatment was necessary and urgent in many of the cases. The expectant watchful treatment would have failed utterly in the large majority of the cases of epidemic influenza pneumonia. Most of my patients received the alkaline treatment, consisting of citrate of soda and citrate of potash by mouth, and bicarbonate of soda and saline solution by rectum. The bowels were kept open by administration of mild salines or fractional doses of calomel with bicarbonate of soda. Rest in bed, of course, was the first and most important treatment insisted upon by me. The patient was kept in bed, where possible, for several days after the temperature dropped to normal. I believe that if it were possible to have kept all the patients in bed for five or six days after complete recovery, and if these same patients were kept in bed from the first appearance of the symptoms of the disease, the mortality and incidentally the morbidity rates, would have been far lower and complications less numerous and severe. Some of the patients had marked delirium and symptoms of meningismus. I would suggest in very severe cases the use of lumbar puncture. This would promptly relieve the symptoms, as reported sometime ago by Doctor Musser in the use of spinal puncture in cases of pneumonia. It seemed that very little treatment was necessary, comparatively speaking, in cases occurring among negroes. They recovered in a large proportion of the cases. The incidence of the disease seemed much less in the negro race and the disease was certainly not so severe and so fatal in the dark complexioned people as in those of lighter color.

SUMMARY.

1. The exact cause of this epidemic disease and its complications, is not known. It is probably due to a severe malignant infection, mixed in character, with virulent strains of several well known micro-organisms.
2. That mixed bacterial vaccines have proved their worth as a prophylactic measure and deserve further trial.
3. That bacterial vaccines have been of great help in the treatment of the disease and its complications. Although not so scientific as a specific antiserum or antitoxin, and probably not so efficient, yet since we are not fortunate enough to have such antitoxin, we are justified in continuing the use of mixed or combined vaccine as a therapeutic measure in view of the numerous encouraging reports from all over the country. In all my cases in which they were used early in the disease, rapid improvement occurred and cure followed.
4. A multiplicity of remedies was useless and of very little benefit. Good food, fresh air and rest in bed were highly important. I did not starve any of my patients; they all received plenty of good wholesome light nourishing food.
5. Antipneumococcic serum, Type I, is certainly indicated in undoubted complicated cases of lobar pneumonia occurring in this epidemic, especially if due to the Type I pneumococcus, but should be used before the type of the infection is reported by the laboratory, as this delay may prove fatal.
- 6.

The chief drug treatment in my cases consisted of giving a combination of aspirin with or without caffeine citrate and cinchonidin sulphate and fairly large doses of strychnine and codeine, with or without citrate of potash or soda, for the cough. 7. The entire treatment, in my mind, should chiefly accomplish two ends: a. The alleviation of the pains, cough, insomnia, and other discomforting symptoms during the first two or three days of the disease; b. the treatment of the severe toxemia by sweating at the very beginning of the disease, by the use of hot drinks, with or without whiskey, hot external applications, vapor baths, together with an ice cap to the head, and the above mentioned "urotropin compound capsule"; opening of the bowels, and flushing them out by enemata, and plenty of water to drink with the addition of orange juice, lemonade, and milk, etc., thus mildly stimulating the kidneys to action. The acidosis element in this severe infection is counteracted by the use of the bicarbonate of soda enemata, and enterocolysis and the administration of the citrate of potash or citrate of soda, with or without liquor ammonium acetatis, which was given also to alleviate the cough as above mentioned. 8. Isolation and quarantine is probably more efficient than widespread "bans."

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Treatment of Urogenital Infections.—Karo (*Die Therapie der Gegenwart*, April, 1918) states that injections of eucupin and turpentine are excellent for diminishing the course of gonorrhea and the occurrence of complications. In gonorrheal complications it is the method of choice. In non-gonorrheal infections these injections are likewise indicated and give excellent results.

THE TREATMENT OF LUNG INJURIES.

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In wounds of the lung, although hemorrhage is an absolute indication for immediate operative interference, there are but few cases which demand it. The same does not apply to the indications for operation outside those of extreme urgency. When the relatively short time has been passed in which the patient's life is in danger, either from hemorrhage or suffocating pneumothorax, the danger which still exists resides almost exclusively in infectious complications. By preventing them from developing the surgeon will greatly change the prognosis of wounds of the lung and pleura. Infection may develop at once, in which case it is always serious and rapid in its evolution, assuming the aspect of a true pleuropulmonary gangrene. The process is so virulent and sudden that the patient usually dies in spite of any form of treatment. These suppurative types of gangrenous infection are, fortunately, very uncommon and out of a total of 555 cases of wounds of the thorax, Grégoire only met with six.

The infection is usually secondary and here operative surgery has its best chance for success. In order of frequency and gravity, infection of the pleura comes first, while serious pulmonary infectious processes are unquestionably less common. The pleura may be directly infected or from the parietal wound or a wound of the lung. Infection of the pleura from the parietal wound is very common and the prophylactic treatment should be cleansing of the wound with excision of its borders. The intrapleural collection must not be neglected as it offers an excellent soil for the culture of bacteria introduced through the parietal wound. Even when there is no infection, certain collections should be emptied by thoracotomy because they are relapsing. The serous cavity must be freed of the clots and false membranes, which undoubtedly are the cause of the recurrence of the collection as the fluid never returns after the pleural cavity has been properly cleansed.

The question of the removal of the missile, when lodged in the lung, is one of the most mooted questions of thoracic surgery of warfare. On the one hand these missiles, which possess septic properties, give rise to a high mortality from the pulmonary infection to which they give rise, while on the other hand, there are many cases where the missile has been tolerated for months. Which missiles can be left with safety? The reply is not easy to make, but perhaps it may be said with a certain degree of safety that any intrathoracic foreign body which does not give rise to any disquieting symptom, such as hemothorax or profuse hemoptysis, may, without any immediate danger, be left alone unless it is of large size.

When, with a missile in the thorax, a collection develops, one of two conditions is present: either the missile is small or it is large. If small simple evacuation of the thorax is called for and the cases thus handled usually recover. The pleural cavity is not to be drained unless it contains pus. If the missile is large it must be removed but as large pro-

jectiles are not common the indications for removal of intrathoracic foreign bodies will be present in only a few cases. These are Grégoire's teachings.

The Italian surgeon Morelli has had a total of seventy cases of wounds of the lung under his care and resorted to surgical interference in forty, these being wounds of a severe type. He made a total pneumothorax by means of an apparatus by which both a thoracentesis and injection of sterile air could be made. The complete removal of the hematic collection does away with fibrinous deposits, permits an easier dilatation of the lung and prevents deformity of the thorax. As a hemostatic in hemoptysis of a severe grade, immediate collapse of the lung should be accomplished by total artificial pneumothorax. Morelli also makes, which I consider, a very essential remark, namely, that in hemothorax puncture should not be made too low down on account of the clots which naturally gravitate to the base. Therefore, the seventh or eighth intercostal space should be selected. The volume of air to be injected should not exceed 600 cubic centimeters at a time.

After three weeks of compression one may be certain that cicatrization of the lung will have taken place in cases which are not too serious. In order to cover this subject as far as possible I would refer to Rochard's recent thesis (Paris, 1918) on primary extraction of intrapulmonary missiles as the writer has brought the question up to date. He points out that the immediate and ultimate danger of missiles embedded in the lungs is made evident by statistics of recent date published by Rouvillos, Duval, Pédeprade, Guillaume-Louis, and Basset; to mention only the more important ones. These clearly show that the factor of the high death rate in pulmonary wounds is the retention of a piece of shell in the lung.

In Duval's statistics the mortality is twenty-one per cent. in "tunnel" wounds and 30.3 per cent. in cases where the piece of shell has been retained. In one hundred cases recorded by Rouvillos and his assistants in which operation was not undertaken there were forty-one cases where the bullet passed through the lung with eight deaths or a mortality of 19.5 per cent. In the cases where the missile remained in the lung, death was due to hemorrhage in thirteen, to hemopleuropneumonia in twenty, and once from pulmonary gangrene. Patients who escaped death during the early days of their wounds later on often offered sequelæ which comprised many of the accidents already referred to and to which may be added bronchopneumonia, acute pulmonary edema, dyspnea, etc. For these reasons most surgeons are now operating at once for the removal of intrapulmonary missiles with the following conditions:

The interference should be immediate, if possible within the first few hours following the receipt of the injury. The time for interfering, if there is much shock, will be indicated by the blood pressure. The size of the missile must also be taken into account. A minute missile (the size of an oat) does not ordinarily give rise to infection nor to an important hemorrhage. Therefore it is to be left alone. This, you will see, is Grégoire's

rule already mentioned. On the contrary, a large missile should always be removed. The damage to the ribs, the bits of clothing carried into the wound with it and the hemorrhage resulting from the vast amount of destruction of tissue are unquestionable indications for operating. Between the two extremes it is not difficult to come to a decision. A bit of shell, not larger than a lentil, which does not injure the rib in its passage, is often well tolerated by the lung. If the rib is injured operation should be resorted to because infection of the pleura from the costal focus is practically unavoidable, and since the focus in the ribs must be attended to it is advantageous to remove the intrapulmonary foreign body at the same time. For that matter, in doubtful cases, the decision will vary according to circumstances, namely, the proper installation, particularly an operation done with the screen and the possibility of keeping the patient under observation after operation.

Richard shows that the mortality in cases treated surgically is lower than in those treated conservatively. The quality of the cure is the same as for wounds of the soft parts when dealt with in the same way, namely, a complete cure with no danger of future complications. I will give the conclusions adopted in penetrating wounds of the chest by the Second Interallied Surgical Conference, as they differ somewhat from the writers whom I have cited.

1. Penetrating wounds of the chest in warfare offer a mortality of twenty per cent. in the hospitals and ambulances in the army zone.
2. The immediate mortality is the highest on account of hemorrhagic and asphyxic phenomena. Shock enters into a large share of early or immediate death.
3. The ultimate mortality is usually the consequence of pleuropulmonary infection.
4. Pathology shows that the lung is subject to the same lesions met with in all wounds of warfare. The mechanical disorders are the same, the infection is the same with the exception that the pulmonary parenchyma defends itself better than any other tissue of the body. But infection of the pleura either from without or from the pulmonary wound greatly aggravate the situation.
5. The treatment is governed by two notions, viz., the early care of the case and absolute immobilization of the patient. When shock is present a general antishock treatment should be resorted to.

Medical treatment cures a large number of thoracic injuries when no immediate or late complication ensues. Surgical treatment should deal with the parietal lesion and with the immediate or late complications. In all cases a complete surgical treatment of the thoracic lesion of the soft structures and fractured bone is absolutely essential as in any other wound of warfare.

If the thorax is opened it is absolutely indicated to close it either by gauze packing or suturing of the wall. Hemorrhage from the lung with the thorax opened, should be controlled by gauze packing or a hemostatic suture. When the thorax is closed, if it can be proved that shock is not essentially the cause, if it is noted that the blood pressure decreases regardless of treatment and that the symptoms offered by the patient are to be solely at-

tributed to hemorrhage, the ideal treatment is thoracotomy with direct hemostasis of the lung. The indications for interference in a closed thorax are rare. These operations require a special competence on the part of the surgeon as well as a perfect surgical installation. Acute and profuse hemothorax should be aspirated in order to obviate the mechanical phenomena of compression. It may be useful, after or during the removal of the blood, to inject air or oxygen into the pleural cavity in order to provoke hemostatic collapse of the lung. Hemothorax with a high temperature should be subjected to repeated puncture for the purpose of bacteriological examination of the fluid.

Referring to the late complications the conference voted that in persisting aseptic hemothorax the treatment should be by repeated puncture and withdrawal of the fluid in order to favor expansion of the lung. The introduction of a certain amount of oxygen into the pleural cavity in order to provoke hemostatic collapses of the lung may be useful in properly selected cases. When bacteriological examination of the pleural fluid shows clearly that the hemothorax is infected, thoracotomy is distinctly indicated. Purulent pleurisy is governed by the same rules as infected hemothorax. When drainage of the pleura is considered necessary it should always be made at a declivous part (the posterior aspect and base of the thorax).

In recent or old cases of pleural suppuration, progressive sterilization of the pleural cavity and secondary suture of the thorax should be carried out. In these cases no fear need be entertained to suture the chest wall over an unfilled pleural cavity. This is the best treatment for obtaining a rapid expansion of the lung and disappearance of the pleural cavity. (Depage, Tuffier). In cases of imperative interference, it is well to proceed with the immediate extraction of the intrapulmonary missiles when they offer themselves in favorable conditions. In all circumstances the prophylactic treatment of infection of the pleura and lung by direct surgical treatment of the pulmonary wound (removal of foreign bodies, suture of the wound with or without excision) seems logical. This question should be given attention and is worthy of close study. A blood collection in the pericardium is governed by the same surgical rules as hemothorax.

At the Third Session of the Conference held this year (1918) the following addendum was added to the above conclusions and shows that the tendency to active surgical treatment of thoracic wounds is becoming more and more in favor. In threatened hemorrhage with an open thorax operation should be resorted to. Primary removal of intrapulmonary missiles and direct treatment of the wound in the lung are now more commonly resorted to, following the general principles of the treatment of wounds of warfare, viz.: excision of the parietal wound, removal of all foreign bodies within the pulmonary parenchyma and immediate closure of the thorax. The success obtained distinctly favors this surgery. Infected hemothorax is to be treated by early drainage, progressive disinfection and secondary suture of the thorax. Chronic empyema is to be treated by progressive sterilization with, if

necessary, a freeing of the pleuropulmonary shell by multiple excisions.

I think I have in this paper brought the subject of the treatment of pleuropulmonary wounds of warfare up to date and as it stands at the conclusion of the war.

RECENT GLEANINGS RELATIVE TO THE PROPHYLAXIS AND TREATMENT OF INFLUENZA.

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Philadelphia.

(Continued from page 246.)

The advisability, from the prophylactic point of view in the hospital care of influenza cases, of separating complicated from uncomplicated cases because of the high degree of infectivity of the complications *per se* was pointed out in the preceding issue. In practice, the object thus sought is only imperfectly attained owing to the rapidity with which primarily simple cases become complicated, this rendering it difficult to get them away from the uncomplicated cases soon enough. Chauffard, Netter, Vincent, and others have recommended, therefore, that relative isolation of each individual case be attempted by the use of some form of a screen about two metres high. A simple procedure adapted for this purpose consists in separating the successive beds by means of sheets suspended on wires stretched across the ward from wall to wall. A muslin shield held some distance before the patient's head by means of a wooden ring or a taught string is likewise of service in preventing projection of droplets of the patient's saliva or sputum to a distance. In general, an attempt should be made to keep patients suffering with pneumococcic infections well separated from those presenting streptococcic and similar infections.

Apart from the resulting reduction in the incidence of complications, an isolation as complete as possible of the individual case appears likewise to be highly desirable from the point of view of the severity of the complications, and consequently of the case mortality. P. Lereboullet, 1918, has emphasized with particular urgency complete isolation of every influenza case as soon as the appearance of the first symptoms. Such isolation, he states, exerts a direct influence upon the prognosis. That, in the case of measles, collective (not individual) isolation is, if not the exclusive, at least the principal cause of the high hospital mortality from this disease has been definitely demonstrated of late, the same has been found to be true of influenza. Both in hospitals, colleges, and private homes, isolation of the individual cases in separate rooms is the end to be earnestly sought. If a sufficient number of rooms is not available, at least partial isolation by means of screens or other similar means should be attempted. It is not necessary, however, to continue such individual isolation very long. There is no reason why convalescent influenza patients should not be grouped together. But during the acute stage any congregation of influenza patients, even if apparently only mild cases, is attended with danger. Lereboullet goes so far as to state that too

often, in hospitals the influenza patients succumb, not because of the disease *per se*, but because he has been sent to the hospital. To obviate such an unfortunate result as this, complete or relative isolation of each case in the hospital seems strongly indicated.

Accessory measures calculated to reduce the danger from influenzal infection and its complications in hospitals include frequent disinfection of the premises and ventilation sufficient to carry off infected droplets of moisture floating in the air. When complete disinfection is impracticable, it is recommended that the flooring at least be washed repeatedly with boiling water, five per cent. cresol solution, or some other antiseptic preparation. According to Trillat, microorganisms, including the virus of influenza, may remain suspended for a considerable time in the air on moisture droplets and be carried about some distance by air currents, possibly contaminating other rooms or the clothing of persons entering the sickroom. Hence the advisability of providing such ventilation as will continually carry the suspended virus into the outside air rather than disseminate it in neighboring rooms or halls. Variot recommends that a receptacle containing some antiseptic solution be provided at the foot of every patient's bed for the reception of compresses, handkerchiefs, towels, etc., that have been used by him; that antiseptics be added to the receptacles for urine, feces, and sputum; that a movable table be provided bearing basins of water and soap with which the physician and attendants may wash their hands after contact with every case, and that a fresh towel be used by the physician in auscultating each individual patient. Apart from the various means of personal prophylaxis, such as the wearing of gauze masks and the use of cleansing or antiseptic irrigations of the mouth and upper respiratory passages, it is recommended that special attendants be provided for each group of patients, different nurses, e. g., attending to the uncomplicated and the complicated cases, and all carefully avoiding contact with noninfluenzal patients in the same hospital. Examining and waiting rooms, which might easily become considerable factors in the propagation of the disease, should be frequently and thoroughly ventilated and disinfected, and special ambulances, likewise to be disinfected at short intervals, should be used in the conveyance of influenza patients. Finally, convalescents should be promptly removed to premises as free as possible of all forms of contamination, that the supervention of secondary infections, to which they are particularly susceptible, may be as far as practicable avoided.

(To be continued.)

Treatment of Trichomyces of the Beard.—Meyer (*Dtsch. Therapie der Gegenwart*, April, 1918) recommends in all cases the treatment with turpentine as advised by Klingmüller. When this is not possible, the treatment with turpentine should be combined with other methods, the best of these being the x rays in the form of hard filtered rays. The papilla of the hairs are particularly sensitive to the action of this form of ray.

Editorial Notes and Comments

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IRRESPONSIBLE ROYALTY.

The modern offender, even a murderer, is given the full benefit of the law, and, in addition, the legomedical psychologist will prove, if possible, his irresponsibility. Insanity in a grandfather or idiocy in a mother has saved many a man from the gallows, who formerly, would have been summarily convicted and hanged. Some modern studies have traced mental and physical weakness through the various descendants of one family until there seemed no hope of any normal members. Surely now, if the lowest of the low are given the benefit of an extenuating science, the same benefit should be extended toward the highest of the high. But these, living and dead, are judged by contemporaries and posterity possessing no knowledge concerning inherited disease, and consanguinity in royal houses, one quarter of which disease would exonerate the son of a private individual from the severe penalties of the law. A mere glance over kingly records reveals an incredible amount of tuberculosis, syphilis, insanity and at the least—eccentricity, the latter to an extent which would include the possessor among borderline cases and disqualify him for any public office. Yet such disqualifications have to be tolerated in kings vested with power to change the destinies of a whole nation, and the evil may be extended by his wedding his heir to an unhealthy young princess.

In Russia we find that amiable gentleman, Ivan

the Terrible, suffered from ungoverned brute passion and persecution mania. Paul, son of Peter the Great, was, practically, insane. Constantine, son of Alexander I, was both vicious and eccentric. Then, as a specimen of intermarriage, we see Alexander III marrying Dagmar, sister to Queen Alexandra of England, a Dane; and their daughter Marie, crossing into the English house by wedding Queen Victoria's son, the Duke of Edinburgh, and their daughter Melita taking as husband a German—the Grand Duke of Hesse.

Considering the Spanish records, as far back as 1449, when the Spanish King John II reigned, we read that his wife, Isabella of Portugal, was insane for many years. Juana, their granddaughter, was first very eccentric and afterwards passed fifty years under restraint, while her son, Charles V suffered from epilepsy, and her grandson, Don Carlos, was childish and eccentric. Her other grandson, Maximilian, married his first cousin and had sixteen children, two of whom, Rudolph II and Duke Ernest, suffered from melancholia and hallucinations. Philip II did not enliven the family history by taking, as his fourth wife, a niece, Anne of Austria; his son Don Carlos, offspring of this marriage, was a weak, sickly child who did not speak until he was five years old and had a contracted leg. His father treated him as a criminal lunatic and allowed him to die in a prison. The cheerful story continues with Philip IV, who married his niece, Mariane of Austria, the fruit of the marriage being a son idiotic and epileptic, Charles II. Philip of Spain was insane toward the end of his life, and the late King, Alphonso II, certainly did not do wisely in wedding one of the diseased Austrian line in the person of Marie Christine of Austria in 1874. The present King, Alphonso III, married Queen Victoria's granddaughter, Ena of Battenburg, and is now the father of six children, three of whom are weakly or deformed.

Portugal shares the heritage of disease even as far back as 1357, when Pedro I reigned and an historian of the period styled him "practically insane and the incarnation of a demon." (It is not said what became of that frank writer.) The Cardinal King, Henry, brother of Emmanuel I (1521) equalled him in attacks of maniacal fury, and his history is full of gloomy episodes. Marie I, daughter to Pedro II, clearly was not instructed in hygienic marriage laws, for she wedded her uncle, who became King Consort as Pedro III, but Marie developed religious mania, and was under restraint

until her death, while her daughter, Marie II, carried the vicious strain into the German line by marrying Ferdinand of Saxe-Coburg in 1836.

It was, perhaps, well that France became a Republic, for insanity crops up pretty frequently in her line of kings. Louis IV (1248-1347) had a half brother—Rudolphe—with recurrent mania, and his own brother Guillelme, was absolutely insane. The madness of Charles VI is well known, and Charles VII, who inherited tuberculosis from his mother, was afflicted with agrophobia and a constant dread of being poisoned. Napoleon the Great, though not of royal lineage, had a melancholy record of cancer in his family. He himself died of it, also his brother Carlo and his sister Pauline, while another sister, who married Murat, became insane.

In the English royal house, a bad alliance was made when Henry V married the daughter of the mad Charles VI of France, the result being a mad king—Henry VI—on the English throne. The sad story of George III, with its recurrent insanity and melancholy end, is well known. Of the children born to Ferdinand, Hereditary Prince of Brunswick, who married a sister of George III, Charles, the eldest, was an idiot, the second boy, a partial idiot, and the third boy was blind. Of the children of Edward VII, Albert Victor, the eldest son, was not up to the average in intellect, and one daughter, Princess Victoria, is subject to attacks of epilepsy. Many remember the "Alexandrian curl" copied by court ladies when the queen wore one to hide a scar on the neck, also the "Alexandrian limp" also imitated when the queen had hip trouble. The King of Hanover, who was deposed a few years ago, whose son, Ernest, Duke of Brunswick, married the Kaiser's daughter, Louise, died insane, the malady hastened by worry during the present war.

The history of the Austrian house, its records of insanity, lust, suicide and crime, form the darkest pages of modern history, but other royal houses, not here included, furnish a fair quota of the same adverse facts.

Any alienist or psychologist could predict with tolerable accuracy the future of a family whose members had been intermarrying, even to uncles and nieces, for hundreds of years, yet the future of the civilized world, save where a republic exists, is in the hands of rulers with intellects generally below that of a first class lawyer or politician. They have been accepted by the people, and—sometimes—too harshly judged when affairs went wrong. Their sins and deficiencies, their mad lust to acquire, their weakness in losing power, can only be rightly diagnosed by the psychologist, and not by the layman.

THE DIAGNOSIS AND PROGNOSIS OF ERYTHEMATOUS LUPUS OF THE FACE.

From the symptomatology and pathology of this morbid process it would seem that its diagnosis in children would be an easy matter. A lesion characterized by a vasculoconnective tissue process manifesting itself by a slowly centrifugal progression of red spots, also characterized by epithelial phenomena and a tendency to cicatricial regression, might appear to be enough to put the practitioner on the right road to the diagnosis, but such is not always the case. The lupic lesions offer an extreme polymorphism and explains why the diagnosis is frequently erroneous. A tuberculous lupus can be readily distinguished by the characters which properly belong to it, such as the marked dermic infiltration and the presence of soft yellowish tubercles scattered over the true lupic patch. The patch itself is more irregular in shape and typography, while the presence of ulcerations, deep destructive processes, and more retractile cicatrices are of great help, especially if one takes their evolution into consideration. On the face one must also differentiate erythematous lupus from certain forms of concrete sebaceous acne and the epitheliomatosis which follows it, but these lesions are much more fixed, having no tendency to regression and never end spontaneously in cicatrization. The epitheliomatosis should be readily recognized from its ulcerated edges and particularly from the age of the subject. Seborrheic eczema and psoriasis of the face are easily differentiated by the evolution of the lesions and by the absence of scab formation and cicatrices, but tertiary syphilis may very well simulate an erythematous lupus, although the evolution of the luetic process will be very much more rapid. The patches are less squamous and have not the symmetrical character of centrifugal erythema. On the scalp and hairy regions the differential diagnosis must occasionally be made between the affection under consideration with favus and alopecia areata. The latter forms white, smooth, and uniform areas without infiltrated edges and never gives rise to cicatrices. The hair falls out and there is complete absence of epithelial or erythematous lesions. Favus is too well known to require any remarks, but it is well to recall that on the extremities frostbite closely resembles a certain form of erythema described under the name of erythema pernio. Erythematous lupus is only serious from the depressed cicatrices to which it gives rise. Centrifugal erythema is the mildest form, the lesions

are superficial and disappear with ease, but they recur frequently. Cicatricial deformity is always mild and may even be absent. On the other hand, the so called fixed forms of erythematous lupus are despairingly tenacious, although certain types can be cured. From the viewpoint of general health, erythematous lupus does not enjoy a similar benignity, and the outlook is much more serious in this respect. Therefore, the prognosis must always be guarded.

RELATION OF TUBERCULOSIS TO DEMENTIA PRÆCOX.

The relation of tuberculosis to dementia præcox may be variously regarded. Its frequent association with this mental syndrome group may appear to some as probably that of a distinctive causative factor. Or, in a broader conception of this symptomatic manifestation of mental disorder, one may see in the presence of tuberculosis, evidences of the seclusive, nonresistant type of reaction toward the external world of infectious danger as well as of positive healthful activity, which characterizes dementia præcox behavior. This marked characteristic attitude of the tuberculosis victim, both before and after infection, as well as of the dementia præcox patient, may associate the two syndromes as cause and effect or bring them together into a common picture where they are both factors illustrating such a type of reaction and the two concomitant forms of result of such behavior to external environment.

Doctor Gosline presents a preliminary study [H. I. Gosline: The Role of Tuberculosis in Dementia Præcox, *Journal of Laboratory and Clinical Medicine*, January, 1919] of this important association, which should be the subject of more careful investigation psychiatrically. He is inclined to find, in the frequent occurrence of tuberculosis with dementia præcox and the concurrence of initial or recurrent symptoms of both the physical tuberculous disturbance with the beginning or the return of signs of mental disturbance, a rather definite relation of cause and effect. He tends to lay the weight through his findings upon the future possibility of discovering tuberculosis as a causative or perhaps very often the causative factor in dementia præcox.

Whether this conclusion is preferred to the inclusion of this as only a concomitant syndrome group associated rather, as has been said, through a type of personality to which they both belong, does not alter the importance of the subject as a field for study. Nor does it lessen the value of

this preliminary investigation of actual facts upon which further advance must rest. The author's attempt is to examine into the statistical facts which exist in this connection in order that we may better understand what the actual relationship may be. In order to make this as accurate and convincing as possible he has carefully weeded out all those cases from his study in which alcoholism, syphilis, or any other infectious disease might have been involved in the onset of mental signs of dementia præcox or those which might have belonged elsewhere than in the grouping of dementia præcox or in which a doubtful diagnosis was present. There remained thirty undoubted cases of dementia præcox which had come to autopsy; twenty-two of these patients, or 73.3 per cent., died of tuberculosis. Seventeen of the patients examined showed a strikingly close connection between the course of the tuberculosis and of the mental disturbance. These cases the author will submit to a more intensive study by themselves, since this type has been considered by Claude and Rose in France among the toxic infection psychoses. Gosline feels justified, for the present at least, in including these cases as dementia præcox. Two things stand out particularly in the brief summary made of these cases here, the brief period from the onset of the disease symptoms and the fatal outcome and also the predominance of the third decade as the age of both onset and conclusion. All these patients died of tuberculosis except one, and this one showed gangrene of the lungs with tubercles at the apex.

Among the other cases the ages of admission and death were widely separated, as well as the ages of onset and admission. They belong either to those mild cases which gradually deteriorate until they are finally sent to the hospital, or which recover there from an acute attack but not sufficiently to be free again. The causes of death here were found to be varied, but in all there had been clinical evidence of tuberculosis, or at autopsy there was anatomical evidence either existent at death or previously. As far as clinical symptoms could be correlated with active mental symptoms these cases tend to show that the latter become active during the active progress of tuberculosis or subside when the latter process abates. The course of the physical symptoms in general is marked by a similar course in mental symptoms. Of course, it was not possible to anatomically locate the traces of older lesions to correspond in time with former mental disturbance, but clinical evidence of such correlation was available.

The writer believes that "special complement fixation tests on the blood and spinal fluid and special cultural methods applied to such cases should yield a large proportion of positive results and give us an added advantage in early diagnosis."

CONJUNCTIVAL MELANIC TUMORS

Melanic growths of the conjunctiva are either epitheliomatous or sarcomatous, according to their starting point in the epithelium or dermis of the mucosa. Usually, they are seated on the border, and from the start they are conjunctival or occasionally arise from a pigmentary nevus, or one containing patches of malignant lentigo, situated on the face and from here extending to the conjunctival mucous membrane.

The characteristic color of melanic neoplasms makes the diagnosis a certainty when the case is first seen. At the commencement particularly, an epithelioma of the conjunctiva may be mistaken for a phlyctenular conjunctivitis, should the pigment granules be discreet and not apparent; by a closer examination of the eye, however, the presence of a tumor under the ulceration will be detected. But in cases of conjunctivitis the inflammation is more severe, the vesicles are numerous and are not always to be found in the same area. Epithelioma is painless and offers the characteristic aspect of a sanious, irregular ulcer. If the conjunctival growth is not ulcerated, it may be mistaken for a pinguecula, a papilloma, or a dermoepithelioma. Pinguecula is characterized by its panniculus adiposus; the papilloma by its papillary, warty aspect, and the dermoepithelioma by its yellowish red color, the absence of ulceration, its tendency to surface extension, its mobility over the sclerotic, and its occurrence in younger people.

It is also of importance to exactly define the limits of the tumor, to search for its starting point, which is nearly always in the conjunctival fold which is found at the junction of the sclerotic and cornea. The tumor will often be found to intrude slightly upon the cornea and sclerotic and it is almost pedunculated, regardless of its rapid progress and malignancy. By a careful examination of the anterior chamber, the iris, and fundus oculi, useful data will be obtained. In spite of the benign appearance, these tumors are malignant and therefore it is essential to extirpate the growth as well as the lymphatic glands at the earliest possible moment, and, if necessary, to resort to enucleation and exenteration of the eyeball.

MAGNESIUM SULPHATE SOLUTIONS FOR BURNS.

In the course of a study of the action of magnesium sulphate on the nervous system Dr. S. J. Meltzer, of the department of physiology and pharmacology of the Rockefeller Institute for Medical Research, found that a concentrated solution of this salt had a very favorable effect as an application in scalds and burns. His original experiments, which are now published for the first time (*Journal of Pharmacology and Experimental Therapeutics*, November, 1918, p. 211), though made many years ago, showed that the ear of a rabbit which had been scalded by submersion in water at a temperature of 62.5° C. for two minutes was protected from serious injury by immersion in a twenty-five per cent. solution of magnesium sulphate for three hours, though a little sloughing did occur at the tip. Subsequently this was tried in burns on human beings and it was found that burns of the second degree are invariably arrested in their development when a molecular solution of Epsom salt is applied early. As a rule burns of the third degree run a more favorable course under magnesium sulphate solution than under any other treatment. Solutions more concentrated than twenty-five per cent. had an even better effect. The good results were not so noticeable in the advanced stages of burns on account of the infection usually present, but even then it had a favorable influence.

TO WHOM HONOR IS DUE.

In the course of the remarks made on presenting Morton's original papers on anesthesia to the Royal Society of Medicine last May, Sir William Osler said [*Annals of Medical History*, vol. i, No. 4] that the controversy regarding the question as to whom the world is indebted for the introduction of anesthesia illustrates the absence of true historical perspective and a failure to realize just what priority means in the case of a great discovery. He quotes and adopts the views of Francis Darwin as set forth in *The Eugenics Review* in 1914: "In science the credit goes to the man who convinces the world, not the man to whom the idea first occurs." In other words the doctrine of laches holds in science as well as in law. Whoever fails to exercise his rights loses them in law. So in science the claim of priority fails if the claimant is guilty of laches in failing to impose his conception on contemporary scientists. This Morton did by the publication of his discovery both in his "Circular," which was printed at his own expense almost every week, and in other ways. This circular which was originally merely a letter of advice soon grew to be a pamphlet of many pages. It is somewhat of a shock to have scientists appear as advocates of advertising—for the continued publicity required to obtain the acceptance of a new discovery is advertising in the original sense of the word, but after all, "the bearing of this observation lays in the application of it." Knowledge is useless until disseminated, hence the importance of the scientific and technical press in every field, for it is through this medium that new truths may be widely disseminated.

News Items.

Typhus Epidemic in Persia.—It is reported from Teheran that a typhus epidemic accompanied by famine is raging at Tabriz. Gordon Paddock, the American Consul at Tabriz, has been selected as the chairman of the relief committee to meet the present situation.

Personal.—Colonel Victor C. Vaughan, Medical Corps, U. S. Army, delivered the Frederick A. Packard lecture of the Philadelphia Pediatric Society, Tuesday evening, February 11th, at the College of Physicians, his subject being The Relation of Measles and Influenza to Pneumonia.

Clinical Society of the Lenox Hill Hospital.—At a regular meeting of this society, held Friday evening, February 14th, Dr. W. H. Zinsser, professor of bacteriology, Columbia University, delivered an address on Fighting Venereal Diseases in and Out of the Army, which was illustrated with motion pictures.

Conference on Antimalarial Activities.—A conference to discuss antimalarial activities throughout the United States will be held in Wilmington, N. C., on Monday, February 17th. The United States Public Health Service detailed investigators to attend this conference selecting men who represented the fields of sanitary engineering, bacteriology and epidemiology.

Influenza Test in the Navy.—Five healthy young men have volunteered to submit to influenza tests to be made by a board of government experts. Every known method of infection will be tried so that a complete study of the etiology and mode of infection of the disease may be studied. The experiments will be conducted by Dr. Milton J. Rosenau, of Harvard University.

Red Cross Hospitals to Be Established in the Balkans.—Nine hospitals, with a total nursing staff of about fifty Red Cross nurses, are being organized in Northern Siberia by the American Red Cross Commission to the Balkans. A hospital of one to two hundred beds, the largest one planned, will be established at once in Belgrade under Dr. George D. Tarnowski. Two additional hospitals, with a capacity of approximately 150 beds are also being organized for other large cities in Northern Serbia, and in towns of 10,000 to 20,000 inhabitants five or six hospitals, each with a fifty bed capacity will be established.

Deaths from Influenza in Mexico.—Statistics which have been gathered by *El Universal* show that there has been 436,200 deaths which were caused by influenza in Mexico during the last year. In the district of Morelos, practically every family lost at least one member through the disease. It is reported that hospital and medical facilities were inadequate to handle the cases during the epidemic. Practically every section of the country was visited by the disease. In some parts of the country, the local political situation was entirely changed on account of the conditions which were brought about by the epidemic and in one instance where Emiliano Zapata, who was the rebel ruler of one of the Mexican states, lost his power through the upset of conditions.

Convalescing Bureau for Wounded Soldiers.—At the Pershing Club, a convalescing bureau has been opened under the direction of Mrs. Herbert Gouverneur Ogden, where wounded soldiers who have been discharged from hospitals in country places near the city, will be entertained until they are able to resume their occupation in civilian life. Many of these men are not fit to enter business life immediately upon being released from the hospitals.

Bronx County Medical Society to Discuss Health Insurance.—A special meeting of the Bronx County Medical Society will be held at the Knights of Pythias Hall, 149th Street and Walton Avenue, Monday evening, February 17th, for the purpose of discussing compulsory health insurance. The following speakers will address the meeting: Hon. James M. Lynch, State Industrial Commission; Hon. James T. Holland, president of the New York State Federation of Labor; Hon. Peter J. Brady, supervisor, City Record; Dr. George W. Kosmak, Dr. Henry W. Berg, and Dr. William S. Gottheil. All who are interested in the subject of health insurance are invited to attend.

The Journal of Orthopaedic Surgery is the new title for the journal which has heretofore been known as the *American Journal of Orthopedic Surgery*. The January number was the first in which the *Journal* became the official organ of the American Orthopedic Association as well as the British Orthopaedic Association. The February number of this journal contains the first articles from the British contributors, and in this way, assumed its international character. They will continue, as they have in the past, to deal exclusively with orthopedic surgery, including the reconstruction work the necessity of which has been brought about by the war and also with some phases of industrial surgery. By the amalgamation of these two great orthopedic organizations, it is hoped that the orthopedic journal will set a very high standard. At the present time, it is the only journal in the English language which deals exclusively with orthopedic surgery.

Nomination of Medical Chairman of State Commission for the Feeble-minded.—Colonel Pearce Bailey, whose nomination Governor Smith has sent to the Senate to succeed Dr. Walter B. James as medical chairman of the State Commission for the Feeble-minded, is a widely known New York physician, a specialist in mental and nervous diseases. He is one of the founders of the New York Neurological Institute and during the war served as director of the Division of Neurology and Psychiatry in the Surgeon General's Office at Washington. In this military position he has been in charge of the United States Army facilities for the mental examination and treatment of soldiers in the cantonments and the overseas forces. Colonel Bailey is a graduate of the College of Physicians and Surgeons, alienist at St. Luke's Hospital, physician at the Neurological Institute, and consulting neurologist at St. Luke's and Roosevelt Hospitals. He is the author of *Accident and Injury; Their Relation to Diseases*. The resignation of Doctor James from the commission was necessitated by serious eye trouble and he has gone to Jekyll Island, Brunswick, Georgia, for rest and treatment.

Philadelphia Medical Societies.—The following medical societies will meet in Philadelphia during the coming week:

MONDAY, February 17th.—Blockley Medical Society; Medical Society of the Woman's Hospital.

TUESDAY, February 18th.—Mount Sinai Hospital Clinical Society; Southeast and West Branches of the Philadelphia County Medical Society.

WEDNESDAY, February 19th.—Section in Otolaryngology of the College of Physicians.

THURSDAY, February 20th.—Section in Ophthalmology of the College of Physicians; Northeast Branch of the Philadelphia County Medical Society.

Broad Street Hospital Receives Large Gift.—A \$100,000 provisional gift was made to the Broad Street Hospital with the understanding that the balance of the \$200,000 required to complete the additions, will be raised by March 1st. The directors of the hospital are confident that the money will be raised in the stipulated time. Sixty thousand dollars was donated in the addition for the equipment for a Roosevelt Pavilion which will be erected as a memorial to the late Theodore Roosevelt. These contemplated additions will enable the hospital to install 200 extra beds.

Medical Association of the Greater City of New York.—A stated meeting of the association will be held Monday evening, February 17th, in Du Bois Hall, New York Academy of Medicine. The following papers will be presented: Physical Exercise in Later Life, by Dr. Robert E. Coughlin; Habits of Posture as Related to Health and Efficiency, by Dr. Eliza M. Mosher; Factors Determinative of Body Weight, by Dr. E. E. Smith. Among those who will participate in the discussion are: Professor Graham Lusk, Dr. Victor C. Myers, Major E. W. Peet, and Miss Jessie H. Bancroft.

Jersey Physician Honored in France.—Dr. Russell W. Johnson, captain, Medical Corps, U. S. Army, Jersey City, has been cited for the Legion of Honor and the Croix-de-Guerre by the French Government for distinguished service at Hospital No. 104, Beauvais, France. Doctor Johnson is thirty-six years of age, and gave up private practice in Jersey City to serve in surgical dispensary work for the Red Cross. His hospital centre at Beauvais consisted of eight hospitals which, with annexes, accommodated 4,500 patients. The hospital was reorganized during last March to replace the one at Amiens. In addition to the honors received individually by Doctor Johnson, the entire personnel of the Beauvais hospital, to which he belonged, was cited for the Order of the Sanitary Corps.

Lenox Hill Hospital Rejects Merger.—At a meeting of the members of the association of the Lenox Hill Hospital, the proposed merger of this institution with Columbia University was rejected. This question has been under discussion for a considerable period. The hospital's association of physicians and surgeons, which is headed by Dr. George W. Jacoby, disapproved. The reason given was, that according to the plan, Columbia would have eleven trustees and the hospital only ten, and they wished to preserve the entity of the hospital. The following retiring trustees were reelected: Fritz Achelis, Adolf Kutroff, Bernard Ridder, Daniel Schnakenberg, and Julius A. Wursberg.

The Motion Picture in the Fight Against Venereal Disease.—At a stated meeting of the Eastern Medical Society, Friday evening, February 14th, Major Alec N. Thomson, Medical Corps, U. S. Army, presented lecture films showing the anatomical ramifications of gonorrhea and clinical cases of gonorrhea and syphilis. The film drama "Fit to Fight" was also presented.

Brooklyn Medical Association.—A stated meeting of this association was held Wednesday evening, February 12th, under the presidency of Dr. Thomas A. McGoldrick. An excellent programme was presented which included the following papers: The Pathology of the Thyroid Gland, by Dr. James G. Dwyer; The Surgery of the Thyroid Gland, by Dr. John J. McGrath. An executive session was held after these papers were read and discussed.

Decrease of Influenza Cases Over Week Ends.—According to the reports of the Health Department of the City of New York, there has been a decrease in the number of influenza cases during the week end. This has apparently been a constant phenomenon since the incidence of the epidemic. It seems that each week end has shown a regular decrease in the proportion of influenza and pneumonia cases as well as in the number of deaths reported to the health department for the week end days, Saturdays, Sundays, and Mondays.

American Journal of Care for Cripples.—This periodical becomes a monthly with its January issue, according to an announcement made by the editor, Douglas C. McMurtrie. Although dealing extensively with the rehabilitation of the invalided soldier, the *Journal* is in no sense a war product, as it is now entering upon its eighth volume. It will contain in the future the studies, translations, and abstracts produced by the research department of the Red Cross Institute for Crippled and Disabled Men, which material has hitherto appeared in a special series of publications. The *Journal* also continues as the official organ of the Federation of Associations for Cripples.

Meetings of Medical Societies to Be Held in New York.—The following medical societies will meet in New York during the coming week:

MONDAY, February 17th.—Medical Association of the Greater City of New York; New York Academy of Medicine (Section in Ophthalmology); Psychiatric Society of Ward's Island; Yorkville Medical Society.

TUESDAY, February 18th.—New York Academy of Medicine (Section in Medicine); Federation of Medical Economic Leagues of New York.

WEDNESDAY, February 19th.—New York Academy of Medicine (Section in Genitourinary Diseases); Society for Experimental Biology and Medicine (annual); The Geriatric Society; Medicolegal Society; Northwestern Medical and Surgical Society of New York; Women's Medical Association of New York City; Alumni Association of City Hospital.

THURSDAY, February 20th.—New York Academy of Medicine (stated meeting); New York Celtic Medical Society.

FRIDAY, February 21st.—New York Academy of Medicine (Section in Orthopedic Surgery); Clinical Society of the New York Postgraduate Medical School and Hospital; New York Microscopical Society; Brooklyn Medical Society.

SATURDAY, February 22d.—Lenox Medical and Surgical Society; New York Medical and Surgical Society; West End Medical Society.

Miscellany from Home and Foreign Journals

Blood Pressure and Physical Fitness.—V. E. Sorapure (*Lancet*, December 21, 1918) contends that the presence and relative lengths of the several phases to be noted in the auditory method of blood pressure determination are of greater significance than the height of the systolic pressure, or than the comparison of the systolic and diastolic pressures. From a study of the blood pressure findings in a series of 769 normal soldiers it was found that the average systolic pressure was higher than is found in civil life; that the average diastolic pressure was more constant than the systolic, not showing the same tendency to rise; that the average pulse pressure was about sixty per cent. of the diastolic pressure; that the average periods of the first three phases were, first, twenty per cent.; second, forty per cent., and third, forty per cent. of the pulse pressure; and that there was a very wide range over which individuals varied, though the averages for each group were quite constant. The normal diastolic pressure for these men was between seventy and ninety and the systolic pressure was fifty to sixty per cent. higher. In contrast with this group of fit men, a group of 189 men invalided home, but none having organic heart trouble, was studied. In this group a very large proportion of the men did not show the several characteristic phases in the blood pressure readings; while those who did show them revealed wide variations in their relative durations. The unfit group also showed considerable instability in the diastolic pressure.

Bone Grafting in Gunshot Fractures of the Jaw.—William Billington, Arthur H. Parrott, and Harold Round (*British Medical Journal*, December 21, 1918) have had more than two years' experience in the treatment of gunshot wounds of the jaw and state that successful treatment of compound fractures of the mandible involves: Osseous union; functional occlusion; and avoidance of disfigurement. Bone grafting in fractures of the mandible has involved many difficulties, but most of these can now be surmounted and success is now the rule. Preliminary preparation is often prolonged, even for many months. Sepsis is usually severe and injury to the surrounding parts is frequently extensive. The first step is an x ray examination followed by thorough exploration of the wound under general anesthesia. Foreign bodies, loose fragments of bone, and teeth in and adjacent to the fracture must be removed, but large fragments of bone which are well attached to the soft parts may be left. Rough plastic work may often be done at this time, and provision must be made for efficient drainage and access to raw surfaces within the mouth. One or more secondary operations may be required for the removal of sequestra and drainage of pockets before the wounds are healed. During this time the patient must be well nourished and gotten into good physical condition. Dental splints may be used profitably during this period to prevent deformity through muscular action and formation of scar tissue. Dribbling of saliva must be prevented by plastic operations before attempting to graft bone.

Just before operation for grafting all dental fixation splints are removed from the mouth and are not replaced until at least two weeks after the grafting. When four to six weeks have elapsed since the healing of all the wounds the grafting may be undertaken. A curved incision is made from half an inch above the line of the lower border of the jaw one inch behind the end of one fragment to a corresponding point with reference to the other fragment and dips down in the neck to about an inch below the line of the lower margin of the jaw. This large flap is carefully raised by splitting the tissues, avoiding opening into the interior of the mouth. The soft parts covering the ends of the fragments are raised in the flap, exposing the ends for an inch. The fibrous tissues filling the gap between the fragments are then cut away, and the end of each fragment is bevelled by the removal of a flake of bone from its outer surface, thus exposing raw bone at the end and outer surface of each fragment. A suitable graft is then cut from the outer surface of the iliac crest and its ends are bevelled to fit the ends of the fragment. When properly fitted it is selfretaining and it is not held in place by any method of fixation. The flap is replaced and sutured in position carefully with hardened gut, sutures being placed to secure close envelopment of the graft. The skin is then closed and a simple dressing applied. When the wound is firmly healed and the fracture has been converted into a simple one fixation splints may be introduced, but the final dentures should not be fitted for four to six months after the operation.

Lethargic Encephalitis.—E. Farquhar Buzzard (*Lancet*, December 21, 1918) emphasizes the fact that the medical profession has never sufficiently appreciated that encephalitis, or inflammation of the brain, is by no means an uncommon condition. The presence of such a condition in connection with the diseases of early infancy and childhood is never, or only very rarely, considered as a possibility. A large number of cases of epilepsy, mental deficiency, hemiplegia, or diplegia are the permanent results of attacks of encephalitis which occurred during early childhood, and which were due to the virus of poliomyelitis. The form of encephalitis due to the virus of poliomyelitis has the constitutional disturbances, the age incidence, the seasonal variations, the sporadic and epidemic types, and the immunity from second attacks which are shared by other specific fevers. It represents a specific inflammatory lesion of the brain, just as other diseases affect other structures specifically. The form of encephalitis which has been epidemic recently is an entirely different disease, characterized especially by the fact that the disease may be present for days, or even weeks, before the intensity of the process becomes maximal. Its age incidence and seasonal variations are also entirely different, marking it as a distinct disease. In one type of this disease the process seems to involve the brain stem chiefly with resulting ocular disturbances, while in a second form this region is unaf-

fected, the brunt of the inflammatory process being borne by the basal ganglia. The symptoms in this second form are very similar to those of paralysis agitans, with the masklike, expressionless face, the rigidity of the extremities, and the tremor, posture and gait. In a third form the cerebral cortex is the part chiefly affected, giving clinical pictures suggesting cerebral tumor, abscess, or hemorrhage, and making diagnosis difficult. Four cases of this form are described. In two of them the skull was trephined and the dura and brain found hemorrhagic. All four resulted fatally and postmortem examination revealed extensive cerebral hemorrhage, encephalitis, and thrombosed cortical veins. The experience of these cases leads to the belief that operative intervention in the hope of relieving intracranial pressure is contraindicated, for decompression cannot be beneficial when the tendency to further hemorrhage still exists. Aside from the features mentioned, these brains show small round celled perivascular infiltration, capillary hemorrhages, ischemic softening, neuroglial proliferation, chromatolysis, and coagulation necrosis.

X Ray Diagnosis of Syphilis.—Deutsch (*Centr. für Chir.*, 1918, 45, 313.) records the case of a man aged twenty-six who suffered from dyspnea, cough, and a high temperature. He stated that at times, he coughed up blood. The x ray examinations showed anteriorly that the left apex was indistinct, posteriorly, shadows obscured both apices. In the right lung, there were isolated patches. The hilus was sharply outlined. On the left, there appeared on dorsoventral transillumination at a corresponding level with the lobes, a deep linear shaped shadow. The apex of this shadow being directed toward the hilus and pointing outward. The lower portion of the lung was obscured. There was little movement in the diaphragm, and the left of the heart was obscured by shadows. The aorta seemed normal and lying in a free mediastinum. On inspiration, the mediastinum did not seem to be dislocated into the healthy half of the thorax upon sagittal transillumination. Tubercle bacilli were not discovered. A positive Wassermann reaction was found. The patient showed a marked improvement under mercurial treatment which was followed by a change for the worse and a distressing cough. He expectorated foul smelling greenish masses of mucus which seemed to come from the lower air passages and to relieve his inspiratory stridor. He suffered from dyspnea, his respiration was superficial, and he was hoarse. A second x ray examination showed that the earlier dense shadow in the centre over the base of the left lung, a nuclear shaped area of clarity and this appeared more like a retiform structure whereas the balance of the lung remained the same as before. The patient died. The postmortem findings showed that the x ray should have been interpreted as follows: The central wedge shaped shadow corresponded to the thick layer of pleural inflammation in addition to the thickened bronchial walls and the secretion filled cavities. When part of the secretion in these cavities was removed by coughing, as a result of the treatment, the shadow became more clear. On account of its position along the lowest portions of the

upper lobe, the picture shown resembled that of an interlobular exudate which was distinguished principally by its form with the base turned toward the hilus. The shape of these shadows appears to be characteristic of the most usual form of pulmonary syphilis. It may also furnish an indication in making a diagnosis. The pleural affection is usually present at an early period of the pulmonary fibrosis. Treatment should begin early if the condition is recognized.

Influenza Vaccine.—W. Ford Robertson (*British Medical Journal*, December 21, 1918) recommends the use of a vaccine made from the *Bacillus influenzae* in the treatment of chronic influenza infections, the doses ranging from 0.005 to 0.1 mg. of the dried bacilli. Correct doses usually cause distinct focal reactions, while larger doses cause all the characteristic symptoms of an acute attack of influenza, showing the pathogenicity of this bacillus. The treatment should be continued over a period of six to ten weeks. In protective inoculation against the existing conditions of influenzal attacks other organisms must be included in the vaccine. The *Micrococcus catarrhalis* is the cause of severe, epidemic coryza and predisposes to influenza. It must therefore be included. Neither the pneumococci nor the streptococci should be included, however, for immunization, since these are purely secondary invaders. But for the vaccine treatment of a developed case of influenza a sensitized vaccine should be used, containing:

<i>Bacillus influenzae</i>	0.01 to 0.04 mg.
<i>Pneumococci</i> (polyvalent)	0.01 to 0.02 mg.
<i>Streptococcus</i>	0.01 to 0.02 mg.
<i>Micrococcus catarrhalis</i>	0.03 to 0.05 mg.

Value of Modern Blood Chemistry to the Clinician.—Alexander O. Gettler and A. V. St. George (*Journal A. M. A.*, December 21, 1918) discuss some of the ways in which blood chemistry may prove of great value to the clinician, basing their conclusions upon material obtained in 15,000 analyses. Retention of nitrogenous material in a large group of cases was found to be due to the presence of a complicating nephritis, or of some unrecognized complication, the group including pneumonia, various respiratory diseases, acute yellow atrophy of the liver, Graves's disease, syphilis, various diseases of the digestive tract, diabetes, the toxemias of pregnancy, septicemia, streptococcal meningitis, etc. The retention in such cases usually involved chiefly the nonprotein nitrogen. Routine blood studies were found, therefore, to be of special value in cases of nephritis, cardiac disease, certain cases of diabetes, furunculosis, carbuncles, and gout. The studies led to the following conclusions: In cases of true nephritis all of the nitrogen waste products are present in the blood in increased amounts, and the concentration is usually the greater in the cases of chronic interstitial nephritis. The degree of retention is usually a direct index of the severity of the lesion. The blood sugar is also usually increased, especially in cases of chronic parenchymatous nephritis. In cardiac disease the examination of the blood for retention does not permit the determination of whether the patient has a true nephritis, a nephrosis, or a renal congestion. Gout

usually shows some increase in blood uric acid, but in some chronic cases this substance may be within the normal limits, the increase being the more marked in the acute forms. There is no corresponding increase in the nonprotein nitrogen products in the blood in gout. The blood sugar and the alkali reserve are of the greatest value in cases of diabetes, an increase in the former often being found long before glycosuria appears. In cases of carbuncles and furunculosis without the symptoms of diabetes some sugar retention is always found in the blood and improvement in the lesions is striking when the carbohydrate intake is reduced. Some hyperglycemia is almost invariably present in cases of hyperthyroidism but is of little pathological significance, being merely indicative of an increased level of metabolism. In no case is the blood picture alone diagnostic, but it must always be taken in conjunction with other tests and the clinical condition, when it is often of the utmost diagnostic and prognostic aid.

Filterable Virus as the Cause of the Early Stage of Influenza.—H. Graeme Gibson, F. B. Bowman, and J. I. Connor (*British Medical Journal*, December 14, 1918) cite the investigations of Nicolle and Lebaillly, which seemed to show that influenza was due to a filterable virus, the disease having been transmitted to monkeys and to two men by the inoculation of the filtered bronchial secretions from acute cases of influenza. They also cite Foster's work showing the importance of a filterable virus as the cause of common "colds." The authors employed the methods of the two French observers and succeeded in transmitting the disease to two monkeys by the conjunctival and intranasal inoculation of the bacteria free filtrates from the sputum in cases of acute influenza. One of the monkeys was made only mildly ill and recovered promptly, the other was severely sick and was killed for examination on the third day of fever. The respiratory tract showed the presence of a hemorrhagic exudate, especially in the lower lobes of both lungs. The incubation periods were six and seven days, which agreed with the observations on the two inoculated human beings.

Scilla Is a Useful Heart Tonic.—Mendel (*Die Therapie der Gegenwart*, April, 1918) points out that scilla improves the pulmonary circulation and causes a better blood supply to the mucosa. Thus, in emphysema it brings about a decrease of the catarrh although the drug cannot be said to possess any directly expectorant property. Given in therapeutic doses, it is impossible to discover any action of the drug on the kidney or the renal functions, so that one may exclude any changes taking place in the renal tubules or glomerula from its exhibition. The combination of scilla and codeine phosphate has been found very active and useful. In order to obtain satisfactory results the drug should be given in diuretic doses which must be adapted to each individual. One will frequently be obliged to carry out an intermittent treatment. In therapeutic doses scilla has no nefarious secondary effects and there is no danger of accumulation of the drug. It lends itself to both continued and interrupted medication, leaving no harmful effects.

Sensitiveness of the Syphilitic Antibodies to Heat.—Gérard (*Paris médical*, November 9, 1918), studying the maximal limits of deviation of the complement induced by a given sample of serum when heated to 36° C. and when not heated, found that the syphilitic antibodies are markedly thermolabile. The deviating power may be lowered by seventy-five per cent. through heating the serum. In Wassermann tests, heated and unheated serums should both be employed. In the complete method, the customary half hour period of heating for destruction of the complement should be reduced to fifteen minutes.

Tonsillar Infections as a Source of Systemic Disease.—James J. King (*Medical Insurance and Health Conservation*, December, 1918) considers that focal infection is the most important subject before the medical profession today. The tonsils from their location in the oral cavity and their histological structure are the most frequent site of these infections. Treatment consists in eliminating the infection and this is best done by the administration of an autogenous vaccine three times a week until all bacterial activity has stopped, followed by enucleation of the tonsils unless there be some contraindication. Foci of infection, especially in the tonsils, should be searched for in all patients, especially those afflicted with cardiac lesions, arthritis cervical adenitis, goitre, and lesions of the nervous system often attributed to neurasthenia.

Remarks on Malaria.—E. Müller (*Zentralblatt für innere Medizin*, 1918, No. 17) state that quinine prophylaxis is not a true preventive measure. Usually it represents a treatment of malaria whose real nature is not well understood. In contaminated countries, thirty centigrams of the drug should be given daily and in addition to this one gram should be taken twice weekly. Prophylaxis should be begun early and is to be continued from three to four months after leaving the infected country. A mixed infection of tropical malaria and tertian type of the disease is very common in Turkey. The tertian fever remains latent for a long time and only becomes manifest at the end of the tropical malaria. The cases which are refractory to the action of quinine is due to the fact that the preparation of the drug is faulty or the doses have been insufficient or not properly absorbed. It may also be due to the fact that at the beginning of treatment, adult gametes are in the blood. When there is somnolence, vomiting or cardiac insufficiency, quinine should be given hypodermically in the muscles of the gluteal region. Salvarsan has no action over tropical malaria, but it is of value in tertian fever. Apparent good health in a malarial patient does not signify that he is cured of the disease. A cure is not proved by repeated negative blood examinations even by the method of the "large drop." Even a negative result from one method of provoked malaria is not a proof that a cure has been obtained, because some other method of provocation may perhaps cause the organism to appear in the blood. Provocation tests of the disease are harmful when a subject is to remain in a malarial country, because an incomplete cure of the disease offers a relative immunity against reinfection of the subject.

The Treatment of Peptic Ulcer by Gastroenterostomy.—Charles H. Mayo (*Minnesota Medicine*, January, 1919) states that true hemorrhage occurs in twenty-five per cent. of cases, and the x ray gives conclusive evidence in ninety-five per cent. Gastroenterostomy by the sure method has gradually replaced all other methods and silk sutures are giving way to chromic catgut. It has been found that gravity plays no part in the emptying of the stomach, that it will remain dilated unless relieved by its own peristaltic efforts, and that these efforts cannot overcome obstructive conditions in the intestine. Paresis of the stomach seldom occurs when excision is made by the Balfour cautery method.

Colon Bacillus Infections of Kidney and Bladder.—Granville MacGowan (*Journal A. M. A.*, December 7, 1918) states it as his frequent observation that persistent and unyielding colon bacillus infections of the kidneys and bladder are invariably due to colonic stasis of the fecal current, the interruption generally being in the cecum from adhesions to surrounding structures with immobilization. As a result of this chronic stasis a constant supply of colon bacilli enter the kidneys by way of the blood stream or the renal lymphatics and infect primarily the renal pelvis. The infection once established is practically incurable until an approximately normal condition of the large intestine has been restored. Two cases are given in detail to illustrate these contentions. The treatment of these chronic renal infections is therefore primarily surgical, the attention being devoted to the mobilization of the cecum and the restoration of the normal fecal current.

Treatment of Enterogenous Autointoxication.—G. N. Murphy (*Southern Clinic*, December, 1918) reports his experiences with various forms of treatment employed for the removal of autointoxication and various attendant harmful effects in his own person. The initial symptom was neuritis of the left shoulder and arm. Electrical and drug treatment for several months was without beneficial effect. The teeth were examined for pus cavities but found healthy. The stools had a putrid odor, and the patient suffered from anemia, frequent cardiac palpitation with profuse sweating and exhaustion, occasional attacks of pain in the right pectoral muscle, and chronic eczema. The following preparation of antiseptics incorporated in mineral oil was then formulated and tried:

Creosoti,	2 drachms;
Olei terebinthinae rectificati, }	..of each 1 drachm;
Tincturae iodidi, }	
Thymolis, }	
Mentholis, }	..of each 7½ grains;
Petrolati liquidi,	16 ounces.

M. Sig.: One tablespoonful night and morning, followed on alternate mornings by a saline purge.

At the same time lean meats, eggs, cheese, pastries, and highly seasoned foods were discontinued, and water drunk freely. Under this treatment the author recovered completely from the neuritis as well as the other disturbances referred to. In the above prescription the various drugs are held in suspension in the oil except the tincture of iodine, which precipitates in a few hours. The mixture should always be shaken before taking.

The Results of Treatment of Carcinoma of the Female Genitalia.—K. Baisch (*Zentralblatt für Gynäkologie*, 1918, No. 17) places upon three occasions and at intervals of from two to three weeks, fifty milligrams of a radiating substance (enclosed in a copper tube) in front of the cervical canal and fifty milligrams in a capsule over the cervix. The tubes are left *in situ* for twenty-four hours. In the patients with inoperable carcinoma not one was alive after the lapse of two years. At the end of from three to four years there were twenty-three per cent. temporary cures in cases of operable cancer, therefore a little less than the proportion in cases treated surgically. In carcinoma of the corpus uteri forty per cent. of the patients treated were alive at the end of from three to four years. A combined surgical treatment and radiotherapy gave a good result in one case of carcinoma vulvæ. Taken all together the results of radium treatment are the same as those obtained by surgical interference. In early cases of cancer, treatment with radium is sufficient, but in all other operable cases surgical interference should be resorted to, excepting in fat subjects or those offering a cardiac lesion or some organic affection or complication.

Treatment of Extensive Septic Wounds.—H. Gardiner (*Lancet*, December 7, 1918) contends that the chief use of gauze dressings is to protect wounds from extraneous infection, and that the objectionable features of their use can be avoided if some other means of preventing infection be provided. The following proves most satisfactory: The wound is incised and all pockets are opened up in such a way as to obtain the maximum effects of gravity in carrying away the discharges. Then an ordinary gauze packing is applied and bandaged on for the sole purpose of checking bleeding and oozing. This is removed after forty-eight hours and the wound cleansed by syringing with some mild antiseptic such as boric acid, or weak eusol, solution. A guard of appropriate size and shape is made of perforated zinc and bent to form a cradle over the infected part. This is placed in position and covered by a sterile towel and a bed cradle is put on to hold up the bedclothes. The discharge which runs from the wound is absorbed by a sterile wool or sphagnum pad placed beneath the part. Twice daily, or oftener the wound is uncovered, syringed and swabbed out, the pad changed, and the zinc cradle, towel, and bed cradle are replaced. This treatment is continued until all pockets are closed by granulations, the whole wound surface is granulating evenly, and the discharge has practically ceased. Then the wound is dressed in the usual way until completely healed. At times difficulties are encountered, such as the inability to utilize gravity fully, or the problem of keeping the part in position during sleep. The first of these is overcome by the insertion of a small gauze wick which hangs down over the edge of the wound. The second by the use of a suitable splint. The advantages of the plan are: Perfectly free drainage; absence of tendency to form pockets; absolute painlessness of the treatment; absence of all manipulation of the wounded part; and great economy in dressing materials.

Proteus Infections in War Wounds.—Sacquépée, de Lavergne, and Dehorne (*Presse médicale*, November 21, 1918) state that under certain conditions organisms of the proteus group may give rise to manifest infective states in war wounds. The resulting infection rather readily passes from one wound to another, in common with pyocyaneus infection, which frequently coexists. Preventive measures are therefore advisable, in view of the relative tenacity of such infections. Proteus infections unplanted secondarily in a wound was found, however, to yield rather easily to antiseptic treatment, though comparatively resistant to the so-called "physiological" methods of controlling wound infection.

Carriers of Diphtheria Bacilli.—Costa, Troisier, and Dauvergne (*Presse médicale*, December 5, 1918) have noticed that the truly dangerous germ carriers are generally convalescents from definite or "fruste" attacks of the disease. Really healthy carriers quickly get rid of the bacteria they have been harboring. Three consecutive negative examinations, practised at six day intervals, are required before a patient or carrier can be dismissed with entire safety. In view of the small number of true carriers and the important rôle they play in the propagation of the disease, confinement of these individuals in hospitals, that their isolation until sterilization may be insured, is the only logical course to pursue.

Preoperative Demonstration of Malignant Disease Metastases.—C. Hamilton Whiteford (*Lancet*, December 14, 1918) describes a case in which silent metastatic growths were demonstrated roentgenographically in the mediastinum in a patient with an otherwise easily operable cancer of the breast. He then emphasizes the fact that the thoracic cavity may be the site of early, silent metastases in nearly every form of malignant disease. These metastases can usually be demonstrated by means of radiography, and their discovery will save many a patient from utterly useless operation and will improve the recovery records of early radical operation. It should also be possible to demonstrate metastases in other regions than the thorax. The examination for such metastases should be made as a routine before operation is undertaken.

Acromegaly of the Larynx.—Chevalier Jackson (*Journal A. M. A.*, November 30, 1918) describes four cases of acromegaly in which the structures of the larynx participated in the enlargement. He points out the very slight attention which has been given to the condition of the larynx in acromegaly, especially in view of the frequency with which changes are noted in the voice, and emphasizes the need for examining the larynx in every case. The overgrowth of acromegaly involves the laryngeal cartilages and soft parts and may produce stenosis sufficient to require tracheotomy to prevent asphyxia. The laryngeal image seems frequently to be asymmetrical, though the external enlargement is usually symmetrical upon palpation. The altered voice of acromegaly may be due to the laryngeal changes; alterations in the resonating cavities, etc. Acromegalic overgrowth should be excluded in all cases of apparent laryngeal hyperplasia.

Generalized Tuberculous Infection in Nurslings.—R. Raimondi (*Presse médicale*, November 21, 1918) calls attention to the relative frequency of generalized tuberculosis throughout the first year of life and to a less extent in the second and third years. It is much commoner in bottle fed than in breast fed infants; in the latter it is generally due to tuberculosis in the mother. Many infants die from galloping phthisis following influenzal infection. In such cases, at the conclusion of the grippe symptoms the appetite remains poor and passes into serious anorexia. Usually the infant is prostrated and somnolent, with a pale, slightly dusky color, enlarged lymph nodes, impaired resonance about the apices, and dullness between the scapulæ. On auscultation there is marked puerile breathing. Unusual hairy development generally exists in these cases, and the eyelashes are very long. Later the temperature curve assists in the diagnosis, distinct vesperal fever appearing, with temperatures usually of 37.8° to 38.5° C. Emaciation progressively increases and the child succumbs in from three weeks to three months. In a few instances meningeal symptoms conclude the case or diarrhea hastens the fatal termination. Sometimes a distressing cough suggesting pertussis and coupled with dyspnea is noted, due to marked enlargement of the trachobronchial lymphglands. Occasionally caseous pneumonia develops, causing death within two weeks with temperatures of but 38° to 39° C.

Complement Fixation Test in Tuberculosis.—Edward Fidler (*Lancet*, December 21, 1918) employed an antigen resembling that described by Miller and used two methods of applying the test, both of which are described. From the application of the test to 570 different cases, he found that cases of active pulmonary tuberculosis gave from seventy-four to seventy-seven per cent. of positive reactions. The method could have been made much more sensitive, but it would then have given too many positive reactions in cases known to be nontuberculous and would have been robbed of what practical value it might have. Its practical value seemed to be very slight, for the diagnosis could have been made by other methods in the great majority of the cases which gave positive results. A reaction, however, could be relied upon as a definite aid to diagnosis. Such reactions occurred most frequently in cases of active tuberculosis; in thirty-five per cent. of incipients; in thirty-seven per cent. of moderately advanced cases; and in forty-eight per cent. of the advanced cases. The reaction was noted in only 1.8 per cent. of the clinically nontuberculous. A negative reaction seemed to have little value except in very advanced stages of tuberculosis, and it was not a certain sign of absence of activity. The test was positive in about twenty-two per cent. of 215 clinically nontuberculous cases, but among those who gave a history of contact with tuberculous persons the positives mounted up to about seventy-five per cent. The test was definitely specific in the majority of cases, but there was some cross fixation in strongly syphilitic sera. The test, therefore, had always to be taken in conjunction with the Wassermann reaction.

Hemorrhagic Bronchitis.—H. Violle (*Lancet*, December 7, 1918) has found in France a considerable number of cases of the hemorrhagic bronchitis originally described by Castellani, and due to the *Spirocheta bronchialis*. The patient is usually suspected of having tuberculosis for he has frequent cough and bloody sputum, usually of a peculiarly vivid pink color. On physical examination of the lungs the findings may vary from little or nothing to simple bronchitis with or without emphysema, or areas of slight consolidation. The general condition of the patient is usually very good, except for a slight degree of anemia. The diagnosis is made by the discovery in the sputum of the characteristic organisms and by the absence of other organisms or parasites. The prognosis of the condition is favorable and the treatment consists chiefly in rest, nourishing diet and open air. The bleeding may require the administration of a few drops of tincture of iodine with ergotene.

The Determination of Carbon Dioxide in Carbonates.—Donald D. Van Slyke (*Journal of Biological Chemistry*, November, 1918) has evolved a means of determining carbon dioxide which appears to be applicable to all carbonates, soluble or insoluble, in the absence of acids, such as hydrogen sulphide, that are highly volatile from water solution. The carbonate, either pulverized or in solution, is put in the bottom of a tube twenty to twenty-five mm. in diameter, which is then placed in a 250 c. c. suction flask containing an excess of 0.1 N barium hydroxide. When pulverized bones are the subject of analysis at least two hours must be allowed for complete evolution and absorption of carbon dioxide. When the reaction is completed the vacuum is released, the barium carbonate removed by filtration with a Gooch crucible, and the flask and crucible are rinsed with three portions of about twenty c. c. each of water. The filtrate in the receiving suction flask is titrated against 0.1 N hydrochloric acid.

Paroxysmal Dyspnea in Incipient Miliary Tuberculosis.—Uhry (*Paris médical*, October 12, 1918) reports a case of miliary tuberculosis of the lungs in which intermittent attacks of dyspnea preceded the appearance of any fixed pulmonary symptoms. Five such attacks were observed at intervals of a few days. No prodromes preceded them. From the beginning of each attack an exacerbation of the preexisting dry cough took place. At the height of the dyspnea the rate of respiration reached sixty to eighty to the minute. The pulse frequency was likewise increased, the temperature rose, and marked cyanosis—limited, however, to the face and trunk, appeared. The duration of the attacks was from three quarters to one hour. The attack always terminated with a profuse sweat, after which the respirations gradually returned to their customary rate of twenty to twenty-four. Auscultation during a paroxysm, rendered difficult by the cough, never elicited any signs referable to the lungs save a few discrete subcrepitant râles which appeared before the attack. Oxygen inhalation failed to relieve the cyanosis during the paroxysms. The patient eventually developed signs of tuberculous meningitis and died in coma.

Studies on Irritable Heart.—Louis M. Warfield and Frederick M. Smith (*Journal A. M. A.*, November 30, 1918) have made an intensive study of the syndrome of irritable heart among recruits in the effort to discover whether the condition can be diagnosed before the men enter the service. The cases studied were different from those upon which Lewis reported, being men who had been daily engaged in some occupation which provided uniform work without sudden calls upon the reserve strength of the heart. From their investigations the authors feel that the man with irritable heart can be discovered before induction into service. In this detection the most important element is the taking of a careful history with special attention to previous attacks of dizziness or fainting, exhaustion, precordial pain, and of pounding of the heart on slight exertion. The second element is the careful observation of the unusual physical response to the hopping exercise and the increase in the pulse rate out of all proportion to the severity of the exercise. In the cases investigated few were found who did not give histories of one or more of the phenomena mentioned. The condition of irritable heart was found to be due to pulmonary tuberculosis in a considerable proportion of the subjects. In some of the doubtful cases the exercise test brought out the signs of tuberculosis and gave a rise of temperature. In other questionable cases the result of the exercise test made the diagnosis of irritable heart positive without question.

Localized Tetanus of the Extremities.—E. Chauvin (*Revue de médecine*, March-April, 1918) reports five cases, and recognizes three clinical forms of localized tetanus: A pure localized form, a primarily localized but secondarily generalized form, and a primarily generalized and secondarily localized form. Tetanus of the extremities results from local toxic impregnation through traumatism. It generally appears late, being due usually to an attenuated tetanic infection. While a few cases were recorded before the advent of serum treatment, the number of instances has enormously increased since then, so that localized tetanus may be considered essentially a result of preventive serum therapy. The toxin of tetanus extends from the site of injury toward the nerve centre by two routes; the nerve filaments and the blood stream. While in experimental animals nerve impregnation distinctly predominates, in man the intoxication appears to be general from the start and the circulatory route of diffusion more important than the nervous. Yet at first there are often painful contractures about the site of injury. Chauvin accounts for localized tetanus in man by the supposition that the blood stream has been rendered relatively inhospitable to the tetanus toxin by prophylactic serum injection, the local impregnation, therefore, alone remaining. The centres react late or not at all, because the toxin reaches them only secondarily, by the nervous route. Yet if the amount and virulence of the toxin be sufficient, the at first localized form may later pass into a fatal, generalized form. Or, if circulatory diffusion has not been entirely prevented, there may be an initial mild generalized reaction soon passing into a local condition.

Proceedings of National and Local Societies

THE NEW YORK PHYSICIANS' ASSOCIATION.

Regular Meeting Held Thursday, December 26, 1918, at the New York Academy of Medicine.

The President, Dr. MILTON J. BALLIN, in the Chair.

Cases of Chronic Paralysis of the Auricle with Complete Irregularity but Slight Impairment of Efficiency.—Dr. LOUIS FAUGERES BISHOP said he was making this the subject of a special chapter in the study of the heart, first, because it was of considerable importance, and secondly, because it could be used for the encouragement of people with this particular trouble. The modern heart patient, in the course of time, became well informed as to his particular disease, indeed knowing as much about it in particular as many physicians did when it was only part of a general medical training, and it was absolutely impossible to pursue a policy of concealment of the nature of his trouble from him. At the time when I began the work I am now doing, myocarditis was characterized by a rapid, irregular and somewhat inefficient heart. This heart was characterized, on examination, chiefly by what one could not hear. The condition was called chronic myocarditis in those days, and was believed to be the result of degenerative changes in the whole heart muscle. For that reason, every one with this condition was told that he was in great danger, and when he continued to live for a long time it was considered a matter of surprise and good fortune. It was now known that the rapid and irregular heart did not necessarily mean that there was a great weakness of the bulk of the heart muscle, but only that there was a functional disorder of the auricle.

A prophecy was made by a great heart specialist more than fifty years ago, that if the time ever came when the auricle was understood, on that day a great light would be thrown upon disease of the heart. But during the intervening time so little was known of the auricle that it was hardly mentioned in medical education. The auricle was not a particularly important part of the heart from a mechanical point of view. As a machine, the heart got along pretty well if the auricle did not contract. The blood flowed toward the heart and, when the ventricle expanded, filled it, whether the auricle contracted or not. A much more important function of the auricle was that it originated the impulse of the heart to contract. Doctor Bishop described a large number of people under his observation at the present time, who were getting along very well in spite of a trembling paralysis of the auricle. In other words, instead of contracting, the auricle remained in a condition of distention, and yet there were ineffective attempts at contraction, starting all the time from different parts of its surface, each one of which was an attempt to originate a beat that naturally would be carried out by the ventricle. In other words, there was a trembling palsy of the auricle.

The first case was that of a physician who was about to return to his work after a serious attack of influenza. The picture of his heart beat told absence of any evidence of a contraction of the auricle, but showed the ventricle contracting much too often and without any regularity, so that instead of the three important electric waves accompanying each heart beat, there were only two. The R wave represented the contraction of the ventricle, and the T wave represented the work of the ventricle. There was an unsteadiness of the picture between the beats, but it consisted of an almost indefinite number of little waves. This shower of small electric currents that came from the heart was due to the trembling of the paralyzed auricle and was always present in those people who had paralysis of the auricle. Unfortunately for the interpretation of the electric pictures of the heart beat, the same kind of irregular waves came from a good many people from other causes. This could be easily appreciated in remembering that every muscle of the body, when it trembled, produced an electric current; and in very nervous people, particularly those who had very high blood pressure and were otherwise out of order, their whole muscular system was unsteady.

Entirely aside from the heart, the chemical activities of the body caused electric currents. In healthy, well people, this so called body current was perfectly steady, and before taking the picture of the heart currents it was neutralized by throwing a little, opposite direction, electricity into the current from a small battery. In some people this body current was irregular and interfered with the photograph of the heart beat, just as it was difficult to photograph a restless child. So, to recognize the picture of the heart beat as being due to this trembling palsy of the auricle, it was necessary to look where the wave from the auricle ought to be and find it absent. There ought to be about a tenth of a second before each of the churchsteeple shaped waves that indicated the contraction of the ventricle.

The second case was that of a woman fifty-six years of age, executive manager of a large fashion publication business. She complained of throbbing in the back and palpitation of the heart, which apparently dated from a severe attack of typhoid fever twelve or fourteen years ago. Her heart was very rapid and irregular, but under careful administration of digitalis and a course of Nauheim baths, she had been restored so that she carried on her occupation with comparative comfort. Her heart was completely irregular, but was functionally competent without definite auricular contraction.

Case III, a man sixty-two years of age, manager of a large iron business, came under observation about a year ago during an attack of decompensation, characterized by dropsy, shortness of breath, and congestion of the lungs and liver. He responded promptly to full doses of digitalis

and ipecac, according to a formula the speaker had published elsewhere. He was able to go back to his business and, in spite of much trouble due to loss of employees in the war and large army orders, had gotten along very well. At present his heart remained completely irregular, and still his general condition was fairly good.

Case IV, a man forty-six years of age, came under observation in July, 1915, with complete irregularity of the heart, which was demonstrated by the electrocardiogram to be due to a paralysis of the auricle. He had been under observation ever since and had remained at the head of the accounting department of a large manufacturing plant, and carried on his work without impairment or inefficiency. His condition was as good as it was three years ago.

The fifth case came under observation in November, 1913. He was thirty-seven years old, a lawyer of very active practice, and much engaged in public philanthropy as well. His heart was completely irregular, and the electrocardiogram showed fibrillation of the auricle. He had gone on ever since under careful supervision, and remained apparently as well as he was at the beginning.

These were people who were under observation just at the moment. By a little effort, a large number of similar cases could be brought under review who had only been observed on one or two occasions. The important point was the proper classification of people suffering from this particular type of functional heart disorder and placing them in a group that should be known as benign fibrillation of the auricle.

Corpus Luteum in Neurological Practice.—

Dr. H. CLIMENKO read this paper in which he reviewed the results achieved, in a number of selected cases, by the administration of corpus luteum in varying dosages and in combination with other forms of opotherapy. Endocrinology had long passed from the realms of academic speculation into the land of practical knowledge. There was hardly a vital function in the living organism that did not depend upon the secretions of one or another gland, upon the proper relation in the confederacy of glands of internal secretion. There was still much to be learned, however, as to the *modus operandi* of the extracts of the glands, and the attainment of this knowledge was very desirable from the therapeutic viewpoint. Toward this end the practitioner could assist by clinically confirming the findings of the laboratory, keeping careful records of results in all the cases where opotherapy seemed indicated and comparing these results from time to time with those of others. With this object in view the writer had studied the effects of these extracts on various groups of symptoms, but this article would be confined to the results obtained by the therapeutic use of corpus luteum. Present day knowledge of the physiology of corpus luteum could be summarized briefly. Through its use there was a tendency in the body to retain nitrogen and put on flesh; it had a marked vasodilator effect; the development of the mammary gland depended upon the formation of corpus luteum; the fixation of

the embryo, the formation of the decidua and menstruation depended upon the secretion of the corpus luteum. Extracts of corpus luteum, however, did not replace the function of the normal gland. Corpus luteum was a true puberty gland and it was an antagonist of the pituitary. Extract of corpus luteum caused diminution of nitrogen excretion in the urine, diminution of oxygen absorption, unstable output of carbon dioxide, increased activity of sweat glands, and a marked fall in blood pressure. With these physiological data on hand, extract of corpus luteum had been used by clinicians in syndromes believed to be caused by disturbed sexual gland activity. The writer had been interested in its use in the so called "nervous syndromes" associated with disturbed sexual gland function, and he carefully watched the therapeutic results in a selected number of type cases. Details of these cases were given, but they might briefly be summed up as follows: Satisfactory results were obtained and, in most instances, very rapidly in menstruation insanity; mild manic depressive insanity; menstruation psychosis; headaches occurring with menstrual disturbance; and symptoms of diminution of hydrochloric acid with menstrual disturbance. There were no results in menstrual disturbance due to obstruction; in menopause due to surgery; cessation of menstruation with symptoms of acromegaly; in hysteria; or in organic nervous disease. The clinical data following upon these observations was: 1, corpus luteum extract was effective only in the female; 2, it acted best when there was reason to believe the native corpus luteum was still present; 3, the administration of the extract could not replace the function of the native corpus luteum in pregnancy and probably also not in menstruation; 4, when menstruation was discontinued by virtue of disturbance in the secretion of another gland, corpus luteum would not produce menstruation; 5, its action was more or less prompt and small doses were effective; and 6, corpus luteum extract, when effective, produced almost always the same chain of phenomena.

The general conclusions were that corpus luteum had a specific action; the administered extracts probably did not act as the native hormone; and the extract, in all probability, stimulated the native corpus luteum to function. The two contraindications to the use of corpus luteum were an abnormally low blood pressure and profuse and frequent menstruation.

Dr. MAURICE FISHBERG said that Doctor Klimenko's paper, in contradistinction to usual class of papers on endocrine therapy, presented cases actually observed in practice by a man with keen clinical insight, and to whom patients came more for cure than for diagnosis. These were people that were apt to go to a neurologist after they had applied without relief to every one else. There were many other cases of this kind in which the organic extracts worked marvelously if the opotherapy was done with discretion. Many patients suffering from chronic disease could bear the disease until there developed disturbance of the internal secretions. A cure of the original disease was often ascribed by the patient to successful organotherapy. It was

probably in part due to this that there were so many people who spoke of themselves as of the "pituitary type," "the thyroid type," etc., and it was well for the physician to whom such a person went for advice to have some accurate knowledge of the symptoms of disturbance of one or another of the endocrine glands. Organotherapy had its place in the various specialties and where it was effectively applied the patient felt so comfortable that it was equivalent to a cure. The speaker had tried it in many cases where he thought it might be useful and he occasionally found it very valuable.

Dr. WALTER TIMME said that a discussion of corpus luteum brought up the entire question of the internal secretions and that was too large a subject to be covered in a few moments, so he would limit his remarks to the subject matter of the paper. What Doctor Fishberg said was to a large degree true, that it had become a custom among the laity to recognize in themselves disturbances that they attributed to the pituitary, to the thyroid, etc., and it had become one of his functions to disabuse them of such idea. An acromegalic was not necessarily a subject; he was a finished product and he himself had cured the condition by his own secretions. To be sure, in doing so he became acromegalic, but he was cured of the internal disturbance. Apart from that type of case needing no treatment, there were those that had glands at fault and among them were the neurological types described by Doctor Climenko. He had endeavored to estimate and give reasons for the application of corpus luteum; it was to be used in this type or that type, this or that condition, with good effect. He said that in certain classes of cases it might be said to be specific. Dr. Herman Hoppe appeared in print with the statement that corpus luteum was specific in hyperthyroid cases and gave the statistical result that one out of five were cured by the administration of corpus luteum and said the others would have been if he had used it properly. He was trying to make a universal law of application. This could not be done; a universal law of application for any of the internal glands at the present day was not to be entertained. One could not from the statement of symptoms presented by a patient say that corpus luteum or any other gland was going to be effective. One must see the patient, recognize the physical condition, his physical makeup, the bones the musculature, the connective tissue structures, and study the metabolism to realize what type of individual he was, and in that event only could one pronounce him deficient in thyroid, pituitary, etc. In such a case the other glands endeavored to compensate and gave an entirely different picture from that of an uncompensated case. Each type of case needed to make up some deficiency and there were no two cases alike, no matter how much alike the picture might be. There were many cases, such as Doctor Climenko described as being amenable to treatment, such as disturbance at the menopause, which had been benefited by corpus luteum. There were also cases of surgical menopause which had sometimes been amenable to treatment and sometimes not. The speaker endeavored at one time to make a law as to when corpus luteum should be

administered and his law depended on whether the individual was a vagotonic or sympathicotonic individual. Those cases that were depressed, that had excess of hydrochloric acid, tendency to vomit, excessive perspiration, pigmented skins; those were vagotonic individuals and corpus luteum would be effective in a certain number. But there were certain cases presenting all the symptoms of vagotonia in which corpus luteum would not act. There was never a clear cut picture of vagotonia and so the law was found not applicable.

As to the statement that corpus luteum caused a fall in blood pressure, this might be said: it did in certain cases; it did in those cases in which absence of corpus luteum caused increased pressure. In abnormal cases, those deficient in corpus luteum, corpus luteum extract would be helpful. In those cases in which corpus luteum was not the crucial factor, corpus luteum extract would do nothing. It was an extension of the principle of nature that one could restore a disturbed cell to normal function more readily than one could put a normal cell into disfunction—the tendency of nature to self repair. Corpus luteum bore a similar relation to blood pressure as did adrenalin. It had been taught that adrenalin produced an increase in blood pressure, but if there was one thing adrenalin did not do it was that. Adrenalin produces a fall in blood pressure generally, though not always. In the Officers' Reserve Corps at Plattsburg the speaker tested many young men in the pink of condition with adrenalin. Within half an hour practically all had a fall in blood pressure. That corresponded with the latest physiological laboratory findings. Adrenalin does not produce constriction of all the bloodvessels, but a constriction of the bloodvessels of the abdominal cavity, and dilation of the muscles of the thigh, whereas a larger dose produces constriction of the bloodvessels of the skin covering the thigh. If the constrictors overcame the dilators, there was rise in the blood pressure. It was similar with corpus luteum. It depended on the quantity whether one got a rise or fall. Usually it was a fall.

One very certain type of individual in whom corpus luteum in Doctor Timme's hands had given more or less success as a therapeutic agent was a type of girl with certain masculine features; a slight tendency to a mustache, pubic hair growing to the umbilicus, etc. In those cases corpus luteum was almost invariably of service. In administering a glandular product, one was dealing with an enzyme which acted by catalysis, not one which entered into combination with various metabolic processes, but helped metabolic processes along by its mere presence so that in administering it, it was sufficient to give it perhaps at times, only one day in seven, and not necessarily daily. Finally, Doctor Timme wished to say that Doctor Climenko was a very patient and skilled observer, and as such he would no doubt see that the puzzling thing about his cases was that there was no law of universal application which would enable him to indicate the type of case in which corpus luteum was effective. Each case was a law unto itself.

Dr. A. J. RONGY said that the whole subject of

the internal secretions was a mystery so far, and in trying to treat these conditions one was jumping in the dark. There were two views that seemed to be of primary importance in the therapy. First, the patients who had a disturbance of internal secretion usually came for treatment too late. If it were possible to get hold of these people when the disturbances were still at the beginning, it would be possible to do more for them than for those who had been going on for years with disturbed secretion. The next view was this: During the early time of the administration of these drugs the effect was good, but it did not last. Corpus luteum, or thyroid, extract would relieve certain symptoms manifested at the menopause for four, five, six or even eight weeks. Then, whether one gave large or small doses, the effects were not as good and the patient returned with the same symptoms. Doctor Rongy could not agree with Doctor Climenko on the results in artificial and natural menopause. He knew of many cases that had been relieved, by the administration of corpus luteum, of symptoms following double ovariectomy. The reason Doctor Climenko did not meet with much success was that he saw the patients ten, twelve or fifteen years after operation, and cases neglected to that extent did not respond to corpus luteum. As to the question of the administration by mouth and hypodermically, even in those cases where corpus luteum was indicated there were a number who would not respond when treatment was administered by mouth. Giving them the same preparation hypodermically, however, one would find the symptoms subside. As the speaker saw patients from day to day, he felt it was often a question of mere guesswork. The future would probably reveal where groups or classes of cases belonged which would help one to treat them very much better than it was possible to do at present.

Dr. DAVID M. KAPLAN said that it was a pleasant internal secretions. There had been many inaccurate statements made here tonight, but an honest effort by an earnest worker accomplished a step forward on a path different to that trodden before. When Doctor Rongy spoke of a lasting effect, what did he mean? There was no gainsaying that surgical effects were axiomatic facts. It was true that if luteum did not work in one case it would work in another. But if the ovaries had been removed, no matter how justifiable such a procedure might have been, those ovaries would never act again, and that patient would never be normal on account of the premature artificial climacterium, no matter how treated by internal secretions. If the speaker were a woman, he would prefer death to double ovariectomy. Doctor Climenko was still groping in the dark, for as yet no one was an expert. But no one should say the subject was mysterious, but each should try for the sake of those to whom they were responsible, the patients, to do what was possible to help them along. In endocrinology, it was beginning to be apparent here and there that there was an opening, and when these were investigated they might be found to lead to something. When definite anomalies were seen in certain glands and the individual with these glands was

studied, and then another individual was observed without the diseased gland, the first could reasonably be called a pituitary person, or an adrenal person. The relationship between ovary and pituitary was very close and one could not tell where the function of the one ended and the other began. There were many with dissimilar characteristics and often the woman was of the masculine type. The adrenals in such a case were responsible for the mass of energy that made such a woman what she was. It was not always corpus luteum that would help her, but that woman would respond more or less in function with proper opotherapy. During the process of life from birth to the grave these functions of the glands were by no means jumbled up. The child did not need any gonadal therapy and the person of seventy did not need it. The administration of these products was only to be given between the gonadal advent and the gonadal cessation. When the child of ten or eleven developed mumps it was by no means an accident. Mumps was a disease due to deficiency in the child's genital organs and one could foretell by this disease that when he grew up the gonadal apparatus would be deficient. In examining an adult human being one asked if he had mumps when thinking of the gonads, diphtheria when thinking of the adrenals, pituitary when thinking of scarlet fever. This was not a hard and fast rule, but nine out of ten times it would work. In the examination of any female, one should be careful to get the menstrual history with every bit of detail from the beginning. There were few men who knew how to do that. Every detail had a bearing on endocrine therapy, and also left complete histories to posterity with the studies of internal secretions. It might appear to be a waste of time, but it was of tremendous help. An advance in endocrine knowledge lay in the fact that at last it had been discovered that thyroid could be given just as effectively once in seven days as three times a day.

Dr. ARNOLD STURMDORF said Doctor Climenko's interesting contribution revealed a most commendable conservation in this hazy therapeutic field. In the case reports cited, two factors stood out significantly: first, all of Doctor Climenko's patients were pronounced neuropathics and, secondly, in one of them was corpus luteum administered without some adjuvant, so that any deduction as to a direct or specific actions of corpus luteum, in this particular group of cases, was obviously questionable. In attempting to estimate the therapeutic value of corpus luteum, its established clinical, physiological and pharmacological phases should be considered. In the large majority of women, the spontaneous menopause was devoid of any manifestations directly due to the cessation of menses. This also held good for the majority of the postoperative climacterics. On the other hand, climacteric symptoms or so-called ablation symptoms might follow a hysterectomy whether the ovaries were conserved or removed; furthermore, ablation symptoms occurring after hysterectomy with conservation of the ovaries were relieved by oophorectomy. The corpus luteum inhibited ovulation and inferentially menstruation and yet, paradoxical as it appeared, corpus luteum was

administered as an activator of both. Pharmacologically, most of the commercial corpus luteum on the market was inert. Corpus luteum was a cyclic formation and varied from day to day as it did in the different species. The observed phenomena were as yet contradictory and chaotic. The miraculous effects reported in most of the cases suggested more of a psychic than a specific result and one must abide a more exact basic knowledge of ovarian biochemistry to formulate a rational therapeutic practice.

Dr. SAMUEL W. BANDLER assured Doctor Kaplan that a woman was not ruined because her ovaries had to be removed, for with ovarian extract immediately after operation many symptoms were ameliorated. The speaker agreed with Doctor Sturm-dorf as to the use of corpus luteum. He himself was satisfied to use ovarian extract and he had found corpus luteum as such tremendously overrated as regarded its value. In some cases he gave corpus luteum to do the opposite of what other men prescribed it for. He agreed with Doctor Kaplin regarding the importance of detail in taking the menstrual history; herein lay important indices guiding to a knowledge of the woman's constitution. If the patient complained that for so many days before menstruation she was nervous, restless and irritable, here was an index of what was happening under the stimulus of the ripening follicle of the ovaries. Associated with that was the stimulus to the thyroid and the activity of the pituitary. Dysmenorrhea was much more due to the fact that the pituitary was involved than any action of the ovaries. There was an interglandular upset thirteen times a year. Many times there was no indication of this until after the birth of a second child, when glandular exhaustion made a different individual. The speaker had named this interglandular upset constitutional dysmenorrhea. Whether congenital or acquired it was one of the most important indices of the patient's condition. If every man in the medical profession were to pay attention to that factor, they would get a better idea of endocrines. Nine tenths of the prescriptions in the next five years would contain endocrine extracts.

Dr. H. CLIMENKO, in closing the discussion, agreed with Doctor Timme in that there was not a single structure in the human body, particularly of internal secretion, that was disturbed by itself. It was a disturbance in the chain of the entire confederacy. One could not point out that this gland or that one was disturbed and he had tried to emphasize in his paper that there was often an accompanying disturbance of other glands. About vagotonia and sympathicotonia, to his mind this meant merely symptoms, a result of disturbed internal secretion in the confederacy of glands. Regarding artificial menopause, the gynecologists were his friends, but he had to side with Doctor Kaplan against them. Remembering the cases of artificial menopause that he had seen, with their distressing neurological symptoms, he would hesitate a long time before he would advise a double oophorectomy. Doctor Sturm-dorf's stand could not be disputed; he was a gentleman of wide experience, but his views were opposed to those who had studied the subject

of opotherapy very thoroughly. Doctor Climenko had mentioned in his paper that it had been shown that corpus luteum did stimulate the pituitary. Doctor Bandler thought that by giving a drug one stimulated its antagonist. Where there were symptoms pointing to glandular disturbance, one was guided by the facts indicating the primary cause, and in the patients of the type described this evening it was reasonable to suppose that the trouble was lying in the corpus luteum. When giving one animal extract, it did not mean that replaced the one needed, but it probably stimulated or inhibited the action of other glands. In these cases it was true that one could not be too careful in taking the menstrual history; that had previously been pointed out by Kraft Ebling and some others of the leading scientists of Europe.

SOUTHERN SURGICAL ASSOCIATION.

Thirty-first Annual Session, Held in Baltimore, Maryland, December 17, 18, and 19, 1918.

The President, Dr. ISAAC S. STONE, Washington, D. C., in the Chair.

(Continued from page 204.)

Practical Considerations in Regard to Permanent Colostomies.—Dr. W. E. SISTRUNK, of Rochester, Minn., said that at present he was making a colostomy very similar in type to the one which had been described by Mixter. This colostomy was, as a rule, made through a straight incision placed below and about one inch to the left of the umbilicus, although it might be made through a low midline incision. An incision of this type possessed distinct advantages. Through it a thorough exploration of the abdominal cavity could be made. If found necessary, a primary resection of the bowel was possible, or, the first stage of the three-stage Mikulicz operation could be made; it might be extended in either direction, and if after the exploration it was decided to make a colostomy, this was made through the centre or upper end of the incision. The colostomy was made in a loop of the sigmoid flexure, this portion of the bowel being chosen on account of its extreme mobility and the length of its mesentery. After the loop had been lifted out of the abdominal cavity, an incision one and one half to two inches long was made through its mesentery parallel to the direction of the blood vessels and extending upward nearly to the bowel. A second incision, about one inch long, was then made across the end of the first incision quite near the mesenteric attachment of the bowel. Two strips of gauze were placed in the upper end of the T incision which had been made, and when these were pulled apart a good sized opening was made through the mesentery. The two sides of the entire abdominal wall near the centre of the incision were sutured through this opening in the mesentery. The remaining portions of the incision were then closed, a small bit of the bowel being included in two of the sutures to prevent the possibility of herniation of a loop of small intestine. After removing the gauze, a glass rod or rubber tube was placed through the opening in the mesentery between the skin and bowel to serve later as a guide

in cutting across the bowel. If necessary for gas distention, a small opening might be made in the bowel any time after twenty-four or forty-eight hours, and after five or six days the bowel was cut across completely with the cautery. As a rule, however, the patients passed gasses very readily through the knuckle which had been brought up, and it was unnecessary to disturb it before five or six days. After the loop had been cut across it was found that the two ends of bowels were separated by the entire abdominal wall for a distance of one to two inches. These ends protruded for a distance of from one to one and a half inches above the skin. They might later be cut shorter if thought necessary. The advantages of an operation of this type could be readily seen, and in the author's experience it had obviated some of the difficulties which often occurred following other types of colostomies.

Notes on Two Signs in Chronic Appendicitis.

—Dr. ROBERT T. MORRIS, of New York City, stated that two signs belonging to the sympathetic and autonomic nervous systems were of prime importance in making a differential diagnosis between chronic appendicitis and other affections of the abdomen and pelvis. These two signs did not belong to acute appendicitis. As a result of the chronic irritation of the appendix, impulses were registered upon the second and third right sympathetic lumbar ganglia known as the fused ganglion in such a way that it became hyperesthetic. Deep pressure upon the abdomen about an inch and a half to the right of the navel and a trifle caudal brought out this hyperesthetic point which constituted one diagnostic sign of importance in differential diagnosis. The other sign consisted in permanent distension of the ascending colon. It was what he called the cider barrel sign. Percussion upon the normal left side of the abdomen brought out a note suggestive of the cider barrel in October and percussion over the right side of the distended ascending colon brought out a percussion note suggestive of a cider barrel in March. This chronic disturbance of the ascending colon was apparently caused by exhaustion of its sympathetic innervation due to chronic nagging from the irritated appendix.

Surgical Treatment of Goitre.—Dr. MILES F. PORTER, of Fort Wayne, Ind., summarized as follows: "Usually patients do not consult the surgeon for relief from goitre until the symptoms, either toxic or mechanical, are severe. We cannot hope to achieve the maximum relief that surgery offers in this disease until the patient consults the surgeon before the symptoms become severe. Subtotal thyroidectomy is the operation of choice. Incision should be ample and located with a view to adequate exposure, and the muscles on one or both sides should be divided, when necessary. Incision should follow natural wrinkles and be perpendicular to skin surface. Properly placed sutures will at once coapt divided muscles and fascia and secure against hemorrhage. The hyperactive may usually be distinguished from the inactive or normal portions of the gland because, contrary to the generally accepted idea, these hyperactive portions are lighter in color and softer than the normal. The aim

should be to remove the diseased and leave healthy portions of the gland. Portions of the gland to be removed, should also be selected with a view of avoiding asymmetry. More than one fifth of the normal amount of gland structure should not be left behind. Usually it is better to completely divide the isthmus. Preservation of the posterior capsule will protect the parathyroids and recurrent laryngeal nerves. Subcuticular suture, with adhesive plaster is the best method of wound closure. With a few rare exceptions, ether anesthesia is advocated. For the preparation of substandard risks for the major operation injections of boiling water are to be preferred to ligations. Patients with small goitre of the diffuse, hyperplastic variety, may be cured with one or two injections, preferably through a small incision, uncovering the isthmus, so the operator can fill both lobes under guidance of the eye. Goitre symptoms will sometimes disappear promptly upon the removal of foci of infection in tonsils, or teeth.

The Standardization of Rural Hospitals.—Dr. ISAAC S. STONE, of Washington, D. C., spoke in favor of bringing the standard of all hospitals, whether large or small, up to that point which would afford the best service to the public and which would require the best medical and surgical training of the staff. Sufficient information had been collected to show the number of poorly equipped hospitals in perhaps all parts of the country in towns and rural districts. Many of these were but little better than boarding houses, without the essential equipment of house staff or laboratory, or indeed anything which justified the name of hospital. It was suggested that all hospitals should be inspected by the health officer or commissioner of health, whether they were public or private institutions, and in case they were found up to the standard of requirement they should be duly licensed and required to send in a full report of the treatment of all cases during each year. The writer also favored State aid to rural hospitals when necessary, to provide hospital relief in country or remote outlying districts. Especial attention was given to consideration of rural hospitals as social service centres and for the care of obstetrical patients whose homes were remotely situated or who were unable to obtain competent professional attendance.

Treatment of Tumors of the Upper Jaw with the Cautery.—Dr. JOSEPH COLT BLOODGOOD, of Baltimore, Md., said that the employment of the cautery in the partial or complete removal of malignant tumors was an old method. His own experience during the past five years had demonstrated that we had much to learn as to the details of its application. When we compared the results of operations for the removal of tumors of the upper jaw with the knife alone with the results of the removal of identical tumors with the cautery, we found that we had distinctly decreased the mortality, and when we had accomplished cures it had been with less mutilation. Whether the actual number of cures had been increased could not be demonstrated at the present time. The reduction in mortality was associated with the employment of local anesthesia

alone, or in combination with light chloroform general anesthesia. In many instances it was safer to remove the disease involving the upper jaw in stages. It was remarkable how much could be done under local anesthesia alone. When a general anesthetic was necessary, chloroform, in his experience, seemed to meet the indications best. It did not interfere with the use of the cautery. It was the best anesthetic when operations were performed in the region of the oral cavity. It should never be pushed to complete narcosis. The patient had no memory of pain, and although he was so lightly under the influence of the anesthetic that all reflexes were active, he remained more or less quiet. When chloroform was not pushed to complete narcosis the danger seemed practically eliminated, and the operations could be repeated at intervals of three or four days. In some of his cases there had been as many as fourteen operations. The surgeon should hold himself responsible for the anesthetic and direct its administration. In all of his cases the pulse and blood pressure were recorded every five or ten minutes. The chloroform was rarely administered longer than one hour. When the cautery instead of the knife was employed, the operation could be discontinued at any moment. The duration of the operation and the number of operations largely depended upon the general condition of the patient and local extent of the neoplasm. When the cautery was employed it was possible to remove the tumor piecemeal and to destroy from tumor tissue into the surrounding healthy tissue without danger of dissemination, while with the knife one must give the tumor tissue a wide margin and remove the entire mass en bloc at one operation. In tumors involving the upper jaw the complete excision with the knife, when the disease was extensive, always sacrificed more healthy tissue than when the cautery was employed, and the danger of this single extensive removal with the knife was greater than the removal in stages by the cautery. In the removal in stages with the cautery it was also possible to have a pretty positive microscopic control as an indication that enough had been done. One also learned quickly to distinguish granulation tissue in which there was no tumor tissue from that which still contained tumor tissue by its gross appearance which could be checked by the removal of a piece for microscopic study with the cautery. The new growth should be attacked with the cautery from two points. One should burn the tissue at the border of the tumor. This not only destroyed the infiltrating area, but excited in the healthy tissue beyond a granulation tissue which of itself was largely protective against secondary invasion, at least during the period of complete removal. The second attack should be upon the new growth itself, if possible, from the centre out. These two methods of attack were varied according to the size of the neoplasm and its local growth and the anatomical character of the surrounding uninvolved tissue. He found that he was helped by a thorough knowledge of the character of the local growth and its microscopic appearance based upon a thorough study of similar cases recorded in the Surgical Pathological Laboratory of the Johns Hopkins Hospital. Details of the

method of attacking tumors of the upper jaw would be given in the completed paper with illustrations.

Reconstruction of the Uterus.—Dr. CHARLES R. ROBINS, of Richmond, Va., approached the subject from two points of view, first the obvious advantages of exploring the cavity of the uterus through a direct incision. In this way many cases could be relieved without resorting to the radical measure of removing the uterus. From the other viewpoint the consideration was the removal of the pathological portion of the uterus and its reconstruction from the portions left. This procedure was facilitated by the anatomy of the organ. The blood supply and the tubes entering from the sides made it possible to remove as much of the intervening portion as might be necessary. The only thing necessary to leave was a continuous cavity from the tubes to the external os. This operation could most frequently be practised in the treatment of fibroids. It was not intended that it should be generally used because the cases in which it was indicated or possible were comparatively few. However, in young unmarried women and in married women who had not borne children, we would be justified often in whatever risk we might entail of unsatisfactory results or later development of fibroids. Two cases were reported. One in which a young unmarried woman was relieved of a profuse menorrhagia due to a fibroid infringing on the endometrium, and the other in which fibroid and fibrosis of the uterus were removed by extensive resection extending to the internal os and the reconstruction of the uterus by suturing the lateral portions together. In this case the patient subsequently married and became pregnant three times without pathology except that she aborted in the first two pregnancies. Her last pregnancy, however, resulted in a robust, living child.

(To be continued.)

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

The Human Machine and Industrial Efficiency. By FREDERIC S. LEE, Ph. D., LL. D., Dalton Professor of Physiology in Columbia University; President of the American Physiological Society; Consulting Physiologist to the U. S. Public Health Service; Chairman of the Subcommittee on Fatigue in Industrial Pursuits of the National Research Council; Executive Secretary of the Divisional Committee on Industrial Fatigue under the Advisory Commission of the Council of National Defense. Illustrated. Pp. vii-120. New York and London: Longmans, Green & Co., 1918. (Price, \$1.10.)

This report contributes important conclusions to physiology in relation to industry and presents an urgent appeal on practical scientific grounds for the attention of industrial leaders. The book is a little more than 100 pages long but within that small compass presents an entirely adequate argument to the layman of the necessity of adopting scientific principles in the best use of that great and unique machine, man, and at the same time an admirable

summary to the student of physiology of recent work in this field. "It is true that the science of the human machine . . . has not yet been developed so far as that of nonliving machinery, but the utilization of the science has not kept pace with its advance, and although here and there a factory management stands out as being fully alive to the desirability of organizing its work on a really scientific basis, to the average manager this is yet to be proved." With this as his point of departure, Doctor Lee proceeds to prove that certain fundamental conditions should be fulfilled, including individual qualifications of workers, adaptation of output to individual capacity, maintenance of working power, and retention of competent workers. In addition to these considerations, Doctor Lee gives chapters on the labor turnover, industrial accidents, industrial medicine, food, scientific management, and the physiological organization of work. These topics are not exhaustively treated, of course, in this small volume, but a full and carefully compiled bibliography opens an immense field of further reading. The main point, the practical application of physiological conclusions to industrial problems is most effectively made.

Action of Muscles, Including Muscle Rest and Muscle Re-education. By WILLIAM COLIN MACKENZIE, M. D., F. R. C. S., F. R. S. (Edin.); Member of the Council of the Anatomical Society of Great Britain and Ireland, and of the Staff of the Military Orthopaedic Hospital, Shepherd's Bush, London; Formerly Lecturer on Applied Anatomy to the University of Melbourne, and Examiner in Senior Anatomy to the Universities of Melbourne and Adelaide. Illustrated. New York: Paul B. Hoeber, 1918. Pp. xiv-250. (Price, \$3.)

Mackenzie gives us here an accurate and adequate treatment of the subject of muscle action which should give valuable and necessary insight into orthopedic problems. He complains that the term "paralysis of muscle" is abused and states that the condition is actually extremely rare while partial loss of function is common. In common with other recent authors who present the results of war experience in orthopedics, Mackenzie insists upon the value of scientifically directed volitional effort" and protests against the use of passive measures, such as massage and electrical treatment which, he says, can strengthen the action of muscle only after function has been initiated. Chapter I, entitled Principles, gives a clearly expressed and scientific exposition of the nature of muscles and ligaments, the evolution of muscular action, muscle development, special function, and mechanics. This matter is all presented from an intensely practical point of view and frequent reference to comparative anatomy clarifies many points. The remaining chapters deal with muscles of the body regionally, each section being followed by full discussion of the respective regional disabilities. The book presents material which is essential to effective orthopedic practice and its interesting comparisons with lower animals tends to the clearer conception of muscle function and these problems. There is curiously close and intelligent interweaving of principle and practice, between theory and the direct, common sense application of theory to treatment. Doctor Mackenzie's thorough knowledge of the subject, his simple, logical, and fluent style, and his clear

mechanical insight combine to make this 250 page work an important contribution to present orthopedic problems.

The Medical Clinician of North America—United States Army Number.

It is not possible to say more than a few words about this volume, for unstinted commendation cannot well be expressed in a variety of ways. Beginning with a short article on Clinical Research in the United States Army Base Hospital, by Major General William C. Gorgas, the volume proceeds to record no less than nineteen of such researches, no one of which can be singled out for commendation above the others. The subjects covered include the various respiratory infections which have taken such a toll from our camps and even our civil population; cardiac disturbances; empyema; the mediastinal complications of measles; drug addictions; and a number of other diseases. No one interested in the progress of medicine could fail to find between the covers of this volume at least two or three articles which would prove of special interest to him.

Births, Marriages, and Deaths.

Died.

- BAIRD.—In Baltimore, Md., on Sunday, February 2nd. Dr. John Wallace Baird, of Worcester, Mass.
- BIRDSALL.—In North Brookfield, N. Y., on Monday, January 20th, Dr. Gilbert O. Birdsall, aged eighty years.
- FREEMAN.—In Topeka, Kan., on Monday, January 27th, Dr. John D. Freeman, aged forty-eight years.
- GRIGGS.—In Philadelphia, Pa., on Sunday, February 2nd, Dr. William C. Griggs, aged fifty-two years.
- GRISWOLD.—In New York, N. Y., on Saturday, February 1st, Dr. Henry Griswold, aged seventy years.
- HOWE.—In Yantic, Conn., on Monday, February 3d, Dr. Herbert H. Howe, aged sixty-six years.
- HUDSON.—In Stillwater, N. Y., on Thursday, January 30th, Dr. George Hudson, aged fifty-nine years.
- MACDONALD.—In New York, N. Y., on Wednesday, February 5th, Dr. Daniel MacDonald, aged fifty-eight years.
- MITCHELL.—In Daytona, Fla., on Friday, January 31st, Dr. Henry A. Mitchell, of Asbury Park, N. J., aged seventy-four years.
- PALMER.—In Lockport, N. Y., on Monday, February 3d, Dr. Charles Newell Palmer, aged seventy-seven years.
- PEIRCE.—In Montclair, N. J., on Tuesday, February 4th, Dr. George S. Peirce, aged thirty-six years.
- PERCIVAL.—In Somers, Conn., on Wednesday, January 22nd, Dr. Francis R. Percival, aged fifty-eight years.
- PEYSER.—In Corona, L. I., on Sunday, February 2nd, Dr. Nathan Peyser, aged fifty-four years.
- PRICE.—In Bloomington, Ill., on Saturday, January 25th, Dr. Benjamin F. Price, aged sixty-seven years.
- RICHARD.—In Providence, R. I., on Sunday, January 26th, Dr. Irving E. Richard, aged twenty-six years.
- ROBINSON.—In Danielson, Conn., on Saturday, February 1st, Dr. Reinzi Robinson, aged seventy-six years.
- ROCHFORD.—In New York, N. Y., on Sunday, January 26th, Dr. Edward Lewis Rochford, aged twenty-eight years.
- SMITH.—In New York, N. Y., on Tuesday, February 4th, Dr. Oscar Gilbert Smith, aged eighty-nine years.
- STARCK.—In Philadelphia, Pa., on Thursday, January 30th, Dr. Albert A. G. Starck, aged sixty-seven years.
- TAYLOR.—In Cambridge, Mass., on Tuesday, January 21st, Dr. Frederic Weston Taylor, aged sixty-three years.
- WILLIAMS.—In Capron, Va., on Friday, January 24th, Dr. Frank E. Williams, aged fifty-seven years.
- WILSON.—In Dover, Del., on Sunday, February 2nd, Dr. James H. Wilson, aged seventy-seven years.
- WRIGHT.—In Northville, N. Y., on Friday, January 31st, Dr. Franklin N. Wright, aged sixty-seven years.

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Original Communications

THE "HIGHER UP" THEORY OF STERILITY IN WOMEN AND ITS RELATION TO THE ENDOCRINES.*

By S. W. BANDLER, M. D.,
New York,

Professor of Gynecology, New York Post-Graduate Medical School
and Hospital.

The idea that dilatation and curettage represent the correct, accepted treatment for sterility in women, remains fixed in the minds of many members of the medical profession, probably furthered by the determined and settled notion on the part of the laity that at least this factor in medicine is beyond controversy. It is unfortunate that this practice should continue, for the harm that a dilatation and a curettage may do when an inflammatory condition, often unrecognized, is present, needs no further elaboration. Among the sterile cases over one fourth prove to have tubal and ovarian inflammation. On the other hand, when no inflammation is present, curettage seems ridiculous when the female is not at fault. Patients are subjected to operative procedures without adequate preliminary examination, for they not infrequently come to me after some cervicouterine manipulation when subsequent examination shows the male element to be defective or absent. If the male side is not at fault, curettage may have a harmful and injurious influence on the menstrual function and on the ovaries, since the interrelation between the endometrium and the ovaries, trophically considered, is in many instances a delicate one and resulting degrees of amenorrhea are often noted.

The vagina and the cervix, because of the ease of approach, readily attract attention as the factors responsible for the sterility and the "higher up" points are left totally out of consideration. Stress is often laid on an acrid or acid discharge because of the supposed injurious effect on the activity of the spermatozoa. I have not been able to verify this contention except when it is a part of an inflammatory condition. The posterior fornix is supposed in many instances to be at fault when it does not form the normal sac into which the cervix may dip, since, by allowing the spermatic fluid to run out, the probability of impregnation is diminished. I have learned to attach little importance to this matter likewise.

Quite another matter is the question of cervical catarrh. In a woman who has never been pregnant, a chronic, thick, yellow, greenish, tenacious cervical discharge means an obstruction which no spermatozoon may pass. If this was the only obstacle it might not be so insurmountable in the course of time, but the inflammation is not situated in the cervix alone. In other cases erosions are present as a result of inflammations lasting for months or years and in many instances this inflammation has extended upward through the endometrium into the tubes in varying degrees. That one can, in many cases, by no means definitely exclude an inflammatory tubal or ovarian involvement goes without saying. We find the lesions often graver than diagnosed by bimanual examination and not rarely we find them of a lesser degree of severity.

The interstitial area of the tube may be involved by inflammation and the remainder of the tube be normal. Salpingitis consequent on an appendix attack and slight unrecognized degrees of tuberculosis must be taken into consideration. This type of case, where only the inner area of the tube is affected, may remain sterile for varying periods, even for years. If healed in the course of time, furthered by freedom from intrauterine manipulation, it furnishes us with some of the cases of pregnancy occurring after hope of maternity has been abandoned. Gonorrheal pus has been noted in both tubes at operation, and conservative surgery has been followed by uterine pregnancy. (Mrs. P.)

To treat the milder cases, just described, by dilatation and curettage is to push the inflammation further out and to effectually close the outer ends of the tubes making the sterility permanent.

A little light may be thrown on one phase of this question by considering the so-called one child sterility. After one pregnancy, whether it end in labor (often with the use of forceps), or a miscarriage or an abortion, or after ectopic gestation, no subsequent pregnancy takes place. Experience proves that in a large majority of instances, mild and often unrecognized tuboovarian inflammatory lesions are present. In addition, there are instances of ovarian neoplasms which preclude the possibility of ovulation. At the same time abortions and miscarriages may result in the formation of corpus luteum cysts or corpus luteum bodies in one ovary or the other, and we believe today that this condi-

*Read before the Medical Association of the Greater City of New York, January 20, 1919.

tion has an important action in inhibiting ovulation.

What part a slight inflammation plays in the formation of corpus luteum cysts is not certain. The frequency with which they are found on the right side in young girls operated on for chronic appendicitis, makes the association apparently that of cause and effect. Now, in sterility of a primary nature the same factors as in one child sterility hold good, but in addition we must take into consideration the question of spermatozoa, ova and the supposed obstruction offered by the cervix, as well as the various degrees of undevelopment of the genitalia. If examination shows normal spermatozoa to be present, the next question is, Are normal ova present and are they given off from the ovaries? This constitutes an important point often decided only by the history and the subsequent course of events and by exclusion. If we take it for granted that both spermatozoa and ova are present, the point for us to determine is the nature of the trouble or the location of the obstacle. It may be the cervix, it may be the tube through failure of development, through trophic disturbances or because of inflammation. In addition to the element of obstruction we must realize that embedding of the fecundated ovum may fail to take place because of an abnormal uterine mucosa or because of lack of trophic stimuli to the endometrium or the fecundated ovum may be cast out by the menstrual process either before it embeds or before attachment is secure.

We are now concerned with the noninflammatory cases. The cervix is readily examined by touch, observed with the eye and entered by the sound. It is frequently, and often without reason, considered as the obstacle to pregnancy because the external os is narrow, because there is a sharp angle at the internal os, because the sound does not enter the uterus or does so only after expert manipulation. How easy it is to say: Here we have the area which must be attacked.

If we look at the calibre of the Fallopian tubes as they pass through the uterine cornua into the uterine cavity, and observe the narrow lumen through which the spermatozoa pass out to join the ovum, and through which the fecundated ovum passes on its way to embedding, the element of cervical obstruction may be seen in a new light. My experience has taught me that if a cervix will admit a sound, it will in the vast majority of cases offer a safe avenue of approach for a spermatozoon; and I have come to the conclusion that it takes a terribly deformed cervix to keep an active spermatozoon from climbing upward, and no matter how large you make the cervix, a dead spermatozoon certainly cannot and an inactive spermatozoon will not find its way upward.

Fibroids, by distorting the outline of the uterus and the shape and situation of the tubal canal, may be a bar to pregnancy. On the other hand, we know many instances where pregnancy takes place in spite of the existence of fibroids. It is probably a mechanical question on the one hand, mainly distortion of tubes especially at the interstitial area, and a question of the menstrual function on the other. Fibromyomata grow during pregnancy, but in some instances the fibromata do not disappear in

the stage of involution. This leaves a uterus much distorted by single or multiple nodules and is probably more productive of one child sterility than of primary sterility. If with any fibroid condition menstruation be excessive, that in itself may prevent the embedding of an ovum. In addition to which the point must be held in mind that fibroids probably represent an excess of trophic control by the ovaries and associated endocrine glands, the most important among these being the posterior pituitary lobe. In only a small proportion of cases is retroflexion from a mechanical standpoint, dissociated from anomalies of the endometrium, tubes or ovaries a bar to pregnancy. That it is possible must however be recognized. As a general proposition all such uteri capable of replacement, should be held in normal position by the use of the pessary. Granted then that examination excludes the conditions which we readily understand to be a bar to pregnancy, and that examination shows normal, active spermatozoa to be present, what do we find when we so lightly diagnose hypoplasia? So far as menstruation is concerned we observe those who menstruate normally, a small number who menstruate excessively and a goodly number in whom we note varying degrees of diminished menstruation at prolonged intervals.

Pregnancy does occur in patients who menstruate only every two or three months, even in patients who menstruate only twice a year. Whether these patients ovulate without menstruation or ovulate only when they do menstruate, this type of menstruation is not an absolutely bad sign in the way of prognosis, since endocrine therapy often restores a normal menstrual rhythm. Then come the varying degrees of uterine hypoplasia and here too I have learned to be cautious in making a prognosis. A normal regular menstruation is encouraging even if the uterus is small, but marked hypoplasia with diminished menstruation offers the severest test. Then we have the opposite type, those patients with large ovaries and normal uteri who menstruate profusely. Here we have to deal with a possibility that the ovum may be expelled very early, in other words it cannot embed because of overstimulation by the endocrine glands concerned in menstruation. It is more than theory that the thyroid and pituitary glands share in the premenstrual and menstrual function and are productive of many of the premenstrual phenomena.

When pregnancy occurs, enzymes given off by the fecundated ovum inhibit the processes leading to diapedesis and rhexis known as menstruation. If this process is not inhibited menstruation takes place. This lack of inhibition, which may be likened to toxin and antitoxin, furnishes us with that type of case which at occasional intervals goes a week or ten days over the expected period and then menstruates. There is no doubt in my mind that many of these are cases of fecundation where the ovum is expelled before it has sufficient time to be firmly grafted. What of those patients married eight, nine or ten or more years who become pregnant without operation, without treatment? Here we must take into consideration the question of an inflammatory condition or a dystrophia, either of

which was righted in the course of time by the natural functions of the body (Mrs. S. and Mrs. P.). This factor may likewise apply to the male.

Because such cases inspire us with hope, let us adopt the motto "do no harm" for those patients who have never been pregnant, in whom the cervix suggests or in whom the microscope confirms the existence of an inflammation in the cervicouterine canal. These patients should be treated conservatively with no intracervical manipulation whatsoever. We consider these to have some tubal inflammation even if not recognized bimanually. We are not very hopeful for those persons who previous to coming to us have undergone some operative procedure on the cervix or uterus, such as dilatation, curettage, discision or cervical plastic.

Let us next approach the treatment of those cases in whom the use of the microscope, the Schultze tampon, our tactile sense and the history exclude an inflammation by way of the cervix. As an aside, let me repeat that appendicitis and tuberculosis may be responsible for tuboovarian inflammation. We divide these into three classes:—Those who menstruate less than is normal, those whose menstruation is normal, those whose menstruation is excessive; in any of these instances paying attention to the physical signs indicating ductless glands anomalies, especially of the thyroid and pituitary glands.

With regard to these cases our thoughts are as follows and on this we base our therapy. . . . Every month one ovary or the other should give out an ovum. This ovum supposedly capable of fecundation, is expelled into the peritoneal plasma and by the wave action of the ciliated epithelium of one tube or the other, is attracted into the outer end, carried along the tube by the action of the cilia and then on into the uterus. The spermatozoon, if active, passes up through the cervix and uterus out into the tube of its own action against the current of the ciliated epithelium. The union of the spermatozoon and the ovum may take place outside of the tube, in the outer end of the tube, in the course of the tube or in the uterus.

The fecundated ovum embeds itself in the uterine mucosa as a result of enzyme action, sinking into the decidua itself and being almost covered by it. The next expected menstruation fails to appear, because this fecundated ovum gives off, whether embedded within the tube or in the uterus, enzymes which nullify that action of the ovaries, pituitary and other glands which produce menstruation at supposedly twenty-eight day intervals.

If we are dealing with a case in which the spermatozoa are normal and presumably find their way upward and yet no pregnancy takes place, we are forced to the conclusion that either the ovaries do not give off their ova or that the ova are not capable of fecundation, or that they are not carried by the cilia through the tube, or that embedding does not take place or if it does take place it is not a stable, permanent attachment. It is interesting to recall some of the actual experiences which either directed attention to the ovary or which support and verify the theory that even normal menstruation does not always mean the liberation of ova.

CASE I.—Mrs. R. Married seven years and sterile. Operated upon for sterility with a diagnosis of right salpingoophoritis. The left tube was found normal, the right closed at the outer end, adherent appendix. Partial resection of the right tube was done, a portion of each very cystic ovary was resected, the appendix of course removed. Pregnancy within five months.

CASE II.—Mrs. K. Married six years. Two premature labors. Operation for secondary sterility of three years duration. Left dermoid ovary removed. Resection of half of the right cystic ovary. Has had one child, is now pregnant again.

CASE III.—Mrs. D. Married six years. Persistent menorrhagia defying curettage. Diagnosis, oyster ovaries. Half of each very large, flat ovary resected. Pregnancy within four months. Aborted. Pregnant soon after. Living baby.

CASE IV.—Mrs. M. Married three months. Acute retroflexion, prolapsed cystic ovaries, dysmenorrhea. Glass stem pessary, suspension operation, resection of half of each polycystic ovary. Subsequent pregnancy, normal delivery.

CASE V.—Mrs. C. Married two years. Cystic ovaries, ovarian dysmenorrhea. Resection of half of each polycystic ovary, endocrine therapy, pregnant.

Whether these patients became pregnant because of the operation or in spite of the resection operation on the ovaries, must be left to individual opinion. It must be added that four of them were curetted and one wore a glass stem pessary for several months.

As regards the ovary then, these findings and the pathological report suggest the following. The outer covering for some reason, congenital or acquired, is found to be firm and the Graafian follicles do not break. Graafian follicles may lack that enzyme which is probably responsible for the normal rupture of the thin convex surface, even if the outer covering of the ovary is normal. If either of these conditions exist, unruptured follicles remain in one or other or in both ovaries. In many ovaries there is a tendency to the formation of larger or smaller corpus luteum nests and of the so-called atresic follicles. The effect of these nests and these atresic follicles, generally known as cystic ovaries, is twofold. Either by mechanical means they prevent the ripening and thickening of the next Graafian follicle and the exit of its ovum; or as a result of retention in the ovary of these follicle cysts or of corpus luteum nests, ovulation is inhibited. Abortion or miscarriage are factors often responsible for the retention in the ovary of corpus luteum bodies and of corpus luteum cysts.

As regards the tubes. The tubes may be infantile in character, there may be congenital twists, the cilia may not functionate properly throughout the whole course of the lumen. What basis have we for these conclusions? Repeated observations of the tubes during laparotomy on patients who have nursed for a long period and particularly on patients suffering from lactation atrophy, have shown the tubes to be so atrophied, so poor in musculature, that they parallel absolutely the ap-

pearance observed in genuine hypoplasia due to errors of development. Though I have made no observation as to the cilia in these cases, I have accepted the view of lack of function.

As regards the question of failure of embedding and nesting, what coordinate experiences point to the acceptance of this view? It is not necessary to quote the observations proving the role of the corpus luteum in aiding and furthering attachment of the ovum and the effect of early destruction of corpora lutea on the continuation of pregnancy. Let us deal for a moment with threatened miscarriage and repeated miscarriages. I have for years used thyroid in conjunction with arsenic, mercury bichloride and stypticin for both of these states with excellent results. I am now using extract of the whole ovary, thyroid and ovarian residue with an occasional dose of morphine for threatened miscarriage and the same preparation without morphine for repeated miscarriage, no longer paying exclusive attention to the Wassermann side of the question. The results are so excellent in both these conditions that I consider them the best test and the best proofs of endocrine therapy in the whole realm of gynecology.

It is only a slight step from this experience to the conclusion that if these gland extracts aid in preserving the contact of the ovum and its continued growth, that they must of necessity have the same power in promoting embedding of many a fecundated ovum which without this aid, is cast off at menstruation. If these considerations concerning ovary, tube and decidua be true, the way to treat these conditions is clearly pointed out to us. We must substitute those internal secretions which are lacking or we must excite the action of certain of those internal secretions in order to cause the rupture of a Graafian follicle containing a ripe ovum; to give power to the Graafian follicle to secrete an enzyme which will enable it to rupture; to stimulate the lining of the tubes so that the cilia will function and to exert a trophic action on the endometrium which will permit the embedding and retention of a fecundated ovum. In other words we stimulate by extracts of the glands which normally preside over those functions. On the other hand if the action of the ovaries and associated supporting glands be increased, and the patient menstruates too often or too profusely, (Case III) then we are dealing with endocrines unusually assertive or a uterus too greatly stimulated. Here we must inhibit these stimuli and diminish menstrual function by endocrines or by resection of part of each ovary.

Although the usual treatment of sterility as I now practice it consists mainly of two preparations of ovarian extract and one of thyroid, let me make mention of a few general considerations. We prescribe according to the patient's local signs, menstrual symptoms and constitutional makeup. We judge from a patient's appearance, her weight, the distribution of hair, character of the skin, cold, clammy hands, premenstrual phenomena, rate of the pulse, blood pressure, as well as of our local findings. Now the glands which stimulate genital function are ovarian secretion itself, thyroid secretion, suprarenal ex-

tract, pituitary gland posterior, in some cases probably anterior. The glands which serve to diminish the menstrual function are thymus and mammary, placental extract, and in some phases probably thyroid.

When a patient shows signs of myxedema or myxedema of the endometrium is suspected, thyroid is indicated. If patients show signs of hyperthyroidism or exophthalmic goitre, thyroid is not indicated. Patients having a typical dystrophia adiposo genitalis are the victims of a pluriglandular condition. To such patients we give pituitary extract in addition to ovary and thyroid. Patients with low blood pressure and asthenia suggest the administration of suprarenal extract and pituitary extract. Patients with large uteri and excessive menstruation, patients with large ovaries and excessive menstruation, whether these ovaries appear cystic or not, the so called oyster ovary, suggests the administration of thymus or mammary extract or placental extracts or all three.

In a series of fifty consecutive private cases of primary sterility, i. e., patients whose query was "Why do I not become pregnant?" I found that twelve had marked inflammatory lesions of the annexa, while two had ovarian neoplasms which did not permit of ovulation. Of these fourteen patients nine were laparotomized and the diagnosis confirmed. In fourteen cases the sterility was due to the male, the spermatozoa being either absent or markedly defective in number and motility. In ten patients where examination of the male disclosed normal spermatozoa, no pregnancy has resulted in spite of endocrine therapy. Of these ten patients only two had a normal menstruation. One of these two was curetted and has a sensitive cystic ovary. The other eight of these ten unsuccessful cases are patients with irregular and markedly diminished menstruation, two of them being well marked examples of dystrophia adiposo genitalis. The menstruation in every case but one was improved by endocrine therapy and this patient, who menstruates only twice a year, discontinued the endocrines after a few weeks. (One of the ten has conceived since the compilation of these reports.) Twelve patients have responded to endocrine therapy, eleven having become pregnant within three months after administering the gland extract and one after this therapy was continued for months. In these twelve successful cases menstruation was irregular and below the normal amount in six cases and excessive in one case.

If we have succeeded in these twelve cases without dilatation, curettage or operations upon the cervix, that certainly excluded them from the category of cervical stenosis or cervical obstruction. The complete test would be to perform partial ovarian resections in the cases which have resisted endocrine therapy. The fact that most of them have relative amenorrhea makes me loath to make the attempt. I believe cases of normal or excessive menstruation to be the only ones favorable to abdominal interference. (See cases quoted above).

Endocrine stimulating therapy is the only rational suggestion in the different degrees of hypoplasia with relative amenorrhea. Here curettage is contra-

indicated. A stem pessary retained in the cervix for months has much to commend it. Through auto massage and rhythmic contractions and through the associated trophic action on the ovaries, benefit might be hoped for, but the possibility of furthering some form of infection cannot be denied.

It may be granted that some of these patients might have become pregnant without endocrine therapy. Witness the case of Mrs. H. whose menstruation was excessive and who after taking thymus extract for two weeks passed her next menstruation and continued with her pregnancy. Also the case of Mrs. B. married one year who after taking ovarian extract and thyroid for three weeks likewise passed her next menstrual period and continued with her pregnancy. Of the successful cases the majority have responded within three months which points to the stimulation of embedding and nesting as a very probable factor. This much is to be said for the endocrine therapy of sterility that it should be tried as a routine method in the promising cases before any operative procedure is attempted.

My purpose is not to decry the value of a curettage when dealing with cervical or uterine adenoids. We cannot wholly deny the possible value of a cervical dilatation or plastic. We cannot deny the value of correcting a retroflexion by pessary or operation. Our purpose is to banish routine indiscriminate cervical and uterine procedures as the first thought, and to concentrate our attention primarily on the areas higher up and thus eventually diagnose abnormalities and trophic changes which are in most cases the cause of sterility in woman, if the fault is the woman's. So I have come to this conclusion: Those cases of sterility which after thorough examination show no inflammatory lesions, which menstruate normally, which do not yield to endocrine therapy, are legitimate promising cases for operation. Whether that operation be cervico-uterine, or abdominal or both will depend on the faith one has in the idea that "cystic ovaries" and the endocrines do bear a relation to pregnancy and to sterility. On the other hand we must not confine our attention only to the female. There are cases where spermatozoa are present; they are inactive or they are active but not normal. We attempt the same stimulation by gland extracts. We give here testicular extract, thyroid extract, pituitary extract, suprarenal, etc.

134 WEST EIGHTY-SEVENTH STREET.

PSYCHIC HYDROPHOBIA.

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Hydrophobia, or fear of water, the water fyrhtnys (frightness) of our Anglo-Saxon forbears, is universally associated with rabies, an infectious disease depending on a specific virus whose microorganism has not yet been discovered, and which is communicated to man by the bite of mad dogs, cats, wolves, and other carnivores. But hydrophobia may be a true phobia, or unfounded fear of water, of purely psychic nature and origin and so taking class with mysophobia, fear of dirt, acrophobia, fear of heights, agoraphobia, fear to cross open spaces. As such it is to be further distinguished from hydrophobophobia, or morbid dread of hydrophobia as transmitted by rabid brutes. In rabies, painful spasms of the throat muscles which render deglutition impossible are a distinctive symptom. Convulsions follow attempts to swallow water, the very sight of which throws the sufferer into paroxysms.

Exactly these manifestations characterized attempts to drink on the part of a patient referred to me by a specialist of Cleveland—a woman in whose case dogs and their bites played no part. An unfortunate marriage to a man she detested, in deference to her parents' demands, precipitated the first attack in this subject. As she stood before the altar at the ceremony, a spasm of the pharyngeal constrictors and muscles of the larynx suddenly occurred, closing the epiglottis with a strangling sensation in hysterical imitation of the genuine tetanic contractions of canine madness. Gradually a difficulty in swallowing developed, having special reference to water. The spasm returned with every attempt to quench her thirst, and finally at the very sight or thought of water. When she reported to me in March last, she was accustomed to occupy four hours every morning fighting with the water in the basin to get her face washed. To force a teaspoonful of water into her stomach was equivalent to a tragedy, during the action of which she clutched at her throat to relieve the tension, and struggled agonizingly to drive air through the constricted larynx into her lungs, for as she explained it there "wasn't air enough for her to breathe, her wind was shut off."

In the accomplishment of the distressing task of ingesting a mouthful of water, she was constrained to lift and put down the containing wineglass scores of times before she could control the spasm sufficiently to force down a modicum of the fluid her desiccated system craved. An extension of the obsessive idea terminated in the delusional conviction that there was water in whatever she ate or touched, and she accordingly spent hours in wiping articles of food and chinaware to remove suspected moisture therefrom. To express it in her language, she "monkeyed with everything she had to swallow or that contained her food" to assure herself it was water free. For months she had lived almost exclusively on salts of lead, silver mercury and iodine.

Sodium Hyposulphite in Respiratory Diseases.

Alejandro Iarcho (*La Semana Medica*, November 21, 1918) praises sodium hyposulphite in chronic or fetid bronchitis, bronchiectasis, as well as in measles, influenza and other catarrhal affections of the respiratory system. The dose is from two and a half to three grams daily for an adult, and one gram daily for a child of five years. Hot water, slightly sweetened, masks well the disagreeable taste of the drug. To prevent hygroscopic action sodium benzoate or calcined magnesia may be added to the powdered drug. For sedative action one centigram of dionin may be added to each dose. It is incompatible with acids and acid salts, salts of lead, silver mercury and iodine.

was in consequence excruciating. The suffering connected with the use of water in any form had become so intense that she had lapsed into a state of melancholia and prayed for death. This incoercible conception was at its height when the patient presented herself for treatment. She was put into a receptive sleep, and cogent destructive suggestions were given. The same were repeated on a second occasion, and immediately upon her restoration to world consciousness the parched woman called eagerly for a tumbler of water which, in obedience to the suggestion that there would be no further spasm but that she would drink her fill without a thought of trouble, she swallowed with facile gusto. Then she called for another and another tumblerful, and my office nurse handed her nine before her imperative hankerings were gratified and so the backbone of the phobia was broken. Psychotherapeutic treatment involving mental suggestion represents the solely rational and practically only possible handling of such cases of phobia. If intelligently administered it proves itself to be an all but miraculous transfiguring instrumentality.

Another case of psychic waterfright was evidenced in a youth of twenty-five who, when fifteen years of age, was witness of a drowning accident and never thereafter could subdue his dread of the element that was responsible for the death of his friend. In the case of this young man, there was no difficulty in swallowing water, but an irresistible aversion to entering it for any purpose. So it became impossible for him properly to take a bath, as an imperative inexpugnable impulse, or insistent voice, compelled him against his will to step out of the tub before his ablutions had fairly begun.

A number of cases of hydrophobophobia have come under the writer's observation, in instance whereof the following: An instructor in athletics at one of the colleges, always accounted the strongest boy in the school and withal an unusually intelligent young fellow, became obsessed after a cat scratch with the belief that he had hydrophobia. He rubbed a selfcreated abrasion on his forefinger until it ached, pointing to it incessantly in evidence of his conviction that he had been bitten and maintaining that one could be bitten by a rabid animal and not know it at the time. His parents were demoralized by his sleepless nights, endless complaints and fears of lockjaw. He took on the wellmarked symptoms of melancholia characteristic of the premonitory stage of hydrophobia, sitting silent for hours with his head in his hands and then suddenly entering a restless stage and with difficulty suppressing an impulse to scream. He talked endlessly of his fancied ills. His urine was loaded with indican. It transpired that his mother, before his birth, was tortured with a latent fear that a dog would run up and bite her. Thus his susceptibility to the specific compelled idea was hereditary.

Be it observed that fear of dogs (cynophobia), not an uncommon cause of psychic suffering, is a very different thing from this fear of a mad dog bite. It takes class with ailurophobia (insane fear of cats) and myorophiaphobia (morbid dread of house mice). A surpassingly intense case of hydrophobophobia was instanced in the mental attitude

of a professional man who was sent to me two years ago from a neighboring State for treatment. One of this gentleman's foxhounds ran mad through his pastures. Whereupon he became saddled with an importunate obsession that he was phenomenally obnoxious to rabies. He refused to drink the milk of his cows lest it might have been contaminated by saliva dripped from the mouth of the rabid dog. He developed such a horror of salivary pollution, for the transmission of which to his clothes and person his imagination invented many channels, that he suspected every one who came into his presence to be a carrier of mad dog spittle; and on occasions he deemed extra hazardous, he would burn everything of his such persons had touched—hats, garments, sofa cushions, furniture, law books, even valuable papers—repaint his office and the floors of his house, and once moved his family and their belongings to his father's home to save his wife and children from defilement by canine saliva he dreamed had dribbled in the garden. A case of stuffed dogs, caught sight of in the Museum of Natural History, threw him into maniacal agitation. It was only after assurance by Dr. William H. Park, the bacteriologist, that the life of the germ in infected saliva was limited to two or three weeks, that he could be quieted—and psychotherapy completed the cure.

The imaginary wretchedness of all such subjects, which to the onlooker appears ludicrous, is positively unpicturable. Bodily pain is not comparable to it. The rational therapy consists in dynamic suggestion coupled with persistent elimination, for a toxin generating intestinal flora has to be reckoned with in the general run of patients. In such psychophysic treatment, supplemented by forced feeding for the impoverished cells, is to be found the balm for these hurt minds, and is represented one of the supreme applications of medical psychology.

SUCCESSFUL THERAPY OF EXOPHTHALMIC GOITRE.

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In previous papers I have pointed out that some of the most prominent men in thyroid surgery, though formerly ardent advocates of the treatment of exophthalmic goitre, now evince a skeptical attitude when they insist that subjects of exophthalmic goitre should be operated on only on the condition that surgical treatment be preceded by a variable period of nonsurgical attention, and that nonsurgical measures should follow operation for some months. Is not this a frank confession of the yielding by the surgeon of his former opinion, in favor of the internist? Surgeons' statistics, though correct regarding the surgical mortality and perhaps also as respects immediate improvement of the syndrome to a greater or lesser extent, have been decidedly incorrect with respect to complete cure of this disease. In my study of diseases of the thyroid gland, I have yet to see a single instance of permanent cure by surgery of a typical case of

exophthalmic goitre. Where surgery appears to cure a case, the amelioration of symptoms is due to the presurgical and postsurgical, nonsurgical management of the case, or in rare instances, to the fact that the case was one of those freakish examples in which the symptoms would have disappeared spontaneously, whether treated or not. In this instance, the surgical shock probably instigates a circle of events within the ductless glands of the body, directly antagonistic to and corrective of the morbid circle which generated the Basedowian syndrome, thus resulting in,—not a surgical, but a natural cure. But this occurrence is rare indeed.

How often are the surgeons disappointed when confronted with a patient suffering with all the symptoms of exophthalmic goitre but three or four months after they had operated upon the patient in question, and whom they had discharged cured! How often is the surgeon obliged to operate the second time, yes, and even the third time, with similar results! And in consequence of these unsuccessful surgical procedures, how often is the unfortunate patient so completely devitalized that resistance is reduced to a minimum. Consideration of these facts gleaned from the practical experiences of all busy practitioners and especially the observations of men who are interested in thyroid therapy lead to the conclusion that whatever the treatment, surgery is not the cure of exophthalmic goitre.

The complexity of the etiological processes leading to the syndrome; the views of keen observers in the field of endocrinology, who almost with one voice are in accord in incriminating the entire chain of ductless glands as causative of exophthalmic goitre, the thyroid playing but a small part in the process; the variability and inconstancy of the symptomatology, which at one time appears to lead to a diagnosis of pulmonary tuberculosis, at another time to diabetes mellitus, again to hysteria and neurasthenia, occasionally to melancholia or even insanity, and uncommonly as a frankly outspoken classical picture of exophthalmic goitre; all these cry out against surgical interference with the thyroid gland as a means of bringing back the patient to health and happiness.

The following cases, selected at random from the author's records, are illustrative of the potentiality for cure of exophthalmic goitre by nonsurgical measures:

CASE I.—S. B. Aged thirty-four. German. Salesman. Appeared in my office on January 10, 1913, complaining of gradually increasing fullness of the neck, which he first noticed a month before, when his collars became too tight. He also complained of recurrent laryngeal irritation with non-productive cough, excitability, nervousness, insomnia, hyperidrosis, anorexia, feeling of weakness in the lower limbs, progressive loss of weight and strength. Family history was negative; social history presented nothing of importance.

Past medical history.—Important features were typhoid at eighteen, from which an uneventful recovery was made within nine weeks. He suffered from an occasional attack of acute follicular tonsillitis, with recurrence once or twice annually. Had, at this time, an occasional period of gastro-

intestinal sluggishness characterized by impaired appetite, sense of gastric distention, and constipation of moderate degree. During the past four years he had been suffering from a slight rectal discomfort because of internal hemorrhoids.

Present illness.—About two months ago, patient received word that his mother in Germany had died suddenly. He worried over this so intensely that he was unable to concentrate his mind on his daily duties. His grief occasioned insomnia, failing appetite, and mental depression. A week or ten days later his nervousness was so extreme that his wife remarked that he acted strangely and urged him to consult a doctor. His neck became thickened in front so that he was obliged to buy collars a size larger in order to feel comfortable. When shaving himself he noticed while looking in the mirror, a slight stare in his eyes. He began to experience occasional moments of dyspnea on slightest exertion, and found it rather difficult to continue his daily duties where he was employed. Sleep became not only restless, but some nights rather fatiguing. He was obliged to rise three or four times because of bladder irritation and inability to retain urine. At times he felt as though his "mind were running off with him," and at other times he felt like crying. His tongue had been slightly coated, and since the inception of this illness he had rarely experienced real hunger. Food was distasteful to him not only because of anorexia but because he feared to eat by reason of the gastric discomfort shortly after ingestion. The bowels were irregular in function, moderate constipation alternating with diarrhea. During the past few days he had been troubled with palpitation, especially on retiring and lying on the left side. He experienced the same sensation when slightly excited and on slight physical exertion. For the past week his skin presented irregular blotches of erythema almost daily, which disappeared within an hour or two. Every afternoon and evening there had been drenching sweats to the extent that, when at home, he was obliged to change his underclothes frequently. He claimed that three weeks previous to this time his weight was 152 pounds.

Physical examination.—Patient was a fairly well nourished man, slightly plethoric, about five feet six inches in height, weight 134 pounds. He appeared slightly anxious and rather nervous, with an occasional twitching of one of the limbs indicating peripheral motor hyperactivity. Skin was somewhat blotchy in appearance, veins unduly prominent, especially those of the neck and chest, texture of skin unduly soft and moist, dermatographia easily obtained. No scars nor edema. Lymphatic glands normal; head and scalp practically normal. Eyes: Slight exophthalmos distinctly observable; Stellwag's sign inconstant; Dalrymple's sign slightly present over left eye; Von Graeffe's sign present in both eyes; pupils reacted well to light; accommodation reaction slightly lagging; the Moebius sign (diminution of convergence), present; extraocular movements sluggish; conjunctiva presented slight dusky congestion. Nasal passages presented slight congestion of mucous membrane, turbinates thickened and congested,

moderate deflection of septum to right. Lips were slightly cyanotic. The gums were slightly paler than normal. Teeth presented several cavities and in general required considerable repairing. Tongue presented a coarse tremor on protrusion; was moist and presented slightly whitish coat. Throat chronically congested. Tonsils larger than normal, appeared diseased and friable, with numerous folliculi. Pharynx presented a typical smoker's sore throat. Neck thicker and shorter than normal, presenting well marked carotid and jugular pulsations. Greatest circumference of neck fourteen and three quarters inches. Thyroid gland prominent, especially at isthmus. While no distinct evidences of goitre were observable at a distance, on close view the outline of the thyroid was seen. On palpation, the isthmus and to a lesser extent both horns of the thyroid gland were tenser and fuller than normal, deep palpation eliciting tenderness. Auscultation over thyroid area, especially over horns, revealed a soft, slight, systolic bruit. Chest: Inspection showed shape normal; respiratory expansion two and one half inches. Apical impulse seen in sixth left interspace in midclavicular line. There was slight prominence of the larger veins. Palpation confirmed inspection regarding the location of the cardiac apex. The heart beats appeared more frequent and energetic than normal. Percussion revealed moderate cardiac hypertrophy, the left border extending to within an inch of the left anterior axillary line. Tactile fremitus normal, excepting over both supraclavicular and infraclavicular regions, where there was slight increase. Pulse: Frequency eighty-six per minute; slightly dicrotic; fair volume; moderate tension; regular and rhythmical. Percussion revealed slight impairment of resonance over the apices, anteriorly and posteriorly. On auscultation first apical sound was dull and booming, presenting slight systolic prolongation which, however, did not amount to a murmur. Second apical sound apparently weaker than normal. The second aortic sound was sharp and clicking. Second pulmonic sound practically normal. With the exception of slight harshness of breath sounds over both apices, respiratory sounds were normal. Vocal fremitus slightly increased over apices. Abdomen was somewhat more prominent than normal. Slight distention of superficial veins. No tenderness. Moderate tympanitis over gastric area. Limbs were somewhat emaciated. Lower limbs presented enlarged veins. There was a fine tremor of the outstretched fingers, least marked in thumbs, most marked in middle and ring fingers. The outstretched toes did not present this tremor. Nervous system: Patient appeared rather anxious and fidgety. An occasional shrug of the shoulder was noticed during conversation. He responded promptly to questions and was in every way rational. Tendon reflexes hyperacute.

TREATMENT.

Hygienic.—Patient was ordered not to discontinue his vocation. He was instructed to avail himself of a maximum of fresh air and rest while at home, and to take a luke warm bath every night just before bedtime. He was warned against any undue physical or mental excitation. This was also men-

tioned to his wife, who was urged to fully cooperate in the treatment and to so govern the household as to render the home environments as tranquil as possible. Reading the daily newspaper was forbidden on account of its exciting contents. He was instructed to obtain a maximum of eight hours' sleep, to keep away from moving picture shows, and to discourage the visits of "sympathetic" friends. He was ordered to have the dentist attend to his teeth at once.

Dietetic.—Animal foods were reduced to a minimum; he was permitted a small portion of white meat of chicken once a week and a moderate share of boiled or baked fish once or twice a week, if desired. The main dietary consisted of milk, butter milk, sweet cream, sour cream, cottage cheese and cream cheese, eggs, plenty of bread and butter, cereals, potatoes, soups (rice, barley, vegetable, noodle, potato—without meat extractives), vegetables and fruit in season. The following substances were interdicted: Tea, coffee, cocoa, ice water, carbonated waters, alcoholic beverages, tobacco in any form, the various spices and condiments of the table, lard and the various greasy substances, pastries and sweetmeats, strawberries, raspberries, huckleberries, watermelon, cantaloupe, bananas, and the various canned goods. He was ordered to masticate his food thoroughly, never to overload his stomach, and if possible, to eat five or six partial meals rather than three full meals a day.

Medicinal.—Patient was ordered to take a teaspoonful of sodium phosphate in a glass of water an hour before breakfast daily. Locally he was given the following:

Camphor menthol,3ss;
Tr. belladonnæ,3iij;
Tr. iodine,q. s. ad. oz. iss.

This was to be painted on lightly every night over the thyroid area. He was given the following capsule:

Quinine hydrobrom.,gr. v;
Ext. glandulæ suprarenalis,gr. ij;
Ferri arsenas,gr. 1/12.
T. i. d. p. c.

Within four weeks this patient felt very much better, and all that remained of the goitre was a slight prominence of the left lobe. The pulse was eighty, weight increased five pounds, he said he was less nervous and slept better. Exophthalmos and tremor were unimproved. Instead of the previous capsule, he was now given the following prescription:

Quinine hydrobrom.,gr. v;
Ferri arsenas,gr. 1/12.
In capsule. t. i. d. p. c.

This was continued for one month or until March 10, 1913, at which time he weighed 145 pounds, a gain of nine pounds, and said he felt entirely well. Pulse seventy; exophthalmos hardly perceptible; tremor almost gone; neck practically normal, excepting a slight fullness of left lobe. Patient looked cheerful and healthy. All previous local and internal medication was stopped, and limited to a capsule of quinine hydrobromate five grains, to be taken four times daily, and he was instructed to return in a month. He returned in April, 1913, a normal man, with no further evidences of his

hyperthyroidism. To secure him against relapse, I ordered him to report to me every month until he had been under my care for one year, during which time he continued to take the quinine hydrobromate. In January, 1914, I discharged him, weighing 150 pounds. All treatment was discontinued. At this writing (January, 1918), there is no return of any evidences of hyperthyroidism.

CASE II.—Mrs. E. D., of Phoenixville, Pa., thirty-seven years old, five feet three inches in height, weight ninety-seven pounds, was sent to me on July 21, 1914. She had been given the rest cure and milk diet for three months, and in her own words, "had spent about \$2,000 trying to get well, but got worse." Operation was suggested by several men, but she declared that she would rather die than be operated on. She appeared pale, thin, nervous, scared looking, and did not seem to care whether life would hold out for her or not.

Chief complaints were extreme bulging of the eyes with inability to close them, precordial distress and palpitation, incapacity for domestic duties, extreme weakness, very distressing indigestion, loss in weight, insomnia. Family history did not present hereditary tendency to thyroid abnormalities. No history of tuberculosis, carcinoma, epilepsy, insanity, and cardiorenal disturbances. Social history: Married at twenty-one; six children; no miscarriages. There was no discernible enlargement of thyroid during pregnancy. Took five or six cups of coffee daily, also plenty of seltzer water. Was very fond of meats, eating animal foods two or three times daily. Was in the habit of using the spices and condiments, i. e., pepper, mustard, and vinegar. During past several years, had been working very hard to assist her husband in building up a general clothing business while at the same time performing her household duties. She therefore did not find it possible to avail herself of the proper systematic rest and regularity of meals, would eat rapidly and hurry away to the store. At thirteen, began menstruating and was always normal in occurrence, quantity, and duration. Moderate discomfort of short duration before and during menstruation.

Past medical history.—Had most of the diseases of childhood, though she did not know exactly the nature of those diseases. Did not recall having had scarlet fever or diphtheria. Several years previous to this time, she suffered from an attack of acute articular rheumatism, which kept her in bed for two weeks. Since that time she had frequent attacks of subacute rheumatic pains in the joints, especially before and during change of temperature and humidity. She never felt well since her rheumatic attack; always complained of shortness of breath and occasional precordial discomfort. During the past two or three years, she had been suffering from almost constant digestive disturbances, which were diagnosed by her family physician as nervous dyspepsia. Attacks were characterized by pain shortly after eating, marked sense of distention of the stomach, sour eructations an hour or two after meals, occasional vomiting. In brief, her gastric discomfort was so great during an attack that she feared to eat.

Present illness.—Eighteen months before this time, patient was taken with what was termed a "nervous breakdown." There was palpitation, marked exacerbation of her gastric disturbance, distressing insomnia, fullness of the neck over the thyroid gland, gradually increasing bulging of the eyes, profuse perspiration, hysterical outbreaks, very rapid loss in weight, and total loss of appetite. She remarked that every once in a while she felt as though her mind were giving way, and dreaded the moment when she would be sent to a lunatic asylum. This, she stated, was more troublesome to her than any of her symptoms, and she begged to be informed whether she would become insane. Her family physician prescribed tonics, a rest, and other measures calculated to overcome her nervous breakdown, despite all of which she became progressively worse. Finding that her loss in weight was becoming alarming and her strength was fast leaving her, she consulted a Philadelphia physician who placed her in the hospital for several weeks' complete rest cure. There, although at first apparently improved, her condition soon became worse, and she consulted an eminent surgeon. Immediate operation was advised, but the patient refused to consider this. She then consulted an eminent nerve specialist who, after unsuccessful treatment for a brief while, advised operation. She left him and consulted several more doctors with the same results. Finally, a physician on whom she called suggested that she see me for an opinion.

She told me that for over six months she had been obliged to cover her eyes with small pieces of flannel when retiring for the night because the eyelids did not close over the eyeballs and, thus exposed, the ocular conjunctiva became irritated. She had not had a good night's sleep for more than a year because of the palpitation, the drenching night sweats, bladder irritation, and the extreme restlessness. She had lost twenty pounds in weight during this illness. In addition to all these complaints, her rheumatic pains had recently been becoming more severe, and at times she was unable to move about.

Physical examination.—Patient was a small statured, thin, nervous looking white woman, who, though rational and fairly intelligent, seemed to lack continuity of thought in her expression, rambling along in the description of her condition, until fatigued, when she rested a while and continued on. Finally, after having given in great detail all her data, she stopped, and I was enabled to obtain her history systematically. Her eyes were almost popping out of her head and her neck was rather full, standing out in sharp contrast to the rest of her emaciated body. Her cheeks were hollow, her expression anxious and somewhat frightened, and as she sat in my office, there was a perceptible, rhythmical nodding of the head and even of the shoulders, corresponding to the cardiac cycles. Skin was somewhat oily and dusky in appearance. Texture of skin was soft, thin, and moist. Dermographia easily obtainable. Aside from an occasional small papule, there were no eruptions nor scars. Moderate edema of ankles extending upward to as far as the knee joint, was present. Lymphatic glands were practically nor-

mal. Head and scalp negative, excepting for a tendency toward baldness. Patient informed me that since she had been ill, her hair had been falling out very rapidly. Eyes: Exophthalmos very marked, greater on the right side. Stellwag's, Dalrymple's, Moebius's, and Von Graeffe's signs very distinct. Pupils reacted normally to light. Reaction to accommodation was lagging; extraocular movements fair. Eyes were tender and when walking in sunlight somewhat painful. Eyelids, more especially the right, close to within three eighths of an inch of coaptation, so that the patient was obliged to protect her eyes during sleep by means of a piece of cloth which was laid over them at bedtime. Conjunctiva moderately congested. This applied also to the ocular conjunctiva which presented numerous dilated bloodvessels coursing through the sclera. Nose slightly congested. Lips dry and cyanotic. Gums slightly cyanotic. Teeth well taken care of, presenting evidences of excellent dental attention. Tongue was moist and slightly coated with a whitish layer; was protruded with a tremor. Throat: Slight congestion present. Tonsils moderately enlarged and appeared chronically diseased. Pharynx practically normal. Neck was emaciated excepting over thyroid gland, where there was considerable fullness. Carotid and jugular pulsations were evident. Superficial veins over thyroid were seen and were rather dilated. Greatest circumference of neck fourteen inches. Thyroid gland uniformly enlarged and almost boggy, appearing as a diffused anterior swelling. There seemed to be no lines of demarkation between isthmus and horns of the thyroid. Deep palpation elicited tenderness. Auscultation revealed a harsh systolic and softer diastolic bruit. Chest: Inspection showed marked emaciation, diminished anteroposterior diameter, respiratory expansion one and one half inches. Apical impulse sixth left interspace near anterior axillary line; it was diffuse, extending over a radius of two or three inches. Palpation confirmed location of cardiac apex. There was a slight systolic thrill discernible over precordial area. Pulse 120 per minute, irregular, arrhythmical, low tension, poor volume. Tactile fremitus practically normal over entire pulmonary area. Percussion: Heart was uniformly enlarged, the left border reaching the anterior axillary line. There was slight impairment of pulmonary resonance over the apices. Auscultation: First apical sound replaced by a soft, blowing murmur which was transmitted into the left axillary space and around to the scapula. Second apical sound was short and weaker than normal. Both sounds over the base of the heart were weak and at times indistinct. The tricuspid sound was also indistinct, apparently replaced by a soft murmur. Respiratory sounds were practically normal everywhere excepting over both apices where the breath sounds were somewhat exaggerated. Here also vocal fremitus was increased. Abdomen: There was slight enteroptosis evident; also the usual evidences of frequent pregnancies. Tenderness over gastric area; slight prominence of superficial veins. Limbs: Lower limbs edematous from ankles to knee joints. Superficial veins moderately prominent. Upper limbs presented nothing abnormal. Typical tremor of the outstretched fingers, less marked of

the toes. Nervous system: Patient had the physiognomy of perpetual fright characteristic of exophthalmic goitre. The history of occasional emotional outbreaks, fear of oncoming insanity, hysterical fits, and her inability to render the outline of her condition a continuous narration, all pointed to the marked mental or psychic disturbances with which the patient was afflicted. The tremor of the fingers and toes has already been mentioned; there was an exaggeration of the tendon reflexes. Babinski and other abnormal reflexes were absent.

Remarks.—It was evident that here we were dealing with a case of marked thyroid toxemia in which the patient if not promptly relieved was doomed. The mental manifestations, the extreme exophthalmos described above, endangering the eyes to the possible extent of panophthalmitis and rendering the patient extremely uncomfortable to say the least; the rapid pulse with the presence of an enlarged heart and a mitral regurgitation, which latter seemed to be losing compensation as evidenced by the edema of the legs; the poor digestive function; the rapid loss of strength and weight; all led to a doubtful prognosis.

TREATMENT.

Hygienic.—The hygienic regimen given this patient was practically the same as that in Case I, with the following additions: She was instructed to rest in bed for one or two hours after breakfast and lunch, for the purpose of giving the circulatory system an opportunity to restore its compensation. All business and domestic duties were prohibited. The household attendants were informed that the children were not to disturb the patient at any time, especially during rest. After two or three weeks of this routine, as the patient improved, she was sent to a small country place several miles from her home, for a more complete mental and physical relaxation. She stayed there five or six weeks, during which time her improvement was very marked, and then returned home. Her domestic duties were resumed seven months after beginning of treatment, and very soon afterward she again began assisting her husband in their business.

Dietetic.—The dietetic regulations were almost identical with those given in Case I. As she was very fond of broiled steak, a small portion was permitted her once or twice a week. It was difficult to convince her of the necessity of discontinuing the use of coffee, but this was finally accomplished. As we were here contending with a very difficult gastric condition in which aversion to food, pain, tenderness, eructations of gas, and even vomiting followed the ingestion of a moderate quantity of food, it was necessary to proceed very slowly with her diet, administering treatment for the stomach as well as for the hyperthyroidism. She was especially warned against eating rapidly, and the principles of "Fletcherism" were carefully outlined to her.

Medicinal.—As the patient suffered from intermittent constipation alternating with diarrhea, it was deemed advisable to mildly stimulate the intestinal and biliary functions, and accordingly, a teaspoonful of sodium phosphate was ordered to be administered in a glassful of warm water an hour before breakfast every morning. Locally, she was

given the camphormenthol, tincture belladonnæ, and tincture iodine combination similar to that in Case I, to be painted lightly on the thyroid area every night. Internally, she was given the following prescription:

Quinine hydrobrom.,gr. iv;
Lecithin,gr. iij;
Erythrol tetranitrate,gr. j;
Ferri arsenas,gr. 18.

In capsule No. 1. Mitte tales doses No. xxx. Sig.: One capsule after each meal and at bedtime.

The quinine hydrobromate was given on empirical grounds. The lecithin was given for its asserted function of nervous reconstruction, in other words, it was administered in this case for its powerful alterative effect, especially on the cerebrospinal axis. The erythrol tetranitrate was added because of its very useful influence in dilating the peripheral arterioles, thus relieving the heart of an undue amount of tension and enabling it to more rapidly attain the state of compensation. In this respect, this drug is more certain than sodium nitrite and less irritating and more stable in its effects than nitroglycerin. The ferri arsenas was given for its obvious hematinic effect. Extract of digitalis could have been included in the above capsule, but it was deemed advisable to respect the gastric mucosa. In this case, it was evident then, that unless we could at once overcome the gastrointestinal difficulties, we would lose the case. Accordingly, the following formula was tried:

Ext. hvoscyamus,gr. 1/3;
Bismuth subcarbonate, }āā gr. vi.
Mg. oxidi ponderosi, }

M. et fiat chart No. 1. Mitte tales doses No. xxx. Sig.: One powder one half hour after meals.

The bismuth and the magnesia served to control the gastric distress incident upon the extreme hyperacidity of the stomach. The patient was instructed to take an extra powder whenever the gastric symptoms reappeared, so that she was allowed as many as five or six doses in twenty four hours. During the ensuing two weeks the patient's condition, with the exception of her indigestion, was not materially improved, and she was very much discouraged. Her rheumatic pains were so severe that she was hardly able to walk. These pains were present in the elbows and knees and also throughout the chest. I decided that the supplementary use of electricity in the form of the D'Arsonval current given in the autocondensation chair would possibly help her, and administered a treatment every other day, each lasting twenty minutes. These seemed to benefit her gradually, and soon the patient's mental attitude was more optimistic.

On September 1, 1914, approximately six weeks after the beginning of treatment, her pulse was reduced to eighty per minute, circumference of neck 13 1/4 inches,—one quarter of an inch less than before. Her nervousness was improved slightly, digestive processes very much better, sleep was more refreshing, and her weight was 105, a difference of eight pounds. The patient at this time complained that her capsules (which contained quinine hydrobromate, lecithin, and erythrol tetranitrate), were not only too expensive, but were rather difficult to obtain, and requested that I endeavor to have some

other formula suffice for the purpose. Accordingly, my next formula was the following:

Quinine hydrobrom.,gr. v;
Ext. glandulæ suprarenalis sicca,gr. ii;
Ferri arsenas,gr. 1/10;
Ergotin,gr. i;

M. et fiat caps. No. 1. Mitte tales doses No. xl. Sig.: One t. i. d.

It will be observed that the prescription called for forty capsules which lasted approximately two weeks, at the end of which time her weight had not materially increased, though all her subjective symptoms, excepting the exophthalmos, were slightly improved. Having had quite a series of experiences with ichthyol in persons who were underfed, I decided to try the following formula with a view to effecting a more rapid increase of body weight:

Quinine hydrobrom.,gr. v;
Ext. glandulæ suprarenalis sicca,gr. ii;
Ferri arsenas,gr. 1/10;
Ergotin,gr. i;

M. et fiat caps. No. 1. Mitte tales doses No. xxx. Sig.: One t. i. d. one hour after meals.

Ten days later, approximately ten weeks after treatment had begun, her weight was 108 pounds, and for the first time, she told me she "felt good." This treatment was continued until November 10, when her weight was 111, pulse 78; the exophthalmos, though apparently as marked as ever, did not give rise to much discomfort, she was less nervous, slept better, appetite was very good, digestion practically normal.

I decided that at this point it would be well to reduce the quantity of medication, and accordingly discontinued the powder for her indigestion, telling her to take an occasional dose only when necessary and changing her quinine formula to the following:

Quinine hydrobrom.,gr. v;
Ferri arsenas,gr. 1/10;
Ichthyol,gr. j.

M. et fiat caps. No. 1. Mitte tales doses No. xl. Sig.: One t. i. d.

This treatment was continued until the case was discharged.

Electrotherapy.—As intimated before, she received the high frequency current in the form of autocondensation, at first every other day, later twice a week, and finally once a week. This seemed at first to have a very decided alterative effect on her nervous system, and in the course of two or three months she found to her great delight that her rheumatic pains completely left her. In an endeavor to expedite the reduction of the size of the thyroid, I applied the high frequency current over the thyroid gland for five or ten minutes by means of the vacuum glass electrode, just prior to each autocondensation treatment. Whether or not this assisted in the process I am unable to affirm, but the gland gradually but surely was restored to its normal size when the case was discharged. Eight months after the treatment was begun, though the exophthalmos was still marked, it had materially improved. The patient, however, was still obliged to protect her eyes from exposure to the air by covering them with some fabric material as she went to bed. I decided that this patient could not be discharged until her eyes no longer bulged to the extent of exposure through the night, and began the

use of the high frequency glass vacuum electrode applied over the eyes for ten or fifteen minutes twice a week. This seemed to have a most salutary influence on the exophthalmic state, for in the course of several weeks, the patient was entirely relieved of the distress of exposed conjunctiva and was able to retire without her usual protection.

At that time (June, 1915), eleven months after beginning treatment, the patient's weight was 120, heart 76, and there was no murmur audible! Not only had all evidences of edema disappeared many weeks before, but at this time I found on careful examination of her heart that it contracted to practically the normal limits. It seems, then, that in the favorable progress of events during the treatment of this patient, the restoration of cardiac compensation was due to a contraction of the myocardium, overcoming the relative insufficiency of the left ventricle, a condition with which the patient was suffering at the beginning of the treatment and which was at that time leading to loss of compensation. The patient's nutrition at this time was more than satisfactory. Her appetite was ravenous, her sleep sound and refreshing, her heart behaving naturally, her capacity for work was greater than it had been for years, and her neck normal in appearance. There were no more tremor, hyperidrosis, gastrointestinal disturbances, "nervousness," nor even rheumatic pains. In brief, the patient continually remarked that she was "feeling fine," and wanted to know when she would be discharged.

On October 17, 1915 (approximately fifteen months after beginning of treatment), I discharged the patient cured. She now weighed 124 pounds (a total gain of twenty-seven pounds), and was in every respect a strong, healthy woman. I instructed her to report to me every month or two, which she has done, and at this writing (January, 1918), she has not been taking any medicine since her official discharge and is enjoying perfect health.

CASE III.—Mr. J. C., aged forty-three, appeared in my office August 20, 1917, with a history of having been unable to work for three months because of gradual loss in weight, night sweats, nervousness, excitability with periods of melancholy alternating with hysterical outbreaks. Family history, negative; social history, nothing of importance which would lead to the etiology of his condition. He is married; wife and children are well. No harmful habits. Is a machinist by occupation. Past medical history presents nothing important. Does not remember having had any serious illness.

Present illness.—About six months before began to lose weight and strength gradually. As time went on, he found himself so nervous that one month after the onset of this condition he was obliged to leave his position. His continual loss in weight and the night sweats led his family physician to diagnose his case as that of pulmonary tuberculosis. The treatment for the latter being unsuccessful, he consulted another physician, who made a diagnosis of nervous dyspepsia. Finding that he was going from bad to worse, he consulted still another doctor, who diagnosed his case as a "nervous breakdown." His condition, however, reached the point where he was obliged to spend most of his time in

bed. When he came to me, three months after he began treatment, I discovered that he was a case of hyperthyroidism in the early stage, with marked preponderance of the nervous manifestation. The patient had lost twenty pounds in weight during the four months that he was ill; there was frequent nocturnal micturition, sweating almost every night, and a strong tendency toward excessive sentimentality which would lead him to periods of sobbing.

Physical examination.—Patient was a fairly well nourished man weighing 132½ pounds. Facies somewhat anxious, and there was a considerable restlessness as he appeared before me in the office. Skin was somewhat plethoric in appearance; texture rather moist; dermatographia obtainable; no scars nor edema. Head and scalp were negative. Glands: Lymphatic glands were practically normal. Eyes: Presented moderate exophthalmos which became more marked when concentration of attention was attempted. In this relation he told me that for some time past his friends had told his wife that he had an "uncanny, frightened and unnatural look in his eyes, especially when talking." Stellwag's, Dalrymple's, and Von Graeffe's signs obtainable. Pupils reacted to light and accommodation. Extraocular movements were good. Mucous membranes including conjunctiva, nose, throat, and gums, slightly congested. Lips somewhat bluish. Tongue presented a slight whitish coat; protruded without a tremor. Neck presented throbbing of the carotids and slight pulsation of the jugulars. The thyroid gland presented a slight symmetrical enlargement, only noticeable on close inspection and palpation. In fact, the patient during the entire period of his illness paid very little attention to the thyroid hypertrophy, and only when I spoke of it did he remark that he also thought his neck was slightly larger than usual. Auscultation over the thyroid area revealed a soft, musical, systolic hum. Chest was practically normal on inspection, palpation, percussion, and auscultation, excepting that there was a respiratory expansion of but two and one half inches. The apical impulse could be seen in the fifth left interspace slightly within the midclavicular line, and was somewhat impetuous in character. There were no murmurs discernible, but the heart sounds were somewhat weaker than normal. Pulse 82 per minute; regular, rhythmical, poor volume and low tension. Abdomen: Slight tenderness in epigastric area. Limbs presented nothing abnormal excepting that the outstretched fingers and toes presented a fine tremor. Nervous system: In addition to the fine tremor mentioned there was a moderate increase in the tendon reflexes. Though the patient seemed to possess average intelligence, he was prone to morbid ideas about himself, to the extent of melancholia at times.

Remarks.—In all fairness to the doctors whom this patient consulted, it must be said that this was one of the elusive cases occasionally encountered. The exophthalmos was not at all marked except in conversation, and was therefore overlooked. The tremor was not sought for; the increased heart rate was not marked enough to excite suspicion and was probably attributed to "nervousness" on the one hand or as an accompaniment of tuberculosis on the

other. The marked loss in weight and strength and the sweating served to emphasize the probability of tuberculosis. All these, plus the absence of a markedly enlarged thyroid, rendered the diagnosis rather a difficult one.

The diagnosis of Graves's disease was here made by the absence of pulmonary phenomena and other infectious processes, the absence of a definite syndrome characteristic of nervous indigestion and the presence of moderate tachycardia, exophthalmos, thyroid hypertrophy, tremor, change in disposition especially emotionalism, and last, but not least, a prompt amelioration and rapid improvement under treatment for Graves's disease.

TREATMENT.

Hygienic.—The hygienic regulations given this patient were practically similar to those in Case No. I. He was instructed not to resume work until further orders. He and the family were advised to avoid all factors which would lead to his mental and physical excitation, and the importance of complete tranquillity of body and mind was strongly insisted upon.

Dietetic.—The dietetic regulations were almost identical with those given in Case I. Animal foods were reduced to a minimum, and this was compensated for by an increase in the quantity of dairy products and cereals. Tea, coffee, cocoa, tobacco, alcoholic beverages and the condiments of the table were strictly prohibited. He was advised to gradually increase the quantity of food as the capacity of his digestion increased.

Medicinal.—As there was slight constipation, a teaspoonful of sodium phosphate in a glassful of hot water an hour before breakfast daily, was ordered. Locally the following ointment was prescribed:

Ungt. hydrarg. oxid. rubri,3i;
Lanolini,oz. ii.

A small portion to be rubbed into the thyroid gland every night.

Also the following was prescribed:

Quinine hydrobrom.,gr. v;
Sparteïn sulph.,gr. ½;
Ext. belladonnæ,gr. ¼;
Ferri arsenas,gr. 1/10.

M. et fiat capsule No. i. Mitte No. xxx. Sig.: One t. i. d.

In addition to this medicinal treatment, he was given an autocondensation treatment three times a week. This system of therapeutics was persisted in for three months, at which time the patient felt entirely normal. The exophthalmos was almost entirely gone, the pulse was 70 per minute, tremor had disappeared, appetite was ravenous, sleep and nervous system were entirely normal, and there was an increase of twenty pounds in weight. This patient, who had been informed by one physician that he was incurable and would probably live but six months, was now a cheerful, robust, optimistic man, ready to resume his work.

At this juncture he was informed of the advisability of abstaining from work for three months longer. The prescription ointment was discontinued, and he was given quinine hydrobromate in five grain capsules three times a day, and electrical treatments once a week. At the end of the second three months of this treatment, or six months after treat-

ment was started, the patient weighed 158 pounds, which was more than he had ever weighed in his life, and aside from an almost imperceptible degree of exophthalmos, the patient appeared a perfect specimen of manhood. He was informed that the slightly persistent exophthalmos would disappear within six months or a year and he was ordered back to work. At this writing, January, 1918, the man is enjoying perfect health.

CONCLUSIONS.

1. In the treatment of exophthalmic goitre, individualization is of inestimable importance. Measures which in one instance may appear very useful, may in another patient be useless or harmful, so that a brief period of experimentation may be necessary in order to discover exactly what regime is best adapted to the individual.

2. Rest, physical and mental, must characterize all treatment instituted in this disease. There must be a complete harmony of the bodily and mental faculties, and there must be harmonization of the body with the mind and vice versa. Having secured this harmonization among the structures and functions of the patient, we must further aim to secure the adaptation of this harmonized individual to external environments and circumstance. In brief, there must be a complete accord within the body and a similar accord of this body with conditions about. No matter how successful, how ingenious, how skillfully applied a mode of treatment might appear to be, a condition of internal or external disharmony or discord will render the treatment futile.

3. It must be borne in mind that the maintenance of the digestive functions in as normal a condition as possible is of vital importance; hence dietetic and medicinal regulations should be outlined accordingly. I would consider the assimilation of a sufficient quantity of food which would enable the patient to regain rapidly the weight lost through the course of the disease as the most specific of all measures, occupying first place in our armamentarium.

4. Though there are no real specifics in the non-surgical treatment of exophthalmic goitre, quinine, especially the hydrobromate salt, combined with an appropriate hematinic and a harmless sedative, appears to act in a specific fashion, all things being equal.

5. Psychotherapy, hydrotherapy, and electricity are very useful adjuvants, and when properly applied serve to expedite and complete the cure. These supplementary measures must also be prescribed in accordance with the exigencies of the case in hand.

1714 NORTH SEVENTH STREET.

Hydrostatic Pressure as a Therapeutic Element in Balneology.—Eisenmenger (*Die Therapie der Gegenwart*, April, 1918) refers to the mechanical influences which act from without on the human body and give rise to a series of movements, functions and biological transformations, which possess the particular faculty of causing certain pathological states to disappear and to awaken diminished organic functions or to hold in check those possessed of hyperactivity. In hydrostatic pressure we possess a very important therapeutic measure.

PERTUSSIS VACCINE AS ROUTINE TREATMENT IN WHOOPING COUGH.*

BY PAUL LUTTINGER, M. D.,
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The final estimate of any therapeutic agent is based, after all, on how much reliability the general practitioner may place upon it in his daily routine of preventing or curing disease. The bacterins prepared from various strains of the Bordet-Gengou bacillus have been so perfected that the physician can safely add pertussis vaccine to his armamentarium and expect the same success or failure as with his other well tried remedies. This is a plea for the adoption of the vaccine as a routine treatment in the prevention and cure of whooping cough. Last year I (1) reported the results obtained at the Municipal Whooping Cough Clinic where I treated some five thousand odd cases and also tabulated the reports from 180 private physicians and health officers embracing 2,364 cases. Since the clinic was closed, for reasons best known to our former administration, I have treated in private practice and in consultation 238 cases, of which fifty-one were prophylactic. Thus, I have had an opportunity to estimate the true value of pertussis vaccine in the every day practice of a physician, where theories count little unless you can show results.

With the exception of eleven very severe cases where a mixture of antipyrin and sodium bromide was given to allay excessive irritability, the others received no other treatment but the vaccine. The usual hygienic precautions regarding fresh air and the regulation of feeding were taken, of course. Forty-two of the prophylactic cases did not develop the whoop, while nine suffered from a slight non-paroxysmal cough for about two weeks, two of the latter began to whoop after two weeks and were given curative vaccine treatments with no results, i. e., they whooped for four weeks. These two cases may be counted as refractory to vaccine stimulation for reasons which we do not understand at present.

The average duration of the 187 curative cases was sixteen days of paroxysmal cough, including the eleven very severe cases. These results are almost as good as those obtained by Hoag (2) which at one time I thought could not be equaled. The usual course of the disease, in private practice, is about as follows: After the first injection, the child is liable to cough more during the following night; but the second night, the mother usually reports the first restful night the child has had since the cough began. A few days later the vomiting stops, and after the third injection the whoop usually disappears. In refractory cases six injections are given instead of three. The doses are as follows for a child one year old: half a billion, one billion, two billion, four billion, eight billion, and sixteen billion. The injections are given subcutaneously with an ordinary hypodermic syringe, every other day, an interval of five days being allowed between the third and fourth dose for recuperation. For prophylaxis, the first three doses are sufficient.

When this procedure as regards dosage and method

of administration is followed, the results obtained are invariably good. This means that the paroxysmal cough is shortened to half of the average duration, the severity of the attacks is remarkably reduced and all complications, including the subconjunctival hemorrhages, are avoided. These hemorrhages have been erroneously ascribed to the mechanical effect of the cough. I am inclined to think that they are produced by the toxins liberated by the Bordet-Gengou bacillus, which has a selective action on the conjunctival capillaries.

The following three cases reported by Dr. James A. Newsom, to whom I had furnished the pertussis vaccine, are typical of the conditions as we find them in private practice and I have transcribed them verbatim from Doctor Newsom's written report:

CASE I.—Boy, seventeen months, began to cough July 20th; injected August 4th, 6th, 8th, and 10th. Before injection, coughed seven to eight times a day and almost incessantly at night. Vomited after each feeding. Very weak and irritable; eyes swollen, face pale. Some improvement after third injection. Coughs only once or twice a night, eats better, less irritable. No whooping or vomiting after August 14th.

CASE II.—Mother of patient in Case I., thirty-eight years old, began coughing July 15th. Four injections as above. Some improvement after second and marked improvement after third. Slight reaction following third; nausea. Since fourth injection, cough has entirely disappeared.

CASE III.—Girl, three years old. Whooped on August 4th for first time. Injected on the 6th, 8th, 10th, and 12th. Coughing and vomiting seemed to increase in frequency and intensity so that mother was reluctant to permit fourth injection, but was finally prevailed upon to allow it. Attacks continued very severe up to August 20th; but by August 25th, both vomiting and whooping had disappeared.

These results were obtained with smaller doses than those now advocated. There are much more favorable records in my files, notably a parallel series of cases referred to me by Dr. William C. Cramp treated with massive doses; but these need not be given in detail.

Among those who have lately reported good results from pertussis vaccine are Goler (3), who treated successfully 396 cases, in Rochester. Shaw (4) reported 112 cases, of which thirty-six per cent. were shortened in duration, fifty-two per cent. had fewer and less severe paroxysms, and twelve per cent. were not affected. Shaw (5) reports 164 cases exposed to whooping cough at St. Margaret's House, only seven per cent. of which contracted the disease after immunization by pertussis vaccine, while in former years fully fifty per cent. of the children exposed used to develop the disease when exposed without immunization. Bloom (6) reports forty cases as well as prophylactic injections in which the vaccine shortened the duration and severity of the disease and prevented complications. Wolverton (7) reports thirty-six cases including his own two children. Loge (8) has treated over one hundred curative and prophylactic cases, and Cheney (9) states that the disease is shortened from twenty to twenty-five days and that

*Read before the Bronx County Medical Society, December 18, 1918.

the complications are practically absent. Rosenthal (10) claims that pertussis vaccine is entirely satisfactory in eighty to eighty-five per cent. of cases; but is doubtful about its prophylactic value, while Bogert (11) found it a sure prophylactic in his thirty-one cases. D'Atri (12), Polozker (13), and Ivanissevich (14) add their testimony to the advantages of pertussis vaccine in whooping cough.

So far, the only negative report published has been that of Von Sholly (15), regarding whose work I have received many inquiries. I take this opportunity to state that Doctor Von Sholly's work is based on a few weeks' experience at the Whooping Cough Clinic, where she relieved me while I was on my vacation. The actual treatment was done by Doctor Blum, who was not consulted in the preparation of the report. The technic which I developed regarding method of administration, dosage, and history taking which are so essential in the intelligent treatment by vaccines seems to have been entirely discarded. Thus, the vaccine was given intramuscularly instead of subcutaneously as the best authorities recommend. Even a tyro in the science of immunology knows that intramuscular injections cause induration, irregular absorption, and consequently inability to study the exact effect of the dose. No reference is made to the severity of the paroxysms nor to the vomiting and other complications. Neither is the dosage mentioned and the intervals between inoculations are also left out. The report states that the conclusions were reached "immediately after the third injection." This adverb is vague and may mean five minutes to five days. Furthermore the claim is made that terpin hydrate had the effect of reducing the paroxysmal stage to nineteen days. This, of course, is at variance with the experience of the large majority of the profession. Finally, Doctor Von Sholly admits that the number of cases she investigated "was too small to be of full scientific value." Why then rush into print? It is time that the heads of our municipal laboratory scrutinize a little more carefully work that receives the sanction of our Department of Health.

CONCLUSIONS.

Pertussis vaccine, when put to the pragmatic test, in private practice, "works" to the satisfaction of the patient and the physician. When given in high doses and at the proper intervals it is the best remedy we have for the prevention and cure of whooping cough, and one of the most valuable therapeutic agents we have in our armamentarium. The negative report, so far published, is based on insufficient data and should not have been allowed to pass uncensored by the authorities. The widespread use of pertussis vaccine will solve the problem of whooping cough, this *bête-noire* of medicine which yearly kills 10,000 American children.

1265 BOSTON ROAD.

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ROLLS BEFORE BREAKFAST,

By WILLIAM BRADY, M. D.,
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When an ordinary doctor makes a serious mistake he is popularly supposed to bury the mistake and say nothing more about it. But an eminent specialist in etymology has made one huge mistake which has been embalmed in eternal print, and it is now time to endeavor to correct this mistake, for a great many people are getting the healthful habit of taking rolls before breakfast, and it would be sad to contemplate the result of any fault in the making of these rolls.

It seems that the well known etymologist in question never attended a circus in all his life, nor even a sideshow. This he betrays in chapter XIX of his great romance entitled *The Unabridged*, for it is there that he encounters for the first and only time the word somersault, and he makes a botch of it. Had Doctor Webster been less ascetic, less austere, he might have learned that a "leap in which a person turns with his heels over his head" is not a somersault at all, but an airspring. But he called it a somersault, and the deplorable result is that overcautious persons for whom six rolls before breakfast are prescribed often consult Webster about it and then go out and break their necks leaping in the air. That ought to be prevented somehow. A somersault is a simple, harmless thing. It is entirely within the capacity of any one not bedridden and between six and sixty years of age. There are no contraindications to somersaults as a mechanical remedy. Turning six somersaults before breakfast is not an exercise, so people need not be afraid to try it.

There are a good many indications for somersaults. I list some of them below, and as the treatment costs nothing more than a few moments of time, can do no harm in any event and often does a surprising amount of good, if faithful and uninterruptedly pursued, it is worthy of the serious consideration of any doctor who is not utterly wrapped up in his materia medica. When we remember that one fourth of the total volume of the blood of the body may accumulate in the splanchnic area, and that a large amount of minor ills depend directly or indirectly upon intestinal stasis, the therapeutic efficacy of somersaults does not seem so unreason-

able. But it is easier to try the thing out and let the patient decide whether it has any value, than it is to account for unquestionable remedial effects of somersaults. In fact, one must discount the enthusiastic testimonials patients are eager to give for somersaults. When a woman who has suffered for years with disabling attacks of migraine adopts this plain roll regimen, so to speak, and then, after a few months, declares that her headaches no longer trouble her, one becomes interested. When victims of chronic constipation, or rather victims of the great American pill, discover that the somersault habit obviates the need of laxatives, then one becomes still more interested. There must be something in it—even if it is merely suggestion. It does good in too many and varied cases to be ignored as a silly thing.

INDICATIONS.

Among the indications for which six somersaults every morning and every night have been successfully prescribed in many instances, the following are especially noteworthy:

Menstrual difficulties of young women, dysmenorrhea without gross lesions, scanty and irregular menstruation, and menorrhagia. "Poor circulation" in men or women, but most commonly the complaint of women patients, with a sallow complexion, or chloasma, and particularly cold feet. This condition seems to accompany a splanchnic blood stasis. Simple constipation and intestinal stasis due to ptosis. Flatulence and fulness and distress attributed to "gas" in stout patients who (obviously) eat too much or too fast or both. The blues and mental depression not dependent on discoverable disease.

Persons of middle age or older generally require some assistance and coaching when they first essay a somersault. It is advisable to spread a line of pillows, or many soft quilts, or a mattress on the floor for beginners. People along in years (anatomically) often complain of dizziness, seeing stars, and even nausea after the first few attempts. It only goes to show how unequally the blood has been distributed and how badly just such treatment has been needed. If they persevere they will overcome these obstacles with reasonable practise.

Once the knack of rolling a somersault has been acquired no padding of any kind is required, the bare floor or carpet being sufficient. If a long hallway is available it makes an ideal place for six in succession; if a small bedroom is used the patient must roll back and forth on the floor. For unusually clumsy or timid people it is a great help to have some youngster demonstrate just how to turn a somersault and come up smiling. By the way, this latter point should be insisted on in the prescription. The patient must come up smiling. And he must come right up on his feet after each turn. The smile may be camouflage at first. It will be genuine after a time. Six rolls before breakfast and six more as a bedtime repast. "It is very simple, but I hope no one will call it foolish until he has tested the merits of the formula. Try it on some of the "chronics" that haunt your ways. If it does no good it will do no harm, and in any case it is not unpleasant medicine to take.

514 LAKE STREET.

ESSENTIALS OF THE BARANY TESTS.

Some Indications for Employment.

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Although the Barany tests have been fairly well developed in this country by such men as Randall, Jones, Fisher, Lewis, Brumm and others, the work is still in its infancy. These tests have shown remarkable results as to whether a brain tumor operation should or should not be performed, and there have been cases which the tests have shown the growth to be in a location where an operation would be useless.

The average general practitioner is still groping in the dark about this subject, as are also some of our well known otologists and neurologists; but, for some of them, especially those who are not familiar with the subject, to pooh pooh the tests, without having carefully studied them, is indeed a crime. It should be the duty of every one to give every possible aid to those who are trying to develop this new field. They should remember that in cases where the analysis of the tests have been wrong, it was probably due, not to the tests, but to our lack of knowledge and experience in interpreting these tests, and that there will be many discoveries made which only patience, effort, and time may clear up. So let us join hands, fellow practitioners, and not pooh pooh, but try to help solve these problems.

Among the conditions which call for the tests, the following can be mentioned: 1. Cases of vertigo, especially of long standing (as vertigo due to ear conditions usually tends to get well in time); 2, cases of spontaneous nystagmus, especially those which are up or down "vertical," for it has been proven at the Neurootological Clinic of the University of Pennsylvania that a spontaneous nystagmus upward is pathognomonic of brain stem trouble; 3, cases of meningitis or brain conditions proper; 4, in palsy cases, especially in some of the cranial nerve palsies; 5, in cases of convulsions; 6, in cases of ataxia; 7, blindness is sometimes caused by an occipital growth and the Barany tests will help localize the lesion; 8, deaf mutes; 9, malingers; heretofore, when the otologist suspected a brain abscess following some ear conditions, he usually thought of the two most frequent locations, namely, temporosphenoidal or cerebellar, and taking into consideration that the most frequent of these was the temporosphenoidal, the otologist would often operate, only to find that the suspected area was free from any pathological condition; while the infection was continuing its damage in the cerebellar area. A Barany test would have probably definitely given the correct location.

I would even go so far as to say that it might be worth while to have the tests performed in some cases of mental aberration, thus we might find, instead of a nonorganic neurological process, one of organic origin.

The Barany tests are extremely simple, they may be learned and easily executed in a short time. The

analysis of the results are, however, difficult, mainly because the work is still new and not sufficient antemortem and postmortem studies have been made.

The requirement most essential in the analysis of these tests is to memorize, or, better still to visualize the nerve pathways from the ears to the brain. The main nerve pathways in connection with our work are as follows: The eighth nerve has two sets of fibres, cochlear and vestibular. The cochlear fibres are tested by our various hearing and exclusion tests, the vestibular fibres by the turning and douching tests. Vestibular fibres of the eighth nerve go from the external, horizontal canal, into Deiters's nucleus in the medulla, and they then divide at a point, the exact location of which is only approximately known, into vertigo and nystagmus fibres, the vertigo fibres going into the cerebellum by the inferior cerebellar peduncle, the nystagmus fibres going to join the posterior longitudinal bundle and through it pass forward to the eye muscle nuclei. The fibres from the vertical canals pass in the vicinity, but do not join Deiters's nucleus, they then in an adjoining area, not definitely localized, also divide into nystagmus and vertigo fibres. The vertigo fibres enter the cerebellum by way of the middle peduncle, while the nystagmus fibres join the posterior longitudinal bundle. The vertigo fibres of all the canals meet in the cerebellar nuclei and pass up to the superior cerebellar peduncles and cerebral crura. They decussate and go to the first and second temporal convolutions of the opposite side.

The normal case should show the following: No spontaneous nystagmus or past pointing of any kind. The Romberg should be negative and resistance at an attempt to overthrow should be present. On turning to the right (the patient upright, head at 30°), ten times in twenty seconds, the subject should show a horizontal nystagmus to the left of about twenty-six seconds' duration. On turning to the left, he should show a horizontal nystagmus to right of twenty-six seconds. On turning to the right ten times in ten seconds, he should show a vertigo, i. e., when the chair is suddenly stopped, the patient will say that he is still turning to the left, or direction opposite to which he has really turned, for about twenty-six seconds. On repeating the same test (it is essential in this test to have a proper chair equipped with a stop pedal, and a stop watch should be used), in the same manner to the left, and when the chair is stopped suddenly, he should present a vertigo to the right of twenty-six seconds. On turning to the right, ten times in ten seconds, the normal patient should past point to the right for about twelve inches with each arm. On repeating the same test to the left, he should past point to the left for about twelve inches with each arm.

The caloric or douching tests are more difficult to execute because they should be done rapidly. The temperature of the water we use is sixty-eight degrees F. In douching the right ear with head at 30° degrees we test the vertical canals of that side. The normal patient should show a rotary nystagmus to the left after having been douched for forty seconds, and should past point to the right with both arms. On placing the head backward, the

horizontal canals will come into play and you should get a horizontal nystagmus to the left and past pointing to the right. On bending the patient's head forward, the same canal will still be acting, but as the lymph flow is in the opposite direction, he will past point in the opposite direction, namely to the left.

The same douching tests of the left ear should show with the head upright at 30° rotary nystagmus to the right and past pointing of both arms to the left, and with the head tilted back, a horizontal nystagmus to the right, and past pointing of both arms to the left. With the head held all the way forward the patient should past point to the right. In these tests there is often a tendency for the patient to fall and normally this should be in the same direction as the past pointing.

The following, if memorized, will aid greatly in analyzing the results obtained. 1, If stimulation of the right ear is negative for nystagmus, vertigo, past pointing, and falling, and in addition, you also have as corroborative evidence total deafness of the right ear, it shows a destruction of the right labyrinth or the eighth nerve on the right side; 2, if stimulation of the right horizontal canal is negative for nystagmus, but vertigo, past pointing, and falling are present, the lesion is probably in the medulla between Deiters's nucleus and the posterior longitudinal bundle; 3, if stimulation of the right horizontal canal shows nystagmus and an absence of vertigo, past pointing, and falling, the lesion is probably in the right inferior cerebellar peduncle; 4, if stimulation of the right verticals is negative for nystagmus, and vertigo, past pointing, and falling are present, the lesion is in the posterior part of the pons near the posterior longitudinal bundle; 5, if stimulation of the right verticals gives nystagmus and is negative for vertigo, past pointing, falling, the lesion is in the right middle cerebellar peduncle; 6, if stimulation of the horizontal and vertical canals of both ears does not show nystagmus, but vertigo, past pointing, and falling are present, the lesion is in the posterior longitudinal bundle; 7, if stimulation of right horizontal and right vertical canals shows nystagmus and an absence of vertigo, past pointing, and falling, the lesion is in the cerebellar nuclei; 8, if stimulation of all canals gives nystagmus, but an absence of vertigo, past pointing, and falling, the lesion is at the point of decussation of the superior cerebellar peduncles; 9, if the right ear is totally deaf ("stone deaf") and stimulation of the right horizontal and right verticals gives no nystagmus, vertigo, past pointing, or falling, and in addition the left vertical canals show impairment or even an absence function, the growth is located in the right cerebellopontine angle.

An important essential in an analysis of the Barany test is to differentiate between an end organ lesion (cochlea and semi circular canals proper) and a central lesion (brain proper). I will attempt to give some of the principle points in the following table:

CENTRAL.

1. Spontaneous vertical nystagmus.
2. No tinnitus, but if present tends to get worse.
3. Normal hearing tests with impaired or nonresponsive canals.

4. Disproportionate impairment of responses after ear stimulation.
5. Perverted or inverse nystagmus after stimulation.
6. Conjugate deviation, following stimulation.
7. Romberg present.
8. Cranial nerve palsies very often present.

END ORGAN.

1. None.
2. Present, improves.
3. Hearing tests not normal; canals normal.
4. Proportionate impairment of responses.
5. Nystagmus, if present, is usually normal in character.
6. Not present.
7. Rarely present.
8. Rarely present.

It is to be remembered, that we cannot analyze by "rule of thumb," but each case must be carefully studied, taking into consideration all responses, spontaneous and induced, all palsies, especially of cranial nerves. It is very important that the hearing tests be carefully executed.

2011 CHESTNUT STREET.

(Permission to publish given by the Surgeon General of the U. S. Army.)

ENURESIS NOCTURNAL.

Conclusions Drawn from Sixteen Cases Treated at United States Army General Hospital No. 9, Lakewood, N. J.

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New York.

The title of this paper, Enuresis Nocturnal, was taken from the (*C. M. M. D.* 6, February 14, 1918), nomenclature of diseases. In the Manual Medical Department, 1916, is listed Enuresis, but with the notation, "Do not use as primary diagnosis when cause can be determined." Inferentially then, there is a decided uncertainty as to the classification of this condition, which at best is but a symptom. Under the heading Diagnosis of Ward Surgeon in practically all of the histories of these cases the diagnosis was "Enuresis, nocturnal, chronic, cause undetermined." *E. P. T. D.* Noncommittal to say the least. There is nothing to show that any effort was made to determine the cause. The same might be said of systematic treatment. From the histories of these cases enuresis is not, per se, an army disease, all the cases but one having existed for years. Isolated cases scattered widely over the country do not draw much attention, as they are individual burdens, or family affairs, but, when concentrated in a camp, barracks, or even in hospitals, under army conditions, they become a nuisance to be reckoned with, and as soon as discovered are segregated. From this time on, during the remainder of their military career, they are marked men. Their troubles increase in a geometrical ratio and I have yet to find a task too menial or disagreeable to be assigned to these unfortunates. At home they were, perhaps, able to care for themselves, protect their beds and clothing, or at least have frequent changes. In most cases they had the sympathy and aid of their families.

It seems to be an axiom, in the army, that all these bedwetters are malingerers, and the practice to

go the limit with them, and when the limit is reached, give them a certificate of disability, in most cases, or charitably tag them "constitutional psychopathic state, inferiority, etc.," and transfer them. Those not getting a certificate of disability, becoming wanderers from one hospital to another, of course at Government expense, not even I believe earning their bread, to say nothing of their pay. I am not able to visualize their finish under the present method. We are all, I believe, fairly familiar with enuresis in children, both nocturnal and diurnal. On account of its great frequency much study has been given to its etiology, pathology and treatment, and there is no dearth of literature bearing upon it. When we consider the same train of symptoms in adults quite the contrary prevails.

I am well aware that the small number of cases that I am able to report means little in comparison with the total number of cases in the army; but considering that they were all awaiting disposition by the disability board and that fifty per cent. were sent to duty cured one cannot but conclude that a large number of useful and otherwise healthy men have inadvertently been discharged from the army. My one desire in reporting these cases at this time is to call attention, before it is too late, to these men, who with adequate treatment and encouragement, instead of the contrary, might in most instances be reclaimed and made happy, useful members of society, instead of remaining outcasts when they return to their homes. There is a striking similarity in the histories of these cases, in that, with one exception all had their beginning in infancy. This one case was traumatic, following the passage of a large sound. The patient returned to duty in five weeks. All patients wet the bed from one to three times nightly in the beginning of treatment. Four of the men admitted being disciples of Onan; of the others can only say—not proven. These four, with one other, were transferred, according to army custom, before I became actually interested in their condition. Their ages ranged from nineteen to thirty-one years, an average of 24.7 years. The average time spent in the hospital was forty-five days.

CASE I.—E. N., aged twenty-six, admitted May 10, 1918, from childhood epileptic, no improvement. Certificate of disability, July 24, 1918.

CASE II.—L. B., aged twenty-four, admitted May 10, 1918, from infancy. Transferred August 7, 1918.

CASE III.—H. W., aged 22, admitted May 10, 1918, from infancy, interval improvement. Transferred August 7, 1918.

CASE IV.—H. P., aged twenty-two, admitted May 10, 1918, from infancy. Returned to duty July 22, 1918.

CASE V.—G. C., aged twenty-two, admitted May 10, 1918, from infancy, no improvement. Transferred August 7, 1918.

CASE VI.—H. M., aged twenty-four, admitted May 10, 1918, from infancy. Returned to duty July 22, 1918.

CASE VII.—M. H., aged twenty-eight, admitted May 10, 1918, from infancy, no wetting after May 23. Returned to duty July 30, 1918.

CASE VIII.—P. K., aged twenty-seven, admitted April 11, 1918, from infancy, no wetting after fourth treatment. Returned to duty May 23, 1918.

CASE IX.—G. L., aged twenty-four, admitted June 24, 1918, from infancy, no wetting after one treatment. Returned to duty July 17, 1918.

CASE X.—W. K., aged twenty, admitted June 29, 1918, from infancy, some improvement, intervals five days. Transferred August 7, 1918.

CASE XI.—J. C., aged thirty, admitted July 3, 1918, from infancy, considerable improvement. Transferred August 2, 1918.

CASE XII.—E. D., aged nineteen, admitted August 6, 1918, from infancy, some improvement, about five day intervals. Still under treatment.

CASE XIII.—I. H., aged twenty-six, admitted August 6, 1918, from infancy, with intermissions. Cured. Certificate of disability for other causes.

CASE XIV.—J. Z., aged nineteen, admitted July 29, 1918, from infancy. Returned to duty August 22, 1918.

CASE XV.—A. M., aged twenty-seven, admitted July 27, 1918, followed passage of large sound. Returned to duty September 3, 1918.

CASE XVI.—R. M., aged twenty-nine, admitted August 29, 1918, wet bed until sixteenth year, then stopped, to begin again three months before admission, following measles. Improved.

CASE XVII.—J. L., aged thirty-one, admitted June 6, 1918, from infancy. Discharged July 23, 1918, for other causes. Not improved, persistent masturbation.

I have no notion of going deeply into the scientific aspect of enuresis, nocturnal, as reference works are not available, but only insofar as to call attention to one way in which a liability may be turned into an asset for the Government. As to the causes of enuresis in adults, they may be, and probably are, multiple, following closely the conditions found in children. But from the readiness with which the patients improved, even those that were transferred, it appears that a goodly proportion of cases have no very serious pathological foundation. Heredity seems to hold a sure place as predisposing causes. Examination with endoscope showed intense congestion in the prostatic urethra, a succulent membrane, with tendency to bleed, and there were many areas finely granular in appearance in all cases. On account of the intense hyperesthesia and quick response to local treatment no cystoscopic examinations were made. Urine in all cases showed no abnormalities, except occasional leucocytes.

Until after I had begun to gather the data for this report I was unable to find any literature bearing on the subject. I now have before me a monograph by Dr. F. Bierhoff, written in 1900, on Enuresis and Irritable Bladder in Children, in which he states as his belief that enuresis is caused by "a combination of conditions—the exciting cause being an abnormal increased reflex irritability of the mucous membrane, most marked at the sphincter and at times of the trigone vesicae, or sometimes in the male, of the prostatic urethra, and that the cause of the heightened reflex irritability is to be sought either in a hyperemia or an inflamma-

tion of the vesicle neck, the sphincter, or deep urethra, existing either singly or in combination."

The treatment was varied to suit individual cases. As they were all consistently wetting their beds from one to three times a night they were awakened at intervals of about two hours, the time being lengthened as individuals showed improvement. Bowels and diet were carefully looked after. The most important part of the treatment, I believe, was the local application through the endoscope of varying strengths of nitrate of silver solution one to five per cent., varied at times with deep instillations of two or three drops of the same solution, or anterior irrigations of the urethra with a solution of silver one to 3,000 or 5,000. These treatments were given at intervals of about four or five days. In a few of the cases I gave belladonna and ergot internally in small doses, but could not say that it helped much. There are many other variations in treatment that might have been useful, but I am only reporting what I used.

It might be said that I was fortunate in the type of cases that fell to my lot to treat; it must be remembered, though, that they were not selected, but were about fourteen per cent. of the total number of patients in the hospital diagnosed as psychoneurotics, and were transferred to the genito-urinary service solely because of their enuresis, with the remark, which I understood later—"See what you can do for them, we have to close the ward and you can transfer them later." It was then that I decided to find out, for myself, the worst. After a careful examination of each case, it seemed to me that someone, or several, had missed an opportunity, most of these men having passed through several hospitals. I could see no reason why they could not be relieved. The results, unprecedented in the army, I am told, bear out my contention that at least fifty per cent. of cases of enuresis, nocturnal, can be cured. Unquestionably, there is a class whose predominant symptom is enuresis, that come under the psychoneurotic type. Even these patients I believe can be much improved if not cured, by relieving the conditions, easily reached through an endoscope, or with a deep instillation syringe. I am loath to believe that many humans, with even a modicum of intelligence, would elect enuresis, nocturnal, as an excuse for not doing duty, and I can assure you that the gratitude expressed to me by those whom I have relieved has well repaid me for all I have done in their behalf. I did not intend to do more than report these cases, with treatment and results, but a few generalities in closing may not be amiss.

It is the law that an insane person can commit no crime, because of a physical disability, hence should not be punished. The enuresis victim is also suffering from a physical disability over which he has no control, yet he is punished in the army in ways that, if he has one spark of manhood, his very soul is torn with emotions that make him wish that he had never been born. If he seeks seclusion, in order to cover his shame, more is added. Is it any wonder that after a few weeks or months of this treatment he has no difficulty in qualifying as a psychoneurotic. He realizes, only too well, his in-

ability to control the nightly accident, also the futility of his feeble remonstrances against the degrading assignments. Has anyone tried the other way? No. Why not then, when the old (lack of) method has proven such a failure, make a change, and give these little understood men a chance. Do not treat them as criminals; encourage them, build them up physically and mentally, at least do not make their work and environment more distasteful than the average. Let them understand that you are interested in their getting well and treat them as patients and not as criminals. There is no claim to originality, either in instruments or methods, but only to the idea of making a systematic effort to cure a class of cases hitherto neglected.

204 WEST SEVENTIETH STREET.

AMERICAN WOMEN'S HOSPITALS IN FRANCE.

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France.

The hospital and dispensary service given to the population of the devastated region of France by the American Women's Hospitals, the war service committee of the Medical Women's National Association, is unique in that it is the only relief work in this war originated and carried through by the organized women physicians of America. Convinced of the need of such a hospital in the department of the Aisne, the American Red Cross, early in the spring of 1918 endorsed the project which, following this endorsement, went speedily forward. Arrangements were at once made with the American Committee for Devastated France, with which the American Women's Hospitals is affiliated, for a location and the necessary funds raised during a ten day drive in April which was generously supported by the devoted friends of the organization.

The director and two members of her staff arrived in Paris in June and, about the middle of July, were located by the Sixth French Army, through the American Committee for Devastated France, at a chateau in the small village of Neufmoutiers, Seine et Marne. This village was then housing about sixty refugees from Chezy-en-Oxis, the little village of the Aisne, northwest of Chateau Thierry, where later on we established a dispensary. In a radius of twenty miles there were perhaps 300 more from the Aisne, crowded into the already well populated and rather poor little villages. A great deal of unhappiness and discontent was engendered by the fact that in ordinary circumstances the department of the Aisne is richer and more prosperous than the department of Seine et Marne and the peasants of our villages found it hard to understand why they should share their homes and hard earned food with the erstwhile prosperous neighbors, while the refugees could not forget the rich fields and comfortable homes which they had been forced to abandon to the destroying Germans. There were also French and American troops in every little village, smiling and saluting our American chauffeurs.

Because of our location in the war zone we were

notified that our hospital must be prepared to become a Hôpital Mixte, that is part military and part civil, provision being made to keep each part entirely separate and all future preparation was done with this in mind.

History was being made rapidly in those early summer months, for all France was fairly holding her breath in expectation of the renewed hostile offensive and the struggle for the possession of the Marne at Chateau Thierry was still swaying back and forth in uncertainty. There were nightly air raids on Paris only twenty miles away and at dawn we would be aroused by the dull thunder of guns and flashes of light toward the northeast. A bomb was dropped in a neighboring village by a Gotha on its return flight to the border and the allied air squadrons swept overhead daily on their way to the front, great V shaped wedges like flocks of geese twenty-five or thirty in number with a small scouting machine patrolling the flank. In the midst of this excitement the building was prepared for use as quickly as possible. The furniture and carpets were taken up by a squad of poilus loaned for the purpose and four large rooms converted into wards with a capacity of fifty beds. The servant's dining room, with painted walls, tiled floor and running water, was chosen for the operating room and a small round tower room adjoining, reserved for the department of radiology when it should come. Transportation from America at this time was much delayed. We planned, therefore, to purchase the bulky equipment for the hospital from the American Red Cross or that failing, in the open Paris market. Application to the Red Cross brought the response, that they had no hospital equipment to spare so the fifty regulation French Army hospital beds were purchased at a Paris shop.

Operating tables, especially with an attachment for the Trendelenburg position, absolutely necessary for our civil work, were very scarce; however, prolonged search among the small shops of the Latin Quarter produced a satisfactory model. An autoclave was secured and some white enamel tables and the small impedimenta of the operating room, all on the simplest scale possible. The next difficulty was surgical instruments, as the very complete outfit which we had bought in America had not arrived, and we had a patient with an inguinal hernia among our cases, which had threatened strangulation more than once. Appeal for a loan from the Red Cross was granted but delivery was so delayed and uncertain that the first operations were performed with the assembled pocket kits of the unit plus some absolutely essential hemostatic clamps borrowed from the French county hospital at Tournan, the nearest railroad centre.

The allied counterdrive, destined to settle the fate of the war, began on July 18th. A day or two before that time, the country side was deserted by blue and khaki clad soldiers and within the week our commanding officer ordered us to stop our preparations. This order was due to the fact that the army had moved back into the Aisne and our refugees were to be returned to their homes and we were to be given a new location in or adjacent to the devastated regions. With such rapidity do con-

ditions change in time of war! Meanwhile two teams, consisting of a physician and nurse each, were to proceed instantly to Meaux to assist in the treatment of the wounded French soldiers, brought there by ambulances from the front. When the excited four arrived that same evening at the French Evacuation Hospital No. 18 in Meaux the large tree bordered courtyard, around which are grouped the various buildings of the converted cavalry barracks, was teeming with activity. The most interesting sight to us was the dusty ambulances rolling in from the front in an almost steady stream. They were driven by haggard youths, with the familiar American air of careless efficiency, while through the open windows and doors could be caught glimpses of white bandages and soiled blue uniformed figures, all wrapped in a weary and profound silence. There were blue clad nurses moving about with their familiar chiffon veils and, through the open windows and doors of a long low building, high tables with whitecoated doctors and nurses bending over them were to be seen.

We were assigned a table in this room and the first team began its work there the next morning at six o'clock. The wounded soldiers received their first hasty dressing at the front line dressing station, where they were given a dose of antitetanic serum. A card tied to a button-hole in the coat of each patient stated the nature of the wound. Upon arrival, at H. O. E. 18, the wounded were carried from the ambulance into a large building called the "Grand Triage" where, with the utmost dispatch, emergency treatments were given, the dead and dying sorted out and made comfortable and the more gravely wounded placed in a nearby hospital. The greater part of these wounded were sent to the Petit Triage to have their wounds carefully diagnosed and redressed before commencing the long trip to Paris and the hospitals even farther south. From 1000 to 1500 were passing through the triage daily. We found our help gratefully received here, as many of the French doctors on duty had not had a full night's rest for over a week.

We found the hasty dressings placed at the front, often under fire, had frequently slipped, the cleansing of the wounds very slight if attempted at all, and a good many wounds overlooked entirely. The method of treatment, fairly well standardized, was this: Thorough exposure, which usually involved cutting and removing the entire bloodstained, stiffened uniform; scrubbing the wounds and adjoining skin with soap and water; picking out shreds of clothing, badly torn tissues, fragments of shrapnel and superficial bullets; further cleansing with free use of ether and alcohol (there was considerable use of hydrogen peroxide by the French surgeons to soften and detach the old dressings), and finally very free application of a solution of iodine, after the drying of which, a dry sterile dressing was applied. For broken bones the Thomas was the favorite splint but the supply was very short and fractures of the humerus were bandaged tightly against the side of the chest. The patient's themselves were exhausted. They slept as they lay on their stretchers waiting their turns, or sat nodding

on the benches, but, on being wakened, looked at one with that cheerful, patient eye, which has caused France to idolize her poilu. The diagnosing, entered upon the envelope tied to the uniform, was carefully supervised by the *Medecin Chef*. It was important to state whether the wound was caused by shrapnel or bullet penetrating or superficial, seton or complicated by fractured bone. Upon this diagnosis depended the placing of the wounded man on the swift train to Paris or the slower canalboat.

In August, while rather restlessly awaiting the time when conditions should be sufficiently stabilized to allow a location nearer the devastated regions in the Aisne, dispensaries were opened and a dentist's office established at Neufmoutiers. Here we took care of some forty patients, old men, women and children suffering from the epidemic of dysentery "*Maladie à la Mode*" as the peasants liked to call it, which later became serious in the armies. During this time our ambulances began to go far up into the Aisne near Chateau Thierry to hold consultations with and bring down the sick. Our refugees had gone back to their homes to harvest the grain, which the Germans had not harmed in their retreat, so in September we too packed up our "little things" and moved to the village of Luzancy sur Marne, fifteen miles from Chateau Thierry.

The beautiful old chateau loaned to us, wherein we installed our hospital, has been in constant use as a hospital since the beginning of the war, first by the Germans, then the French and last summer by our own Americans as an evacuation hospital for Chateau Thierry and Belleau Wood front. It holds about 150 beds, has an abundant water supply, both hot and cold, hot water heating plant, everything, however, was when we took possession, much out of order and very dirty. While the building was being whitewashed and the various systems put in order thirteen dispensaries, each one to be visited twice a week, were started to meet, as promptly as possible, the great need. The condition can hardly be imagined. In the first place we were confronted with a country district containing about 5,000 people, part of which had been heavily bombarded by both the hostile and allied forces leaving the houses in ruins. Despite this, the former inhabitants had journeyed back and were living in any kind of a makeshift way they could manage. All their furnishings were gone, they were sleeping on piles of hay and food was very scarce. They were badly affected by the fright and grief they experienced when the hasty evacuation took place and by the poor food and general hard conditions of the previous three and a half years. The districts, which had not been devastated, were suffering from scarcity of food, due to the passage of the Allied armies through their villages and the unsanitary conditions resulting from the occupation by the armies. Among the people there was a general low state of resistance caused by poor food conditions, fright and nervous tension. The Germans pushed to within a few miles of this district last summer, following which three epidemics swept this country and, until we came, the inhabitants had been without physicians or medicines, except for the two women physicians of the American Committee for Devastated France, working in association with us.

In establishing dispensaries, we invariably took great care not to interfere with the districts of the two elderly French doctors living on the outskirts of the district, although, as they were unable to obtain gasoline, they could not go outside the small cities in which they resided. Our first act was to establish relations with the *maire* and the military officer and to obtain their assurances that there was need of help. The town officials never failed to receive us with open arms and many are the testimonials of appreciation and gratitude which the staff received, varying from official documents to fowls, rabbits, butter, eggs, flowers and souvenirs of the battles fought nearby.

The distress, which prevailed here, was the most dire imaginable. In a nearby town, there were twelve cases of as virulent a typhoid as occurs. All these apparently emanated from the same stricken household, where the four children were sick, two in a bed. The windows were kept tightly closed, the courtyard of the house contained manure, rubbish of all sorts, flies fairly forming a living tissue and the mother and father frantically and futilely nursed first one then another while their children sickened and died. The sickest child we brought to the hospital where, after three weeks of delirium, she recovered. For a month our doctor visited that village every day. We gave antityphoid inoculation to the whole countryside, and cleaned up its villages, so that the sick all got well and remained well and we could transfer our attention elsewhere.

Next, came influenza with its pneumonias. It struck the villages progressively. All the population of a village would have it at the same time, the less sick caring for the more seriously affected. In those times the *maire* of a village would meet our doctor and carry her bag for her as she went from house to house. Our record for the month of October was 1700 calls and, with our small force of three nurses, we cared for forty-nine patients in the hospital, twelve of whom were typhoid patients, all at times delirious. It is a fine record for our nurses that in that time we only lost one typhoid patient. This patient was the mother of the family in which the epidemic started and was much exhausted through caring for her children for three weeks before she herself was taken sick.

The question of tuberculosis must be considered. While there was no way of gathering statistics, many cases were encountered living under difficult and distressing circumstances. A little girl of ten when brought to the dispensary, screamed at the sight of the doctor in a hysteria of terror. Her mother apologetically explained that she always did that when she saw a uniform. This mother and child had been taken by the Germans and forced to march many miles in front of the army to protect the soldiers from French fire. A baby had died in the mother's arms and she had not been allowed to stop long enough to lay it down. Ever since this experience the little girl had been moody and unnatural and a little later developed the symptoms of tubercular meningitis and died.

Another case was that of a girl twenty-three years old, living with her family in a devastated village. They were all huddled into one room with

the windows gone and a great hole in the side wall of the chamber, and sleeping on straw pallets in the cold, damp weather. This patient was brought to the hospital with a tentative diagnosis of bronchopneumonia, but quantities of tubercular bacilli were demonstrated in her expectoration. We had no provision for caring for tubercular patients and it was impossible to keep such a menace in the hospital. Application was made to the Rockefeller Foundation in France, but it was found that all American as well as French institutions were crowded and with long waiting lists, hence there was no place for her there. We were obliged therefore to take her home. She was given a bed, some food and instructed as to the protection of the remainder of the family, but the water had to be carried some distance to her home. The courage and morale of the family was low, the winter severe and everything seemed favorable for propagation of the infection. The feeling of the Rockefeller Foundation in France seems to be that there is more tuberculosis among the civil population than in the army, therefore it is most important that conditions shall be bettered in order not to subject the soldier to infection when he returns home.

As with all underfed anemic children there is great prevalence of hypertrophied tonsils and adenoids in France. Intelligence concerning the dangers of the condition and its relief is general and, contrary to the attitude in this country, the operation was often hailed as a gala event, because perhaps it soon became known that we always administered an anesthetic and it has been the custom in France to perform this operation without anything to numb the senses, several assistants being required to hold the hands and feet. The surgery at Luzancy resembles the ordinary run of a large general hospital, ranging through the list of specialties, orthopedic, gynecological, the ear, nose, throat, eye and ear and general abdominal. A farmer fifty-two years old applied to us to have his foot amputated. He had lost the other leg between the hip and knee in a French hospital, about a year before, for an ascending gangrene. A similar condition had begun in the remaining foot and he was exceedingly anxious to have an early amputation. Diabetes was alleged by him to have been the diagnosis. In the continued absence of sugar from the urine, tentative treatment along antiluetic lines was instituted which resulted in the prompt healing of the rodent ulcer and the securing of a firm convert to the presence of medical women in France. We saw several such cases of rodent ulcer of the heel and skin which respond miraculously to mercury and iodide.

Dentistry is perhaps as much needed and appreciated as any branch of the work. It is uncommon to see good teeth after twenty years of age and artificial teeth are as rare as toothbrushes. Our three dentists are preserving life and preventing disease by removing the foci of infection. It is pleasant to be able to enclose here a letter, received from a physician in the French army, whose aged mother our doctor had found living in most uncomfortable circumstances and brought to the hospital where it was found necessary to amputate a badly

infected leg. A report of her condition sent to the son brought back the following:

Doctors of the American Women's Hospital:

I have much consolation and tranquillity of mind in feeling that my mother is with you. On account of my military obligations it is impossible for me to do for my mother what I should. My mother lives in a manner I do not approve and I am sure her surroundings have retarded her recovery. The neighbors are good and do all they can, but they are all poor and ignorant of her case. She has had much sorrow, has lost many loved ones, and this has helped to break down her spirit and make her life a deplorable one. But it is not my place to reproach her. I come to ask your indulgence and patience for my mother because she has suffered much. I, myself, am an object of charity. My own home has been under German dominion since August 29, 1917. It was liberated November 6, 1918. I have made an attempt to get back to my home. I hope to go, but it will be only to find ruin and desolation. I am thankful to you beyond words in my hour of need.

With the signing of the armistice, all hope of military work was given up and the unit settled down into purely civilian relief organization as was originally intended. The building at Luzancy sur Marne has been wired for electricity, coal has arrived from the army, an important point in France this winter, the full unit is there with its full equipment and the hospital is functioning to full capacity, medically and surgically. The dispensary service has been extended into the devastated area as far as the inhabitants have been allowed to return. An interesting auxiliary has been opened at the request of the city authorities, at La Ferté-Milon, in the old Hôpital de Dieu owned by a Catholic sisterhood, who are helping with the nursing, which is another evidence of the consistent intention of the organization to associate and cooperate with the local institutions and adopt the local customs.

The organization has been asked by the French government, through the American Committee for Devastated France, to remain and continue its work for the next two years. It plans, while not neglecting its relief work, to leave as its permanent gift, our systems of sanitation and preventive medicine. The clientele has shown themselves eager to learn new and better ways of living and bringing up their children and are now looking toward our country with confidence that we will continue to help them in peace as in war. We must not fail them.

STERILE POCKET INSTRUMENT CASE.

By F. GRIFFITH, M. D.,
New York,

Fellow of the New York Academy of Medicine.

It is set forth by those statistical searchers after the stranger aspects of truth that in steel mills and wood working machinery shops accident to an employee is found more likely to occur between the hours of two and three in the afternoon than at any other time of the work day. The writer worked for a time in a government naval airplane shop and the oddity of double injury one day to a couple of hands made him think of a device which was of more practical value than the common oldtime flap leather surgeon's pocket case which fourth year students and ancient practitioners of the art bear around in the hip pocket. The first mishap

was that to a man engaged in the vertical shaping machine getting half of one hand sheared off and ten minutes later the foreman approaching the machine and no doubt as a result of careless suggestibility had a good sized corner of his own hand cut away at quarter to three p. m.

In such instances as related to have sterile instruments at hand for quick resort is clearly advantageous; the pocketcase described is a double pan liquid container made of thin gauge nicked copper or aluminum; one tray being one inch deep by two and one half inches wide by eight inches long, the other slightly smaller so as to telescope snugly against the edges of the first when filled with the contemplated set made up of four hemostats, scissors (curved), dissecting forceps, splinter forceps, grooved director (eyed), probe, spoon curet, scalpel, curved (sharp pointed) bistoury, hernia knife, soft rubber catheter (No. 10 French scale), three needles (curved, straight), catgut and silk (sterile packages). Sterilization is readily secured by boiling and the separated parts are adapted for emergency instrument trays.

238 WEST THIRTY-EIGHTH STREET.

RECENT GLEANINGS RELATIVE TO THE PROPHYLAXIS AND TREATMENT OF INFLUENZA.

By LOUIS T. DE M. SAJOUS, B. S., M. D.,
Philadelphia.

(Continued from page 288.)

In the preceding issues a brief discussion of the general prophylactic measures appropriate against influenza was undertaken, with special reference to the procedures calculated to reduce morbidity as well as mortality in camps, hospitals, and institutions in general. Prophylaxis in the home will next be referred to, beginning with personal prophylaxis, upon which the prevention of transmission of the disease from one to other members of a household to a considerable extent depends. In this connection there may suitably be taken up the use of protective face masks, the prevention of hand to mouth infection, the cleansing of the oral and nasal cavities with antiseptic or other solutions, and the prophylactic use of vaccines.

The relative importance of droplet and hand to mouth infection is still a mooted topic. Colonel Victor C. Vaughan, among others, had recently expressed himself as being fairly certain, though not convinced, that hand to mouth infection is of greater significance than droplet transmission, and states that the manner in which respiratory diseases are most frequently conveyed from one to another is by hand to mouth. Bacterial culture experiments with persons talking or coughing towards culture media held up before them show definitely, however, that microorganisms can be projected for a certain distance from the open mouth, and if it be granted that the results thus obtained apply likewise to influenzal infection, transmission in this manner must be regarded as not infrequently taking place and the question of mask protection given serious consideration.

That face masks are of protective value against at least some forms of infection appears to have been definitely proved. Pasteur had already recommended their use under certain conditions for this purpose. In an epidemic of pneumonic plague, which occurred in Manchuria, clinical evidence of their value in infection of that kind was obtained, all physicians who failed to wear masks contracting the disease and dying from it, while of those who wore them a number escaped. As regards diphtheria and scarlet fever infection, apparently definite results have been reported by Weaver, 1918, among others. Without masks, 23.5 per cent. of forty-three nurses became diphtheria bacillus carriers within nineteen months, while with masks only 5.2 per cent. of seventy-three nurses became carriers within twenty-eight months. Without masks, nine cases, or eight per cent., of scarlet fever occurred within nineteen months among 112 nurses on duty, while in the period of twenty-eight months following the adoption of masks, no cases of scarlet fever among nurses developed. Tests made by counting the number of colonies developing on agar plates held up at varying distances before coughing patients with abundant *Streptococcus viridans* or *Bacillus prodigiosus* infection in the mouth, with and without masks, showed that fine meshed gauze held back infection much better than larger meshed samples, even when numerous layers of the latter are used. Weaver's concluding recommendation was that one use three or four layers of absorbent gauze of forty by forty-four mesh. To nurses caring for cases of virulent infection with abundant secretions, however, he advised the use of two superimposed masks, making six layers of gauze. He thinks many family epidemics could be limited by the proper use of finemeshed gauze masks.

In somewhat similar experiments, conducted by Haller and Colwell, 1918, in which a pneumococcus carrier coughed repeatedly, with and without a mask, at Petri dishes held twelve to fourteen inches away, trial of various kinds of gauze showed that, for complete protection when the mask is worn by the subject infected, the equivalent of 300 strands of cotton fibre to the square inch is required. Thus, of a gauze of thirty-two and twenty-six mesh, five thicknesses are necessary, and of a gauze of twenty and fourteen mesh nine thicknesses are required. It was conclusively shown that no more organisms penetrate the mask after thirty minutes than when it is first applied to the face. Great care must be taken, however, not to reverse the mask, lest it become a disseminator of organisms instead of a filter. Gauze equivalent to 220 strands to the square inch was required for complete protection of the face of an uninfected subject—here represented by Petri dishes—when the gauze was placed over this subject instead of over the infected individual. Repeated washing reduced the mesh of the gauze, increasing rather than reducing its protective power. Masks eight inches long and five inches wide are recommended by the authors just mentioned.

Doust and Lyon, 1918, using a gargle of a suspension of *Bacillus prodigiosus* as test material, became convinced of the futility of masks made from

the coarser types of gauze, irrespective of the number of layers used. Even medium gauze in several layers failed to prevent the projection of infectious material from the mouth during coughing. Fine meshed gauze was not tested, but a three layer mask of butter cloth proved protective even during violent coughing, continued to give good results after washing, and was perfectly comfortable to the wearer. From experimental results such as the above it is plain that a face mask, to be in any sense reliable as a barrier to bacterial infection, must meet certain minimum requirements. Poor clinical results must, in some instances at least, be ascribable to the use of unduly thin masks.

(To be continued.)

The New Chemotherapy.—J. E. R. McDonagh (*Presse médicale*, November 28, 1918) explains his theory of oxidation and reduction with reference to the chemical reactions occurring between the body colloids and the colloids of which bacterial or other parasitic cells are essentially constituted. All colloidal reactions in the body being, moreover, dependent upon the neutralization of OH and H, which are of opposite signs from the electric standpoint, chemotherapy is applicable not only in all parasitic diseases, but in all conditions which modify the equilibrium between these two groups, i. e., which disturb the normal hydrogen ion concentration. The toxic action of metals is accompanied by absorption of peroxide (HO.OH), and to correct this, administration of a peroxide-former, particularly intramine (diorthoaminothio benzene) is indicated. Usually when the hydrogen ion concentration of the blood becomes excessive, i. e., when the blood becomes too acid, colloidal iodine should be given internally in doses of three teaspoonfuls three times a day after meals, together with 100 to 300 mils as an intravenous injection. Two or three days later an injection of intramine should be administered—100 mils if intravenous, five mils if intramuscular. This treatment is specific in mercurial intoxication, arsenical stomatitis, and poisoning by bismuth or lead. In chronic infections, such as eczema, seborrheic dermatitis, folliculitis, rheumatic skin affections, acne rosacea, gonorrheal rheumatism, lupus vulgaris, and other forms of tuberculous disease, each dose of colloidal iodine and intramine should be followed by one or two intramuscular injections of 0.5 to three mils of colloidal manganese. In advanced syphilis galyol, disodoluargol, or some other arsenical compound should replace the colloidal manganese. Intramine should always be combined with mercury or arsenic in syphilis, as it eliminates toxic effects and accelerates therapeutic results. Arsenic and colloidal manganese constitute a specific in mustard gas poisoning. Staphylococcal and streptococcal infections, particularly furuncles, disappear rapidly after two injections of two or three mils of colloidal manganese, given three days apart. Manganese and colloidal palladium, used together, gave striking results in gonorrhea and its complications. Colloidal antimony proved useful in some obstinate cases of chronic gonorrhea and of great value in kala azar and bilharziasis.

Editorial Notes and Comments

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RECONSTRUCTION OF THE MAIMED.

History tells us that in the days of antiquity the wounded and crippled members of society were cast aside and compelled to shift for themselves. They became beggars on the highway; derelicts without a social position, shunned and despised; classed as unfit and avoided for fear that personal contact would bring about an evil result. In some instances the deformed and disabled were put to death, while in other communities they were thrown out into the wilderness to perish. Man fashioned his primitive existence after the laws of the lower animals, where the disabled among them were put to death and eaten. These actions of our primitive progenitors may have been prompted by a eugenic motive, but most students ascribe them to material motives based on the laws of the struggle for existence. Douglas G. McMurtrie in *The Disabled Soldier* [New York: The Macmillan Company, 1919] takes up the historical phases which the crippled members of society passed through up to the present time. He then tells how the attitude of society changed; how in Athens, the city of culture, for the first time in history some provision was made by the community to care for the cripple and remove him from the class of a pest or a dependent upon alms. In the Middle Ages the helpless were made the butt of ridicule, while in some countries they furnished a theme for caricatures, court fools, and jesters. Then came a period when the deformities were utilized as a source of income, the cripples depend-

ing upon the compassion of the passerby for alms. It is told that some of the Roman masters inflicted injuries upon children that they might increase their earning capacity, and arms were cut away and bodies bent so that they became humpbacked. . . . In Munich, in 1832, the first institution was established for the care and education of deformed children. A second followed in Copenhagen, in 1872, but no provision was made for deformed adults. It was not until the establishment of the professional armies at the close of the feudal systems that the disabled soldier became recognized and any provision made for his care. After many failures a successful state institution was founded, the Hotel des Invalides, in Paris, by Louis XIII, in 1633, and permanently established by Louis XIV. Then came the training schools for disabled men. In Petrograd, in 1897, a shop was established where cripples were trained to manufacture orthopedic appliances. Other trades were gradually added. In 1908 at Charleroi, Belgium, an institution was founded for teaching men, who were disabled in industrial accidents, simple trades like basket weaving, tailoring, bookbinding, and clerical work. Then in the present war the energetic Mayor Herriot, of Lyons, established in November, 1914, the first training school for the wounded, and the Mayor welcomed the first three pupils grasping them by their three hands. The course of instruction ranges from six to eighteen months. The patients are taught book-keeping, stenography, paper boxmaking, toymaking, and beadwork. They receive a small compensation for their services, which serves as pocket money. In the suburban branch of the institution they are taught shoemaking, tailoring, carpentry, the manufacture of artificial limbs, and other orthopedic appliances. At Tourville a school has been established for wireless telegraphy. These initial schools served as models for scores of others which have since been established throughout France. In Belgium, France, Germany, Italy, and Canada private and government schools have been established. Finally the United States, after studying the work of these institutions and attempting to improve upon them, has founded many institutions where the disabled men may be trained and taught useful occupations. The thoughtful surgeon devises operations which will allow for maximum mobility with minimum loss of vital tissues. Doctor Blake at the American Red Cross Hospital in Paris at all times considers the occupation of the individual in planning his operations. It has become recognized that

the wounded soldiers must be prepared before the period of convalescence for the training which is to follow and great care is taken so that articulations will not become ankylosed, and plastic operations are devised so that scars will not stiffen the members. Doctor Kouindjy, chief of the department of mechanotherapy at the Val-de-Grace, in Paris, advocates massage for maintaining a proper circulation in the immobile limbs of the patients while they are confined to their beds. He finds this hastens recovery and fits the men for future training in occupational therapy. With the passing of time society has grown to the knowledge of its obligation to the individuals who have been crippled through war and industry. It has been found that in protecting and caring for these unfortunate men society is meeting a debt it bears to itself and by the provision of a useful occupation it enables the men to become selfsustaining and not a burden upon the community. So, as in the beginning when the crippled members of society were abandoned, it is difficult to trace the motive, whether it be altruistic or merely a matter of selfpreservation.

DETONATION INJURIES TO THE INNER EAR.

Stacy R. Guild has followed up his former report upon middle ear conditions experimentally produced with a similar report upon the labyrinthine parts [War Deafness and Its Prevention—Report of the Labyrinths of the Animals Used in Testing of Preventive Measures. *Journal of Laboratory and Clinical Medicine*, January 1919]. He refers briefly to his former description of his method of submitting the test animals to detonations and of testing the various forms of protection for the ears. He then adds a description of the methods of preparing the sections of the inner ear for examination. He was not able, owing to certain material conditions, to section as closely as he should have liked, but considers his results clear enough in demonstrating in a satisfactory manner, at least for such an initial study, the extent and nature of injuries to the inner ear and the relative values of the various protective measures under investigation.

He found that the labyrinths did not present gross lesions, which would mean rupture of the walls of the cochlear duct or the scala vestibuli or the scala tympani, but distinct lesions of the organ of Corti and of the spiral ganglion were present. There was also no indication of extensive labyrinthine hemorrhage. The most frequently occurring injury seemed to be the loss of one or more adjacent outer hair cells. While this

is the least severe of the lesions produced, the proportion of these outer cells which are missing is an indication of the severity of other injuries, as they are also the first or most apparent external signs of injury. There is usually a corresponding displacement of Deiter's cells, appearing often as a nuclear displacement. The author has designated as first degree injuries those in which the loss of outer hair cells ranges from a single cell up to the loss of the majority of such cells in one section after another for some distance.

Second degree injury he makes to include the absence of all outer hair cells, but with the organ of Corti preserved in its general shape. Injuries of a still greater or third degree severity show the organ of Corti crushed out of shape with the tunnel, the outer tunnel space and Nuel's space filled with cellular debris, in which there may be vacuolization. The fourth degree of injury reveals a severe disintegration of the organ of Corti with a mass of cellular debris either vacuolized or not, and with the inner hair cell also absent, a condition which does not as a rule seem to occur unless the organ of Corti is thus severely injured.

The distribution of the injuries in the spiral ganglion corresponds generally also to the degree of injury of the cochlea, but there are many exceptions to this rule, sometimes no injury appearing in the ganglion cells in corresponding regions where there is severe injury to the organ of Corti. Sometimes a definite degeneration of the fibres leading from the ganglion to the organ of Corti can be seen, and in sections from the most severe lesions the fibres in the organ of Corti itself cannot be seen. But, the writer suggests, more investigation is needed to determine the extent of injury to the ganglion cells.

The practical end to which these experiments were directed was chiefly the testing of the various ear protectors in use during the war. The results here are not so clear and do not so distinctly point to a preference of one class of protectors over another, as did the previously reported examination of the middle ear. None of the protective measures sufficed to prevent definite cochlear lesions, but still there seems to be a similar relativity as in the preceding report as to the efficiency of the various protectors. Two of the three protectors which ranked lowest before, again show themselves least efficient.

It would seem that there is some factor present which individually modifies the extent of the cochlear injury. The suggestion is made that this

is due to a fact long believed in by otologists, that in cases of air wave trauma, some of the force is expended if the tympanic membrane is ruptured, and in such cases the injury is less. This, however, is not sufficiently supported by these experiments to be taken here into definite account.

The writer summarizes his results by stating that the cochlear lesions produced by the detonations are different in extent and distribution from those which have previously been reported. Normal zones frequently appear between the injured areas. The protective measures tested in these and the former experiments are seen to fall into two groups. In the less efficient one are dry cotton, the Elliot protector, and the Wilson-Michelson device. The more efficient group contains first of all the Scientific Ear Drum Protector "Tommy," the Mallock-Armstrong Ear Defender, cotton soaked with glycerin, cotton soaked with petrolatum, and the wax cone used by the Italian Navy. Conclusions theoretically relating to the physiology of hearing are left for further study and investigation, of which these studies are only a preliminary or denote a war interim.

THE DIAGNOSIS OF NEOPLASMS OF VATER'S AMPULLA.

Neoplasms of Vater's ampulla offer no pathognomonic sign and all writers are unanimous as to the difficulty of their diagnosis, which can only be made by exclusion. Undoubtedly, the most important question from the viewpoint of the prognosis and treatment is to ascertain the nature of the lesion, whether it is neoplastic or lithiasic. In occlusion from calculus, the icterus supervenes suddenly, very frequently following upon an extremely distressing paroxysm, with pain in the right shoulder and back. Pain may be elicited over the pancreaticocholedochus area, and very often there is biliary infection with fever. In eighty per cent. of the cases the gallbladder is retracted. The intensity of cutaneous pigmentation and decolorization of the feces need no comment, since they are also met with in tumors of Vater's ampulla.

When the occlusion is due to a growth, the icterus develops slowly and is of the melanodermic variety. In ninety-two per cent. of the cases the gallbladder is distended and fever is uncommon. The Courvoisier-Tenier syndrome (chronic retention, icterus, decolorized feces, and distention of the gallbladder) is of the utmost diagnostic importance. The elimination of lesions of the neighboring viscera which can give rise to jaundice from retention is both important and

delicate. Enlarged lymph nodes of the portal vein group may sometimes compress the choledochus. Cancer of the head of the pancreas may compress the choledochus, but in this process emaciation is extremely rapid. There are signs of pancreatic insufficiency, and some writers believe that Sahli's test may settle the question. This test is founded on the fact that in the presence of pancreatic juice, salol splits up into carbolic acid and salicylic acid, which are eliminated in the urine. But Santonini's accessory duct may partially fulfill the functions of Wirsung's duct, and for this reason the results of the test are uncertain.

The chemistry of absorbed fat may furnish interesting data. Thus, Carnot believes that when occlusion of the choledochus alone exists, sixty per cent. of the ingested fats will be found in the feces, while occlusion of Wirsung's duct will give seventy per cent., and complete occlusion of both ducts will give ninety per cent. of the ingested fats in the stools. In some rare instances palpation will reveal a deeply seated tumor to the right of the umbilicus.

When the diagnosis of a neoplasm has been made, it is necessary to determine its site. The state of the gallbladder is in this case of utmost importance, and generally speaking, its dilatation will be all the greater the nearer the growth is to the duodenum. In neoplasms of Vater's ampulla the gallbladder is distended in ninety-two per cent. of the cases, while in growths situated below choledochus hepaticocystic junction the organ is distended in only fifty per cent. of the cases. In new growths arising above or at the level of this junction, the gallbladder is normal or retracted. In neoplasms of Vater's ampulla pancreatic insufficiency may be present. Other affections which may give rise to jaundice must be eliminated. Chronic pancreatitis with icterus differs in that disturbances in the assimilation of fats are more pronounced, while emaciation is marked and rapid. Hypertrophic biliary cirrhosis is difficult to distinguish from cancer because in both processes there is intermittent icterus and fever. But the evolution is much longer and the patient's general condition is relatively better. Changes in the size of the spleen also furnish diagnostic indications. Hydrops of the gallbladder may occasionally occur in biliary retention, which complicate the diagnosis. In Kehr's opinion, chronic retention icterus is caused by cancer in seventy per cent. of the cases, twenty per cent. in interstitial pancreatitis, and ten per cent. in lithiasis. However, in many instances, the diagnosis will only be made by an exploratory incision.

SPREADING INFLUENZA BY HAND-
SHAKING.

Handshaking dates back to the time when swords were carried as sidearms, and was a physical demonstration of good faith, showing that the right hand was free and did not grasp a concealed poinard under a flowing cape. Shaking hands became a general custom, a symbol of friendship in civilized communities. The bacteriologist has demonstrated that our hands harbor microorganisms often far more deadly than visible weapons and that these microbes may be transmitted from one person to another by contact—by shaking hands. They have shown that, while epidemics are prevalent, the organisms which cause the disease are present in great numbers. People have been warned to cough or sneeze, if they must, into their handkerchiefs, and then they carefully put them into their pockets and unconsciously pass the microbes to their acquaintances and best friends by cordially grasping their hands while meeting them. It is known that the influenza bacillus is in the air during epidemics, suspended in drops of moisture, and that this is the chief source of infection is unquestionable. Masks have been worn by barbers and others who come in contact with a great number of people. In Western cities the entire population was fitted out with these strange looking devices and they appeared like the English army before Ypres in their improvised masks when they first encountered poison gas; but they continued shaking hands, handling their handkerchiefs, carrying their hands to their faces, and contaminating the community. No warnings have been given by health boards to their communities against this practice. While this mode of transmission is known and discussed in the medical schools, no practical application has been made of the knowledge. Perhaps it was not considered advisable to interfere with these manifestations of good breeding, or again it may have been overlooked on account of attention being focused on the more obvious mode of transmission. The hands may still more indirectly be a source of contagion by the handling of objects like street car transfers or paper money. While this undoubtedly is another source of many infections, the shaking of hands is a more direct method.

It may be difficult for many of us who are in the habit of greeting our friends with a firm handclasp to refrain during epidemics, but it would be a wise precaution. It is possible that the Chinese realized the dangers which arise from handshaking, for it is their custom when greeting a friend to shake their own hands and so avoid any contamination.

REVERSIBLY SPEAKING.

In that charming and fantastic story, "The Nincompoop," Mrs. Frances Hodgson Burnett tells how the titular hero says to the wood chopper's daughter: "Have you ever laid on your back and looked up at the sky and considered what a wonderful world it would be if the sky were all covered with grass and chips and the earth was white and soft and woolly, and if you picked up a piece of wood and struck it against the axe, instead of striking the axe against the wood? You ought to do it sometimes; it expands the mind." Now comes Doctor Brady and tells us staid, middleaged folks that we ought to turn somersaults—not the flying leap kind of the circus and the dictionary, but the rolling kind of the small boy, for it will expand the blood-vessels or something and so be good for what ails us. Ever since our ancestors rose from all fours to walk on their hind legs, we have had troubles with our insides because they were not originally constructed for use by bipeds. Enteroptosis et id omnes genus are the penalties we pay for changing the manner of our going about and possibly the six rolls before breakfast and before bedtime that are prescribed by Doctor Brady, may undo some of the harm done by our assumption of incorrect posture. Certainly, the prescription is a simple and inexpensive one and so far as numerous reports go, it is helpful in a wide variety of untoward conditions. It has the disadvantage, however, of being undignified and it has not yet been tried out in the laboratory or approved by the Council on Pharmacy and Chemistry, consequently, it will be taboo to those physicians who insist upon having some one in authority pass on their materia medica for them, but to the independent practitioner with an open mind, the prescription will no doubt commend itself for use in certain types of conditions, where the use of medicines would be detrimental or contraindicated.

A CARD CATALOGUE OF SCIENTIFIC
MANUSCRIPTS.

All who are interested in the historical aspects of medical literature will be pleased to learn of the preparation of a catalogue of manuscripts of scientific interest up to the year 1500, in the British Isles which has been prepared in card form by Charles and Dorothea Singer, of Oxford University. This catalogue will contain about 40,000 entries and will make available for research workers in America a vast wealth of scientific historical data. When a worker here finds in this catalogue a reference of interest he can communicate direct with the library possessing the original manuscript and obtain a copy either transcribed or photographed as preferred. Mr. Singer tells us in *The Annals of Medical History* [vol. i, No. 4] that the catalogue will be arranged primarily under subjects and subdivided chronologically by centuries and by where the manuscripts are to be found. There will be two indices, one of which will give the continued alphabetical lists of authors, places, scribes, languages, subjects, etc., and the other will give an alphabetical list of manuscript collections.

News Items.

The Harvey Lectures.—The fourth lecture in the series will be delivered Saturday evening, March 1st, at the New York Academy of Medicine, by Dr. Frederic S. Lee, professor of physiology, Columbia University, his subject being *The Human Machine in the Factory*.

Epidemic of Influenza Recurs in Sing Sing.—Twenty-five inmates of Sing Sing have been isolated in the second epidemic which has visited this institution. This precaution has been taken by the prison physician in an effort to prevent the epidemic from spreading. In the first epidemic ninety patients were ill, many of them with pneumonia, and not one succumbed.

New York Physicians' Association.—A regular meeting of the New York Physicians' Association will be held at the Chemists Club, 52 East Forty-first Street, New York, Thursday evening, February 27th, under the presidency of Dr. Israel Grushlaw. The paper of the evening will be read by Dr. Joseph Fraenkel on *Internal Secretions*. A general discussion will follow.

College Men in the War.—Dr. Charles F. Thwing states that out of the 150,000 college men who entered the American Army, 5,000 were killed during the war, about three per cent. of the total number. The scientific departments of the colleges contributed greatly to the winning of the war, especially in the fields of medicine, geology, mathematics, physics and chemistry.

The Council of National Defense Issues Statement.—The Council of National Defense requests that every physician cooperate with the council in their efforts to complete the records by returning the questionnaires which they have received. If through an oversight, they have failed to receive a copy, they are requested to write to the Medical Section of the Council of National Defense, Washington, D. C., for copies.

Discharge of Tuberculous Soldiers.—Dr. W. G. Stimson, of the United States Public Health Service, appearing before the Senate Committee on Public Buildings, declared that 24,000 soldiers had been discharged from the army as tuberculous since the beginning of the war. He said that the history of the patients indicated that they would be in the hospital one-third of the time. Plans for adding 2,000 beds to the existing hospitals were given by Doctor Stimson.

Red Cross Emergency Fund for Reconstruction Hospitals.—Announcement is made that the Red Cross has placed at the disposal of the Department of Education, Division of Physical Reconstruction, a noncumulative emergency fund of \$200 a month for each base and general hospital engaged in reconstruction work. The expenditure of this fund will be under the direction of the chief educational officer in the hospital, the only restriction placed upon it being that it shall not be used for the purchase of supplies, equipment, and service which may be procurable from army supplies or funds. There are forty-four hospitals in the United States carrying on reconstruction work.

Aid for Porto Rico.—The American Red Cross has appropriated \$44,115 in order to erect portable houses for the families who lost their homes and possessions as a result of the tidal wave last October.

Johns Hopkins Unit Returns.—The Johns Hopkins unit, which has just returned, under the command of Major R. F. Kiefer, established the first base hospital in France at Bozoilles in May, 1917. During the twenty months in which they remained they treated over 18,000 patients with a mortality of about one per cent.

Government to Buy Chicago Hospital.—Recommendation that the Chicago Speedway Hospital be taken over by the United States Public Health Service at a cost of \$2,500,000 is made in the report of the Senate buildings subcommittee which investigated the failure of the War Department to accept this project, on which about a million dollars has been spent.

Philadelphia Woman Gives Birth to Quadruplets.—An Italian woman added four seven pound children, two boys and two girls, to her family of nine living children, on Sunday, February 16th. She had previously given birth to fourteen children, five of whom had died. The two girls are blonde while the boys are dark. The mother is forty-two years of age and she was married at fifteen. Her ambition for the boys is that they develop into prize fighters.

Surgeon Trepanes Skull Under Difficulties.—During a storm at sea a wave washing over the decks of the transport *Finland* crashed through a closed port hole fracturing a soldier's skull and injuring one of his eyes. It was necessary to operate at once and Dr. E. P. Genereau and Dr. W. A. G. Wright performed a successful trepanation working for stretches of a few minutes when the ship would steady itself between rolls. Private Caron, the patient, is on the high road to recovery.

Medical Society of the County of New York.—A stated meeting of this society will be held in Hosack Hall, New York Academy of Medicine, on Monday evening, February 24th, under the presidency of Dr. Charles H. Peck. The following papers will be read: *Personal Experiences in Thoracic Surgery with the American Expeditionary Force*, by Dr. Howard Lilienthal; *Reconstruction Operations in Cases of Cancer of the Face*, by Dr. George H. Semken. There will be a discussion of Doctor Lilienthal's paper by Dr. Willy Meyer, Dr. John A. Hartwell, Dr. Nathan W. Green.

Clinical Society of the Hospital for Deformities and Joint Diseases.—The Clinical Society of the Hospital and Dispensary for Deformities and Joint Diseases will hold a stated meeting in the dispensary building, 41-43 East 123d street, on Tuesday evening, February 25th, with Dr. Samuel A. Jahss in the chair. After the presentation of interesting clinical cases by the staff, Lieutenant Commander William Seaman Bainbridge, Medical Corps, U. S. Navy, will deliver an address on *Some of the Practical Surgical Lessons of the War*, which will be illustrated by lantern slides. A general discussion will follow the reading of the papers.

Convalescing Aviators.—The sick and wounded men of the air service, arriving at ports of debarkation, will be sent to the United States Army General Hospital No. 2, at Fort McHenry, Baltimore, Md. The convalescing men will be sent to the air service depot, Garden City, L. I. These instructions were issued by Surgeon General Ireland to all port of debarkation surgeons and debarkation hospitals. Patients arriving at general hospitals who are already convalescing will be sent directly to the military convalescent hospital at Coopers-town, N. Y. The transfer histories will be sent to the medical board of the air service depot, Garden City, to determine the patients' fitness for future flying service.

Tuberculosis Among the Maimed.—James P. Monroe, vice-chairman of the Federal Board for Vocational Training, stated that there were about 50,000 men in this country that were disabled by the war and that there would be about 35,000 more that would probably return during March and April. Forty-one per cent. of the disabled men have tuberculosis, and these men and the others suffering from other diseases formed the real problem that the Government had to face in the rehabilitation of the returned soldiers, rather than the soldiers who had lost an arm or a leg, for the latter cases totalled only between five and ten per cent. of the disabled Americans. Every endeavor will be made to train the disabled man to a plane of efficiency, which he would never reach without this opportunity.

Hospitals for South America.—Hospitals are to be built in five of the republics of South America, which are to be placed under the supervision of the Methodist Episcopal Church as a part of its programme to raise \$120,000,000 for world upbuilding and for the extension of missionary work. At the present time there are no hospitals in South America under the direction of an American Missionary Board. Miss Charlotte A. Aikens, editor of the *Trained Nurse and Hospital Review* has been engaged to tour Argentina, Uruguay, Chile, Bolivia, and Peru to study the needs of the field and the conditions which prevail there. When her report is received the number and locations of the hospital and health stations to be built will be announced.

Annual Meeting of the Red Cross.—Mr. William Howard Taft was chosen vice-president of the American Red Cross for peace work at the annual meeting held in Washington, D. C., February 15th. The office was created for Mr. Taft in recognition of his work for the Red Cross. Dr. Livingston Farrand, president of the University of Colorado, assumed his duties as chairman of the central committee in succession to Mr. Taft. Three women were elected to fill vacancies in the board of incorporators: Mrs. Leonard Wood, Fort Riley, Kan.; Mrs. Joseph Cudahy, Chicago, and Mrs. August Belmont, New York. The annual report showed that thirty-five nurses who had enlisted for service had been killed in action or had died from disease. The armistice has only slightly decreased the work of the Red Cross in France, and on February 1st there were 6,077 workers in the field. The great majority will remain there for some time.

Personal.—Dr. B. Franklin Royer has severed his connection with the State Department of Health of Pennsylvania, after a period of over ten years' service. For several months he has been serving as acting commissioner of health; prior to this he served as chief medical inspector.

Philadelphia Medical Societies.—The following medical societies will meet in Philadelphia during the coming week:

MONDAY, February 24th.—North Branch, County Medical Society; Genitourinary Society.

TUESDAY, February 25th.—Jewish Hospital Clinical Society; West Philadelphia Clinical Association.

WEDNESDAY, February 26th.—County Medical Society.

FRIDAY, February 28th.—Medical Club (board of directors); Neurological Society; Northern Medical Association; Philadelphia South Branch, County Medical Society.

Return of the New York Hospital Unit.—It is reported that the New York Hospital Unit, which has been operating since August, 1917, at Chateauvieux, will probably return to this country with the Twenty-seventh Division. They have arrived at a French embarkation port with their full complement of twenty-six physicians, sixty-five nurses, and 153 enlisted men. The unit has been known in France as the United States Base Hospital No. 9. They took over a French institution for the care of the insane and increased the capacity of the hospital from 700 beds to 2,200 beds at the time of the signing of the armistice. The unit was formed from the staff of the New York Hospital and equipped at a cost of \$80,000.

Information on Sick and Wounded.—Information regarding the sick and wounded is handled through the Department of Military Relief in the following manner: As soon as the transports arrive a complete list of the sick and wounded on board is given to the Red Cross official at the pier. Four copies of this list are then made, one is sent to army headquarters; one to the Casualty Bureau; one is retained by the Red Cross and a copy is sent to the hospital director. For the information of those adjacent to New York city it may be desirable to add the following addresses: Department of Military Relief, Atlantic Division of the American Red Cross, 44 East Twenty-third street; casualty headquarters, 20 East Thirty-eighth Street.

Meetings of Medical Societies to Be Held in New York.—During the coming week meetings of medical societies will be held in New York as follows:

TUESDAY, February 25th.—New York Academy of Medicine (Section in Obstetrics and Gynecology); New York Dermatological Society; New York Medical Union (annual); Metropolitan Medical Society of New York City; New York Psychoanalytic Society; Riverside Practitioners of New York; Therapeutic Club; Valentine Mott Society; Washington Heights Medical Society; Woman's Hospital Society.

WEDNESDAY, February 26th.—New York Academy of Medicine (Section in Laryngology and Rhinology); New York Society of Internal Medicine; New York Surgical Society; Brooklyn Pediatric Society.

THURSDAY, February 27th.—New York Physicians' Association; Hospital Graduates' Club, New York; Ex-Intern Society of the Methodist Episcopal Hospital, Brooklyn.

FRIDAY, February 28th.—Academy of Pathological Science; Audubon Medical Society; New York Clinical Society; Brooklyn Society of Internal Medicine; Hospital Graduates' Club, Brooklyn.

SATURDAY, March 1st.—Benjamin Rush Medical Society.

Miscellany from Home and Foreign Journals

Observations on the Epidemic of Influenza.—

D. T. Harris (*Lancet*, December 28, 1918) describes an intensive culture medium for the growth of *Bacillus influenzae*, which depends for its special properties upon the presence of hemoglobin for an active oxygen supply, and on the presence of active trypsin and its products of proteolytic digestion. The medium is prepared by drawing five mls of rabbit's blood into a syringe containing three mls of one per cent. citrated normal saline. This is quickly added to a mixture of five mls of citrated saline and two mls of compound solution of trypsin. The whole is mixed and incubated for an hour to start proteolytic digestion. It is then mixed with 100 mls of nutrient agar of +10 acidity, previously warmed to 46° C., and plates are promptly poured. An organism was isolated from the lung juice of one patient and the throats of several carriers which very closely resembled the *Bacillus pestis* in morphology and staining reactions, but its isolation and growth were far more difficult. The virulence of this organism, if any, seemed probably to be due to the concomitant action of some other organism such as the *Streptococcus brevis* or *Streptococcus viridans*. In connection with the characteristic extreme prostration of influenza one of the suprarenal glands in a fatal case was soft, congested and diffuent, showing multiple hemorrhage when sectioned. This suggests a possible cause for the great prostration and weakness and also suggests the possible therapeutic value of repeated small doses of epinephrine.

Vaccines in Acute Influenza.—

W. H. Wynn (*Lancet*, December 28, 1918) administers vaccine in every acute case seen in the early stages of the disease, unless the patient is obviously beyond hope. The vaccine contains equal proportions of pneumococci, streptococci, and influenza bacilli and the initial dose varies from 80,000,000 to 100,000,000 of each. Such therapeutic doses are larger than those which have been recommended for prophylaxis, but they must be employed if results are to be obtained. The principle is to strike early and hard. The vaccine may be kept in the form of a stock, the organisms used being primary cultures from recent cases. Hundreds of patients have now been treated along these lines and in the author's own experience there has been only one death among all of his cases in which inoculation was made within the first forty-eight hours of the disease. In no case has the vaccination early in the disease produced any bad result and a constant feature of its administration has been a rapid drop in the patient's temperature following the injection. This fall in the temperature is associated with a marked improvement in the patient's general condition and with a pronounced slowing of the pulse. In the presence of a pneumonic involvement there is also a pronounced reduction in the respiratory rate, or in the serious bronchopneumonic cases with cyanosis and slow respiration, the rate of the latter is increased. In some cases, when the response to the dose of 100,000,000 of each of the organisms is

inadequate, the dose may be increased to 150,000,000. These doses are for adult men; for adult women they should range from 60,000,000 to 80,000,000 of each organism; and for children they should be from 40,000,000 to 50,000,000 for the age of about fourteen years, and 10,000,000 to 20,000,000 for the age of about three years. In no case should the dose be reduced on account of the gravity of the condition, but if the first dose is not sufficient to produce a good response the second should be larger. The doses should be given every alternate day. In the use of vaccines for the prophylaxis of influenza the doses employed have been too small and the first dose should be 100,000,000 of each; followed in a week by twice as much. In some cases third and fourth doses of 400,000,000 and 800,000,000, respectively, have been given. There is no danger in the prophylactic immunization during the epidemic, or even in giving the vaccine to a patient who later proves to have been in the incubation period at the time of the injection. This prophylactic immunization seems to be of decided value, not only in reducing the incidence of the disease, but also in diminishing its severity in those who are attacked in spite of its employment.

Bacteriology and Pathology of Influenza.—

Harold E. Whittingham and Carrie Sims (*Lancet*, December 28, 1918) investigated two of the recent outbreaks of influenza and concluded that the variety of clinical types, as indicated by symptoms and leucocyte counts, and the mixed bacterial flora obtained from cultures of the blood, sputum, throat, and tissues made it quite impossible to assign any one organism as the specific cause. The influenza bacillus was found in forty-six per cent. of the patients, but it was the predominant organism in only one patient in fifty. It is possible that it is the primary agent, the other organisms being purely secondary invaders, but the far more frequent finding of streptococci and pneumococci in the pathological lesions does not support this idea. It did not seem possible that there was but a single activating agent, such as a filterable virus, in a disease which produced such diverse clinical pictures. It seemed much more probable that the presence of a more or less constant group of organisms made each patient the potential possessor of the specific symptoms produced by each; the symptoms actually developing depending upon such variable factors as the number and virulence of each of the organisms, the patient's resistance, and the presence of intercurrent disease. The disease known as influenza therefore seemed to be a compound infection, rather than a simple, specific entity. The sputum and posterior nasal cultures showed a mixed, but fairly constant flora, in which the pneumococcus, streptococcus, *Micrococcus catarrhalis*, and *Bacillus influenzae* were present in a large proportion of cases. The predominant organism varied, being: *Micrococcus catarrhalis* in thirty-four per cent., streptococcus in thirty per cent., pneumococcus in twenty-six per cent., and others in much smaller proportions. The lung lesions varied from conges-

tion and edema to pneumonia and pus formation. There was invariably the picture of marked toxemia including congestion, petechial hemorrhages of the serous and mucous membranes and cloudy swelling and fatty changes in the heart, liver and kidney. Daily leucocyte counts showed the cases to be of different types. In the influenzal type there was an initial slight reduction in leucocytes, followed after the fifth to seventh day by a very moderate increase; in the pneumonic type there was a definite leucocytosis from the onset, which never fell below the normal level unless death was impending; in the lethargic form there was a marked leucopenia from the first which persisted up to convalescence, when a slight rise to, or above, normal took place. The presence of a persistent leucopenia was in general of bad prognostic omen. Prophylactic vaccination seemed to increase the individual immunity and to prevent pulmonary complications. In early cases the immediate administration of a full dose of prophylactic vaccine seemed to be of considerable value. In markedly toxic cases a dose of the vaccine should be given daily, while in very toxic cases polyvalent antistreptococcic serum should be given daily for several days, along with calcium lactate to prevent serum rashes.

Failure of Vaccine as a Prophylactic against Influenza.—G. W. McCoy, V. B. Murray, and A. L. Teeter (*Journal A. M. A.*, December 14, 1918) record the results of a series of strictly parallel observations made to determine the value, as a prophylactic of a vaccine, each mil of which contained:

Influenza bacilli	500,000,000
Pneumococci, Type I.....	500,000,000
Pneumococci, Type II.....	500,000,000
Pneumococci, Type III.....	500,000,000
Pneumococci, Type IV.....	1,500,000,000
Streptococcus hemolytic	1,000,000,000
Staphylococcus aureus	500,000,000

Two or more strains of each organism were employed in the preparation of the vaccine and the doses were one half, one, and one and one half mls, respectively, at intervals of two days. Every alternate patient in a State insane asylum was given the vaccine, the others being untreated. Each group contained 390 persons. Inoculation was completed eleven days before the first case of influenza appeared in the institution. Of the vaccinated persons, 119 developed influenza with twenty-three cases of pneumonia and ten deaths, as contrasted with 103 cases of influenza with seventeen cases of pneumonia and seven deaths among the unvaccinated.

Plasmotherapy in Influenza.—A. Grigaut and F. Moutier (*Presse médicale*, November 28, 1918) observed that intravenous injection of blood plasma from a convalescent patient accelerated immunization of the system in influenza and brought about an early crisis, provided the treatment was applied at the beginning of the influenzal infection. Where used late in the disease, on the other hand, the treatment had no effect—as though at this time the body was not able to utilize the immunizing substances supplied to it any more than it had previously been able to bring about a crisis spontaneously.

Camphor in Acute Influenza.—P. L. Giuseppi (*British Medical Journal*, December 28, 1918) treated 250 patients with influenza during the recent epidemic with camphor and had but one death, although ten per cent. of the patients had bronchopneumonia. In a series of 200 patients in the same outbreak, but not treated with camphor, eight per cent. had bronchopneumonia, but there were four deaths. The treatment consisted in the administration of 0.25 gram of camphor. In mild cases the pills were given three times a day and in the very acute cases every three hours. The administration was continued until the temperature dropped and the bronchitis or bronchopneumonia cleared up. The effect of camphor in bringing down the fever and clearing up the lungs was greater than that of any other drug which has yet been tried.

Citrated Convalescent Blood in Influenza Pneumonia.—W. W. G. MacLachlan and W. J. Fetter (*Journal A. M. A.*, December 21, 1918) employed intravenous injections of from seventy-five to 100 mls of citrated convalescent blood in the treatment of fifty-four of the severest cases of pneumonia following influenza and reduced the mortality to twenty-seven per cent. The reaction produced in the patients was about the same as that seen after the use of antipneumococcic serum in cases of lobar pneumonia. The temperature often fell by crisis, sometimes after a single injection, at others after two or three injections in thirty-six hours. More commonly, however, the fall was by rapid lysis after two or more doses of blood. A small proportion of the patients had a slight febrile reaction for one to three days after the initial fall of temperature. With some of the injections a chill with rise of temperature followed the first dose. It was found that the injection had to be given very slowly in patients with cyanosis, respiratory discomfort, or pleural pain to avoid aggravation of the symptoms. Citrated blood was used in preference to convalescent serum, as suggested by others, because of the large amounts of blood which must be taken from the donors in order to obtain sufficient of the serum, and the blood proved quite equal to the serum in efficiency.

Cocaine Poisoning.—Ellis Kellert (*Journal of Laboratory and Clinical Medicine*, December, 1918) reports a fatal case of cocaine poisoning with the autopsy findings included. Witthaus and Becker in 1911 state that only sixty-seven deaths have been recorded due to cocaine poisoning, and since that year but seven reports of fatal cases have been added, though Kellert justly comments that many deaths due to the anesthetic occur which are not so recorded. The patient, a man of forty-six, had his appendix removed. That night, two unsuccessful attempts at catheterization were made, slight bleeding following each. Two hours after the last trial, three drams of a four per cent. cocaine solution were injected into the urethra. The patient immediately had a convulsion and died. As is usual with such cases, nothing characteristic was shown at autopsy. Death occurs so promptly in cocaine poisoning that it is almost impossible to counteract the action of the anesthetic.

Treatment of Fractured Femur.—Hurley and Weedon (*British Journal of Surgery*, January, 1919) describe the methods used in the treatment of fractured femurs in a French base hospital. The paper is presented as an outline, but the field is thoroughly covered, and the patients were observed from the time they entered the hospital until they were able to walk properly. One hundred and seventy cases were studied in a period of six months, from July to December, 1917. The patients were kept at the hospital until firm union of the fractures was secured. The condition of the patients at the time of admission was considered. The time of injury from the date of entrance into the hospital varied from thirty-six hours to seven days. The fractures prior to admission had been splinted with Thomas knee splints in the majority of cases, but the treatment which the patients had received at the casualty clearing stations had varied greatly. Usually there had been thorough excision of the damaged tissue. One of the conclusions reached by the authors was that the newer forms of antiseptics, lotions, and pastes were not more satisfactory than soap and water cleansing of the wounds followed by saline solutions. Thirty-eight per cent. of the mortality had occurred within forty-eight hours after the admission of the patients.

On admission the men were given a hot meal and allowed to rest before any operative procedures were resorted to, unless there was an urgent call for an immediate operation when there was a virulent infection like gas gangrene. Carrel tubes were used with either Dakin's solution or eusol with the usual two hour irrigations. A portable x ray apparatus was employed, so that it was not necessary to transport the patient. This also obviated the taking down of the suspension or extension apparatus and allowed for the study of the bone in a constant position. In this manner displacements were noted and could be corrected with the patient lying in bed. The use of anesthesia was restricted to the cases where an accurate alinement could not be obtained without causing too much pain and discomfort to the patient. If the condition of the men was critical the setting of the bone was deferred until the condition had improved. When the knee joint was involved the position of the fracture was not corrected until the fate of the joint was determined. In the latter cases the apparatus was applied in successive stages, so that the limb would not be disturbed. It is recommended that the anesthetic be given in the operating room even if only used for the correction of the deformity. In these cases the x ray plate may be employed as a guide while the fracture is put up in the appliances. Shipway's apparatus for the application of warmed ether and chloroform vapor was used. The temporary splints were removed after the patient was anesthetized. Following this the limb was thoroughly cleansed by shaving and scrubbing with soap and water, and then painted with a three per cent. solution of picric acid and alcohol. Operations were usually limited to spreading sepsis or gas infection in incompletely drained wounds, insufficient removal of bone fragments, and vascular gangrene of the limb.

The splints selected were determined by the loca-

tion and extent of the wounds in the soft parts and the site of the fractures. In the majority of cases Thomas knee splints were used. When the wounds of the buttocks and posterior aspect of the thighs were extensive a Hodgen splint was applied. Extension was secured by strips attached by means of Sinclair's glue. When the wounds did not allow for this calipers were applied which were inserted into the condyles of the femur, which allowed for a firm and even form of traction. Foot pieces were used in order to prevent drop foot. After the adhesive strips were attached the limb was wrapped in a flannel bandage. In order to correct the deformity it was necessary to flex the limb at the knee and the hip. Fractures of the various sections of the femur are described with the corrective treatment for each. Specially equipped wards were set aside with suspension beds adapted for the femur cases. Photographs and diagrams show how the suspensions were applied. The wounds were dressed by the removal of the slings beneath the splints in sections so that the position of the limb was not disturbed and free access to the wound without disturbing the extension was thus secured. The skin of the patient where it came in contact with the apparatus was given special attention in order to avoid the formation of pressure sores. As soon as possible the injured limbs were submitted to passive movements in order to avoid ankylosis. The various complications and treatments are then described. The limb was allowed to remain free in bed for about ten days before the patient was allowed to walk about with the aid of caliper splints, which are made from an ordinary Thomas knee splint, with the necessary modifications which prevent the weight of the patient's body from falling upon the united fracture. While the patient is up and about the callus is carefully watched in order that any yielding may be detected.

Irritant Properties of the Chlorine Group of Antiseptics.—Cullen and Taylor (*Journal of Experimental Medicine*, December, 1918) used the ears of rabbits to test the relative irritation of various chlorine antiseptics. A solution with a pH of less than 8.5 and a strongly alkaline hypochlorite solution were the most irritating. The solution containing calcium but no carbonate was the least irritating of the hypochlorite solutions. Chloramine-T in two per cent. solution was not irritating, and dichloramine-T, five per cent. in chlorcosane, and chlorcosane alone, were only slightly irritating. The authors demonstrated that Dakin's hypochlorite solutions, the alkalinity of which is kept within the range of from 100 to 1,000 times the alkalinity of water (pH of 9.3 to 10.2) by means of buffer salts, have practically the same amount of irritant action. The manner in which the solutions are prepared, whether from bleaching powder and sodium carbonate, or from chlorine and sodium carbonate, and the type of buffer salt used, either carbonate or borate, does not influence the degree of irritation. Solutions whose alkalinity is less than that indicated by the endpoint of alcoholic solution of phenolphthalein (pH of 8.5 to 8.8) or greater than that indicated by the endpoint to powdered phenolphthalein (pH of 10.2) are very irritating.

Surgery of the Meibomian Cysts.—John Dunn (*Archives of Ophthalmology*, January, 1919) considers that the important thing in the incision and curetting of a meibomian cyst is to split the cyst from its conjunctival surface in the long axis of the gland and to through its opening on the free border of the lid. He thus describes his method of doing the operation: Four drops of a one per cent. solution of novocaine are injected beneath the skin of the lid overlying the meibomian cyst. Three drops of a ten per cent. solution of cocaine are dropped against the conjunctival surface over the cyst; this is done twice at an interval of three minutes. At the end of ten minutes from the time that the novocaine was injected an appropriate lid clamp is applied. A cataract-knife is now inserted into the distal end of the cystic swelling, carried through and forced out of the opening of the gland on the free margin of the lid. The walls of the cyst, including the full length of the gland, are now curetted until they are smooth, after which they are wiped off with a solution of silver nitrate, fifteen grains to the ounce. The clamp is now removed and the patient is instructed to hold a piece of absorbent cotton firmly against the eye until the bleeding stops, after which a small amount of boric acid salve, five grains to two drams of white petrolatum is inserted into the conjunctival sac. The patient is told to put some of this salve into the eye three or four times a day.

Larval Malaria and the Bordet-Wassermann Reaction.—H. Aimé and J. Lochelongue (*Bulletins et mémoires de la Société médicale des hôpitaux de Paris*, October 24, 1918) note that larval malaria is often overlooked by physicians who have not practised in malarial districts. The atypical nervous and pulmonary forms are particularly difficult to detect, especially since the latter may appear during the prevalence of epidemic influenza and exhibits no characteristic febrile reactions. Facial, occipital, and sciatic neuralgias, attacks of gastric pain or of enteritis with diarrhea, hiccough, spasmodic tics, diffuse tremor, fainting spells, etc., all may be due to malaria, yet be overlooked in the absence of a suggestive history. The Bordet-Wassermann reaction as a diagnostic test for malaria was studied by the authors in eight atypical nervous forms and two pulmonary cases. In all the nervous cases the reaction was clearly positive consentaneously with the presence of plasmodia in the blood, and remained so for at least fifteen or twenty days in spite of antimalarial treatment. The authors conclude that the reaction is useful in completing the diagnosis of malaria in larval forms, where the blood examinations have been made at periods other than the time of the paroxysms and when the injured blood cells can only with difficulty be recognized on the slides used. Again, quinine treatment after performance of the Bordet-Wassermann test, with a positive result, is necessary as a measure of differential diagnosis in former malarial patients or patients who have lived in malarial regions. Even in the absence of any preliminary quinine treatment, a positive Bordet-Wassermann reaction, obtained in the atypical, nervous, or other forms does not necessarily imply the existence of syphilitic infection.

The Common Factor in Disordered Action of the Heart.—L. M. Murray (*British Medical Journal*, December 14, 1918) says that disordered action of the heart is always secondary, its primary cause in some cases going back to the family history of some hereditary taint, but usually being found in some infection, accident, injury, or in single or repeated mental shocks. The primary factors are many and diverse, but there seems to be some common factor in all cases which leads to the typical manifestations of fast or slow pulse with physical and psychical exhaustion. Normally the activities of the sympathetic and autonomic nervous systems are nicely balanced, but in disordered action of the heart this balance is upset, the sympathetic usually being in the ascendancy. In health the circulating fluids of the body contain the nutritional and chemical materials required by the body and these are nicely balanced for the mutual benefit of the different cells and functions. These substances are the products of cytoplasmic activity of the various cells, some being only metabolites, while others are specific chemical substances. Each, however, is greatly dependent upon the others and all are required in a pure state for the normal performance of the various functions. These secretions are materially influenced by infections, prolonged exertion, or emotional excitement. From recorded observations and an analysis of what is known of the mutual interdependence of the various chemical substances necessary for the harmonious working of the several organs of the body, it is suggested that quantitative or qualitative changes, or both, occur in one or more of these essential chemical products, such, for example, as the depletion of the supply of epinephrine by prolonged sympathetic stimulation through emotion. This disturbance of the chemical balance is suggested as being the common factor, acting to disrupt the harmony with the initiation of a vicious circle—stimulated vegetative nervous system, altered body fluids.

The Mass Reflex in Injuries of the Spinal Cord.—George Riddoch (*Lancet*, December 21, 1918) says that in a well defined group of cases, especially where there is a complete division of the spinal cord, after the stages of shock and of flaccidity have passed off the "mass reflex" may develop and give rise to many difficulties in the treatment and nursing of the patient. The mass reflex is set off by any nocuous stimulus applied over the paralyzed parts and consists of flexion at the hip and knee, dorsiflexion of the foot and toes, and flexion of the trunk if the lesion is sufficiently high. The resumption of the former position after the passage of the reflex is due entirely to the action of gravity when the contraction of the flexors ceases. The reflex is a uniphasic movement in which the flexors are alone involved. The response is generally bilateral with a moderate stimulus, and always so when the stimulus is applied in the middle line, as to the genitals. The energy of the stimulus also commonly overflows into regions not usually associated in reflex actions, thus stimulation of the sole of the foot leads to evacuation of the bladder and often to profuse sweating over an area corresponding to the level of the spinal lesion. Conversely, evacuation of the

bladder or rectum may provoke the mass reflex. While the exciting stimuli of the mass reflex are usually nocuous, when the excitability is very high it may be provoked by such gentle stimuli as light pressure, removal of the bedclothes, etc., especially when affecting the terminal regions which have the lowest thresholds. The reflex indicates a very low grade of neural control in which the anchored patient has but one reaction to a stimulus—withdrawal. The associated emptying of the bladder, provoked by the reflex, can be utilized to advantage in avoiding catheterization and the patient can be readily taught to employ this method of evacuating his own bladder at definite intervals. This greatly reduces the danger to life which is always associated with retention, catheterization, and infection of the urinary tract. The reflex causes much distress to the patient and gives much trouble in nursing. Every possible care must be taken to prevent setting off the reflex and all nursing procedures, including catheterization, the giving of enemas, moving, changing the bedclothes, etc., must be carried out with the utmost gentleness. Solutions for washing the penis or irrigating the bladder must be bland; excoriation of the skin by moisture must be prevented; bed sores must be treated promptly and with bland solutions and dressings. The patient must be placed in the most comfortable position and the bedclothes may have to be supported by a cradle. Attention must be given to the diet to prevent dyspepsia and digestive disturbances. Where the bladder remains paralyzed it must be emptied regularly by gentle catheterization.

Chronic Metritis and Chronic Subinvolution.—O. H. Schwarz (*American Journal of Obstetrics*, January, 1919) reports studies on seventy-eight uteri removed at operation or autopsy. As a whole, the series comprised enlarged uteri that had caused either pain, hemorrhage, or leucorrhea, or a combination of these symptoms, without any evidence of new growth. Schwarz agrees with Shaw that, pathologically, these cases should be divided into three groups, viz., chronic subinvolution, chronic metritis, and hypertrophy. Chronic subinvolution alone is by far the most frequent cause of enlarged uteri causing hemorrhage, pain, or leucorrhea. The thickness of the uterine wall in these cases is due, in the order of their importance, to an increase of the elastic tissue edema and liquefaction of the connective tissue, and hypertrophy or enlargement of the individual cells. Chronic metritis, as a true inflammatory condition, does exist, and is frequently responsible for the symptoms in these enlarged uteri; locally, it is never a primary disease, but is secondary to chronic endometritis, chronic salpingitis, or chronic inflammation within the pelvis. Chronic subinvolution may coexist in the same uterus. Uterine hypertrophy has a separate pathological basis and may occur in the multiparous as well as the multiparous uterus. Clinically, the term chronic metritis should be abolished, though perhaps applicable to cases with evidence of pelvic inflammation in connection with a more or less immovable uterus. The term chronic subinvolution might be substituted for chronic metritis in cases of multiparous uteri.

Influence of Quinine on Gastric Functions.—Paul Baufle (*Paris médical*, November 23, 1918) reports clinical experiments on this subject. One of his conclusions is that too much importance should not be paid to the theoretically low solubility of quinine sulphate as compared with other salts when the drug is to be given by mouth. As a matter of fact the solubility of quinine sulphate is the stomach is about three and one half times greater than in water, while quinine hydrochloride is less soluble in the gastric juice than in water. Most of the quinine sulphate taken by mouth dissolves rapidly in the stomach, the remainder becoming mixed with mucus which prevents contact with the mucous membrane. One gram of the sulphate in a single dose is but slightly irritating, causing some increase in secretion and acceleration of evacuation. The hydrochloride in the same dose excites secretion more markedly and for at least an hour after the drug has left the stomach; as a result, very acid gastric juice is present in the empty organ. Quinine salts hinder peptic action for the first twenty minutes after their ingestion. This effect passes off when most of the drug has left the stomach; at this time the stomach secretes a large amount of active gastric juice, the digestive process being thus favored. In hypopeptics with slow digestion, quinine hydrochloride should be given thirty to forty minutes before meals in water—100 to 150 mils of water for every gram of the quinine salt. On the other hand, in subjects with hyperchlorhydria and excessive secretion, in whom the hydrochloride of quinine is badly borne—causing sometimes distressing gastric cramps half an hour after ingestion,—the sulphate should be preferred, or, if even this salt gives trouble, it should be replaced, at least in part, with powdered cinchona. The latter never showed a strong excitant action on gastric secretion, and in some instances even seemed to have a sedative effect upon the pain of hyperchlorhydria and gastric ulcer.

Genital Tuberculosis in the Male.—William C. Quinby (*Journal A. M. A.*, November 30, 1918) records one case of genital tuberculosis in which the lesion was confined to the prostate and seven cases of tuberculous involvement of the epididymis, in each of which there were additional central tuberculous lesions. These cases seem to suggest that tuberculosis is seldom, if ever, primary in the epididymis and that the common operation of removal or drainage of that organ is inadequate to cure the disease. This idea is confirmed by the frequency with which cases so treated develop recurrence in the other epididymis. All of the seven cases recorded by the author were treated by complete removal of the epididymis, vas, and seminal vesicle on the affected side, a small area of the prostate being included when it was also obviously infected. In six of the patients the operation has apparently yielded complete cure of the genital tuberculosis, the only unsatisfactory result having been in the one patient in whom the entire vesicle was not removed at the first operation. Where the primary tuberculosis of the prostate or seminal vesicle has extended to involve both sides of the genital tract both tracts should be completely removed.

Epidemiology of Amebic Dysentery.—H. M. Woodcock (*British Medical Journal*, December 28, 1918) directs attention to the very general impression that house flies are the chief agent of spread of amebic dysentery. As the result of a careful study of the incidence of amebic dysentery in various parts of Egypt during two years it is evident, however, that the house fly is relatively unimportant in this connection. The prime necessity for the spread of amebic dysentery is the presence of an abundance of moisture and a high degree of humidity. The infection is spread through the use of contaminated water for drinking and for washing food which is to be eaten uncooked. The water, in turn, is infected by contamination from human excreta. The elimination of carriers from all positions in which they come into contact with foods greatly reduces the incidence of amebic dysentery. It is probable that the same facts hold for the incidence and spread of other protozoal diseases. On the other hand, it is very definite that bacillary dysentery is spread very largely by the house fly, in fact, that it is the chief agent in the dissemination of this disease.

Emetine and Bismuth Iodide in Chronic Amebic Dysentery.—J. Carles (*Paris médical*, December 7, 1918), after experience in a number of cases, asserts that simple chronic amebiasis seldom resists the action of the double iodide, apparent cure resulting as a rule. Cure is only exceptional, however, where amebiasis is complicated with an infection by trichomonas or tetramitus, or especially by lamblia. It is rendered somewhat less frequent, likewise, by the presence of many trichocephalus or ascaris parasites. All such parasites should be got rid of before treatment of the amebic infection with the double iodide is attempted. Such conditions as gastrointestinal secretory insufficiency, gastric neurosis, or enteritis due to fermentation must also be subjected to preparatory treatment if the specific measure is to prove successful. Successive courses of double iodide treatment are required if a permanent result in chronic dysentery is to be obtained.

Ipecac and Its Alkaloids in Intestinal Amebiasis.—Sidney K. Simon (*Journal A. M. A.*, December 21, 1918) emphasizes the frequent failure of emetine in various forms to cure amebic dysentery, although its specific amebicidal action on the free living parasites is abundantly proved. Its frequent failure is probably due to several factors, among which is its toxicity for man which prevents its being administered in doses large enough to provide an effective concentration when it comes in contact with the organisms. Its injection may not be followed by sufficiently rapid excretion to give the necessary concentration. Finally, when not present in high enough concentration to kill all the free living ameba at once it seems to stimulate their passage into the encysted and resistant forms. Thus it often relieves the acute disease but does not rid the patient of his infection and makes him both a carrier and subject to relapses. Crude ipecac, on the other hand, can be given in very large doses without danger to the patient and can thus be brought into immediate contact with the parasites in the intestine in sufficient concentration to kill

them all promptly. This accounts for the greater efficiency of crude ipecac over its isolated alkaloids. The treatment by crude ipecac demands attention to details and embodies the following steps: The patient must be put to bed and kept there during the course of treatment, which covers an average of ten days. The diet must be restricted to foods which leave no residue, including broths, whey, albumen water and the several alcoholic nutrients. Milk can be added after the fifth or sixth day. On the morning of the first day of treatment a dose of castor oil is given and in the evening the treatment is begun by the administration of ten to fifteen freshly made, salol coated pills, each containing 0.3 gram of powdered ipecac. This is repeated every night, varying the number of pills between ten and fifteen as required. The occurrence of depression demands the omission of treatment for one night. The number of pills that pass undissolved in the stools is recorded daily and subtracted from the number administered. The complete course of treatment demands the retention of at least 100 pills. If nausea or vomiting arise an extra coating should be added to the pills. If large numbers of the pills are found to pass undissolved a pin prick should be made in each pill before its administration. Under rare conditions the pills are not well tolerated and then the ipecac may be administered through the duodenal tube, a daily dose of two grams being given.

Use of Chloramine as an Intestinal Disinfectant.—P. Carnot and T. Bondouy (*Paris médical*, December 7, 1918) combined chloramine with various excipients in order to slow its absorption from the alimentary tract. Thus: Chloramine, 0.05 gram, and powdered charcoal, 0.3 gram; or, chloramine, 0.05 gram, and powdered agar, 0.3 gram—to be made into a cachet or tablet—or, chloramine and lanolin, of each, 0.05 gram, with magnesia, q. s., to be made into a pill. In certain cases of gastric disturbances, often associated with some undetermined intestinal infection, and characterized by malodorous stools, copious diarrhea, a coated tongue, and an unpleasant breath, administration of 0.2 to 0.4 gram of chloramine-T rapidly caused improvement, beginning with loss of the odor of the stools. In a case of bacillary dysentery with numerous and copious bowel movements, drying of the tissues, marked abdominal pain, tenesmus, and poor general condition, administration of chloramine for three days brought marked improvement. In amebic dysentery the results were less striking. In a former amebic patient, however, suffering from postdysenteric enteritis with constipation and consequent autointoxication, oral use of chloramine eliminated the fever and caused lasting improvement. In case of *Bacillus paratyphoid* with constipation, systematic use of chloramine repeatedly lowered the temperature and seemed to shorten the course of the disease. In two cases of catarrhal jaundice the drug was used with prompt success to deodorize the stools. It is nontoxic, is well borne in the intestine, and upon slow decomposition in the alimentary tract effectually overcomes infectious conditions of this tract and deodorizes foul stools.

Observations on Scurvy.—Vilhjálmur Stefansson (*Journal A. M. A.*, November 23, 1918) draws upon his wide experiences in the Arctic regions and especially upon the close observation of three cases of scurvy among his men on a recent expedition. He says that the strongest antiscorbutic properties are to be found in certain fresh foods, but these diminish or disappear with storage by any of the common methods, such as canning, pickling, drying, etc. Thus, canned tomatoes are of little or no antiscorbutic value and the same is true of desiccated potatoes and bottled lime juice, though in the fresh state all of these are decidedly antiscorbutic. The antiscorbutic property of practically all foods, including meats, is lessened greatly by cooking, although the rareness of the latter bears some relation to the degree of loss of its antiscorbutic property. Meat well advanced in the process of putrefaction, however, has not lost its antiscorbutic powers. Bodily cleanliness and the degree of exercise or idleness seem to have no relation to the development of scurvy. Although salt does not cause scurvy, it is nevertheless in some way related to it as shown by the craving for salt manifested by patients with scurvy and by the predisposition to scurvy given by the continued use of salt meats.

Germinated Beans in Scurvy.—H. W. Wiltshire (*Lancet*, December 14, 1918) had an opportunity to test the observations of Chick and Hume, who showed experimentally that germinated beans contain large supplies of antiscorbutic vitamins. Haricot beans were allowed to germinate for forty-eight hours at a temperature of about 60° F., after which they were subjected to the shortest possible period of cooking required to make them digestible. Four ounces (dry weight) of these germinated beans were fed daily to twenty-seven patients suffering with mild scurvy, thirty similar cases being used as controls and being given full doses of lemon juice. The cases receiving the beans showed seventy per cent. cured within four weeks as compared with fifty-three per cent. for the lemon juice cases. In the bean series an average of 3.1 weeks was required for the return of the gums to normal, against 3.4 weeks in the lemon juice cases. The antiscorbutic value of the germinated beans was, therefore, quite definite. The use of these beans has the disadvantage of the beans not being very palatable, but that can be overcome by mixing them with other foods. It has two great advantages over lemon juice: First, the beans are dried and can be transported easily without danger or loss by spoiling, which is the greatest drawback of the use of lemons; second, the beans not only prevent or cure scurvy, but they also are valuable as food and provide a substantial part of the rations. In the prevention of scurvy the dietary provisions should be begun early in the autumn and not only after a few early cases have made their appearance, because the period required for the development of symptoms is long. Reliance cannot be placed upon canned or frozen meats, or upon small amounts of such vegetables as potatoes and onions. Adequate supplies of vitamins must be furnished, and this is best done by the addition of germinated, dried beans to the diet.

Efficiency of Anthelmintics as Tested on Earthworms.—Torald Solimann (*Journal of Pharmacology and Experimental Therapeutics*, October, 1918) found earthworms suitable as test objects in relation to anthelmintics. Exposure of earthworms to such drugs may be used to determine the comparative activity of different samples. The results of the author's experiments showed the highest vermifugal efficiency to be possessed by substances not clinically available for the purpose, viz., mercuric chloride, cupric sulphate, and mustard oil. *Aspidium*, *chenopodium*, *pelletierine*, *thymol*, *betanaphthol*, and *choroform* are all highly effective; so is *santonin* in the presence of an appropriate solvent, such as a solution of bile salts and sodium bicarbonate, simulating the intestinal fluid. Somewhat less effective are *kamala*, *koussou*, and *granatum*. *Spigelia* is rather feeble. Fresh—germinable—pumpkin seed and squash seed are highly efficient; their active principle is soluble in water and is destroyed by boiling. In view of their cheapness and presumably low toxicity in man, renewed clinical interest in them is urged. Spices and "sharp" substances, including mustard, pepper, and onion are quite toxic. Their use in the preparatory treatment is therefore well justified. Indeed, pepper potentiates or synergizes the effects of the more active anthelmintics. Mixtures of active drugs show a simple summation of effect; this might be useful for decreasing toxic effects on the host. Oleoresin of *aspidium* appears to be quite stable, although the dry rhizome deteriorates. Different samples of *pelletierine* tannate are also of fairly uniform activity. Most substances toxic to earthworms produce a primary irritation or agitation resulting in the withdrawal of the worm from the neighborhood of the poison. By virtue of this effect, anthelmintics doubtless often expel parasites when their concentration is insufficient actually to kill them.

Acute Colon Bacillus Infection of the Urinary Tract.—J. Dellinger Barney (*Journal A. M. A.*, November 16, 1918) discusses this condition and points out that since it is usually bilateral and seldom complicated by abscess production, the treatment should be conservative rather than surgical, at least at first. The infection seems to involve those portions of the kidney which are especially accessible to the formaldehyde derivatives, and these drugs must be employed both vigorously and judiciously. A most efficient combination includes the administration of hexamethylenamin in doses of 0.5 to 0.6 gram (gr. viiss to gr. x) every four hours; acid sodium phosphate in doses of 0.6 gram (gr. x) at like intervals; and of large amounts of water by mouth or of saline solution subpectorally. Free catharsis should be instituted if not caused by the acid sodium phosphate. Drugs may have to be given for sleep or the relief of pain, but are otherwise not needed and are of little value. Absolute rest in bed is essential and hot fomentations should be applied to the lumbar region. Definite causes of infection, such as calculus, should be treated appropriately, but in their absence the treatment should be along the lines indicated rather than surgical.

The Action of Chlorinated Antiseptics on Blood Clot.—Taylor and Stebbins (*Journal of Experimental Medicine*, January, 1919) investigated the possibility of clotted blood in wounds serving as a protective covering for virulent microorganisms. As the hypochlorite solutions are extensively used in the treatment of infected wounds, experiments were carried out with these to test their cleansing properties. The results show that chlorinated antiseptics have no power to penetrate blood clots and destroy bacteria therein contained, the fibrin probably being the resistant substance, since the plasma and red and white cells are easily dissolved by these antiseptics.

Treatment of Causalgia of the Median Nerve.—A. Mouchet (*Presse médicale*, October 24, 1918) advocates Lortat-Jacob's procedure, viz., moderately tight ligation of the nerve with catgut above the lesion, in painful and severe paralytic conditions of the median nerve causalgic in type. The operation is very simple and quickly executed, and can be done under local anesthesia. The procedure allays the pain immediately and permanently. The author recommends its use in causalgia of the median where the condition has proven refractory to medical treatment, where the symptoms indicate total interruption of nerve function persisting after several months of observation, and where the electric reactions indicate a persisting nerve degeneration.

War Diet and Diabetes.—Richter (*Die Therapie der Gegenwart*, April, 1918) has found that in cases of mild diabetes of all types that an improvement took place, excepting in one case complicated with gout. In five cases of gouty glycosuria the writer even noted that the process was made worse. The reduction in diet imposed by the war did not have any favorable influence on the more serious cases of diabetes. Experience shows how true is Von Moorden's advice to look upon aglycosuria as rather a danger to diabetics than otherwise, because when the sugar has disappeared from the urine it often happens that the patient is not kept under observation so that the condition of the heart cannot be watched and complications of various types may develop.

Stimulation of Lymphocytes on the Growth of Spontaneous Tumors in Mice.—James B. Murphy and Ernest Sturm (*Journal of Experimental Medicine*, January, 1919), report experiments in their study of the effect of dry heat in which spontaneous cancers were removed from a series of mice by operation. The animals were then exposed to dry heat (55 C. to 65 C. for five minutes) immediately after which a graft of the original was returned. In the control animals, which were not subjected to heat, ninety-six per cent. showed a return of the cancer. The mice treated with heat showed an increase in their resistance to the growth of the cancer graft, over fifty-nine per cent. showing no recurrence. These, and the former experiments from this laboratory, suggest the rôle of the lymphoid tissue in offering resistance to cancer growth, as the lymphocytes were stimulated by the heat, but as the authors justly remark, this conception cannot be accepted until it is explained why the lymph glands are the usual sites of tumor metastasis.

Effect of Typhoid Lipovaccine on Susceptibility to Other Diseases.—Edgar M. Medlar (*Journal A. M. A.*, December 28, 1918) calls attention to the fairly common belief among physicians that the use of typhoid vaccine as a prophylactic increases the susceptibility of the inoculated persons to other diseases. This contention was investigated on a large series of animals, using the virulent *Streptococcus hemolyticus* to produce the secondary infections. The results of the experiments showed conclusively that the previous inoculation with typhoid vaccine not only did not diminish the resistance of the animals to subsequent inoculation with the streptococci, but even tended to confer upon them a somewhat increased resistance to those latter organisms. This was in line with our knowledge of nonspecific immunity.

Serum Treatment of Gas Gangrene.—Delbet (*Presse médicale*, November 28, 1918) refers to the beneficial action of antigangrenous serum in certain cases of shock. This action he ascribes to neutralization of toxins absorbed from muscle tissue undergoing autolysis from the effects of anaerobic microorganisms. In true gas gangrene, antigangrenous serum has been definitely shown to possess marked prophylactic power as well as an unmistakable curative influence, which is certainly more pronounced than that of antitetanic serum. Yet there are still cases which resist all therapeutic means available. Wounds of the buttock are of such gravity that they should be considered as requiring treatment just as urgently as abdominal wounds. Again, different antigangrenous serums thus far prepared have proven widely divergent in actual practical value. The different serums should be carefully tested and properly classified before being brought into use.

Influence of Stimulants and Depressants on Oxidation.—W. E. Burge (*Journal of Pharmacology and Experimental Therapeutics*, November, 1918) had already found experimentally that whatever increases oxidation in the body produces a corresponding increase in the ferment catalase by stimulating the digestive glands, particularly the liver, to an increased output of this enzyme. His new experiments show that stimulant drugs such as caffeine and theobromine, produce an increase in catalase with resulting increase in oxidation by stimulating the liver, while depressants, such as the narcotics, produce a decrease in catalase with resulting decrease in oxidation by decreasing the output from the liver as well as by direct destruction of the enzyme. A powerful anesthetic, such as chloroform, is more effective in decreasing the output of catalase from the liver and in destroying this enzyme in vitro than a less powerful anesthetic, such as ether. A quickly acting anesthetic, such as nitrous oxide, decreases catalase more quickly, but less extensively, than does a more slowly acting, but more powerful, anesthetic, such as ether. Evidence is presented to show that that decreased oxidation through decrease of catalase is the cause of the depressant effect of narcotics, while increased oxidation through increase of catalase is the cause of the stimulating action of such drugs as caffeine and theobromine.

Proceedings of National and Local Societies

SOUTHERN SURGICAL ASSOCIATION.

Thirty-first Annual Session, Held in Baltimore, Maryland, December 17, 18, and 19, 1918.

The President, Dr. ISAAC S. STONE, Washington, D. C., in the Chair.

(Concluded from page 307.)

Radium Demonstration at the Howard A. Kelly Hospital.—Dr. HOWARD A. KELLY, of Baltimore, Maryland, pointed out the continuously expanding domain of radium as a therapeutic agent, emphasizing especially its value in the treatment of new growths, anemias, leukemias and Hodgkin's disease. Specimens of ores from which radium was obtained were shown, the common salts of radium and radium emanation described, and the adaptation of the latter to medical usages pointed out. Doctor Kelly emphasized the fact that radium was not a cureall, but a valuable aid to surgery and dwelt on the importance of early radical treatment in both domains. In conclusion he pointed out that the present knowledge of the biological and therapeutic effects of radium was rudimentary, and that a vast field for investigation lay just ahead.

Dr. WALTER LANTSBERRY demonstrated the method of separating radium emanation from radium by means of mercury pump and liquid air processes. He then showed some of the physical effects of radium emanation and radioactive deposit, and finally demonstrated some of the completed apparatus used for treatment.

Doctor BARNUM and Doctor KELLY showed sixteen patients who had received radium treatments. These were in the order of presentation:

CASE I.—Miss L. K., aged eleven. Multinodular ovarian carcinoma. Operated on, but tissue only partially removed in February, 1918. Under radium complete disappearance, which had persisted up to the present time.

CASE II.—Miss V. J., aged twenty-three. Posterior mediastinal sarcoma, which had led to paraplegia. Treated between July and December, 1914, with complete recovery. An active healthy working woman with no evidence of paralysis or other disturbance.

CASE III.—Mrs. H. F., aged forty-seven. Cervical Hodgkin's disease, which had disappeared after two treatments in June and July, 1918.

CASE IV.—Mr. J. D., aged thirty-two. Universal Hodgkin's disease. Under treatment for a year. Photographs showed enormous glands. Complete disappearance of glands in neck. Still evidence of change in blood. This case emphasized the importance of rest and feeding.

CASE V.—Mrs. V. F., aged twenty-nine. Medullary carcinoma of right breast and of glands of axilla and neck. Complete disappearance save for very small nodule in breast. Only four months under observation.

CASE VI.—Mrs. E. S., aged fifty-six. Extensive carcinoma of breasts. Complete retrogression of skin nodules and lump in breast without irritation

of integument six months after undertaking treatment.

CASE VII.—Mr. I. B., aged fifty. Squamous cell cancer of larynx. Disease limited to larynx. Operative removal by Dr. Samuel Crowe, March 30, 1917, followed by repeated radium exposures. Still entirely well.

CASE VIII.—Mr. H. N. R., aged fifty-five. Extensive basal cell carcinoma of larynx, causing obstruction. Tracheotomy and heavy exposure with radium, September 11, 1913. Complete disappearance of growth which had persisted up to the present time. Normal voice.

CASE IX.—Mrs. J. H., aged twenty-two. Round cell sarcoma of tonsil and pharynx. First seen September 6, 1916. Last treated February 14, 1917. After complete disappearance of growth tonsils removed. Found normal. No evidence of trouble. Clear throat and neck.

CASE X.—Mr. W. G., aged twenty-four. Unilateral tonsillar hypertrophy or round cell sarcoma. No evidence of trouble since disappearance of growth in August, 1918.

CASES XI, XII, XIII, and XIV were instances of localized squamous cell epithelioma of the mouth, well respectively for six weeks, four months, six months, and nine months.

CASES XV and XVI were two instances of skin epithelioma cured respectively for seven and three years.

The Treatment of Hodgkin's Disease.—Dr. CURTIS F. BURNAM, of Baltimore, Md., stated that during six years he had seen and treated more than one hundred cases of Hodgkin's disease and malignant lymphoma. He wished to emphasize the importance of general x ray, blood, and tissue examinations. Blood examination, while quite valuable, was much less reliable than tissue diagnosis. Two glands should be removed in order to secure enough tissue. He advised against extensive operative removals. He employed radium treatment supported by rest in bed, forced feeding, and iron. Where radium was not available he urged the use of the x ray. A critical analysis of cases treated demonstrated that better results were obtained where tissue examination was characteristic of lymphosarcoma than where it showed definite Hodgkin's disease. Also, in Hodgkin's disease the results were better where the polymorphonuclear leukocytosis characteristic of extensive Hodgkin's had not developed. Treatment was much more satisfactory in chronic than in acute cases. In the former, disappearance of gland masses was almost invariably associated with improvement in the general health. No routine treatment applicable to cases indifferently could be prescribed. Each patient must be given individual attention. The best guide to treatment was to be found in the effects on the gland masses, the blood, and the general health of the patient. Gamma radiation at distances of one and a half to five inches from the surface with amounts of radium varying from 500 mg. to several grams,

the time of exposure being inversely proportional to the amount of radium employed, was indicated. The radiation should be carried out so that every affected part might receive adequate dosage, and the treatment should be repeated at intervals until all evidence of disease had disappeared. The results obtained were highly encouraging. Where lymphosarcoma was diagnosed, two patients had been well for more than five years, one with extensive neck and one with abdominal involvement. Four patients had been apparently well for over three years; one with pharyngeal and neck involvement; one with mediastinal, one with tonsil, neck and groin, and one with neck and axillary involvement. In the cases of Dorothy Reed's Hodgkin's disease, one patient with mediastinal and neck involvement had been well for four years, and two patients for more than three years. One of these had neck, axilla, groin, and iliac, the other groin, axillary, neck, and mediastinal involvement. No analysis was given of those cases under observation less than two years.

Some Notes from the Examination of Five Thousand Selected Service Registrants.—Dr. ALEXIUS MCGLANNAN, of Baltimore, Md., reported some points from the examination of 5,000 men by Doctor Requardt, Doctor Hutchins, and himself, surgeons to Medical Advisory Board No. 2, Baltimore. There were 3,500 whites and 1,500 negroes examined. Inguinal hernia was found in 294 whites and seventy-eight colored men; femoral hernia only seven times; umbilical hernia in five whites and twenty colored. Of 255 varicoceles only two occurred in black men. Undescended testicle was found in twenty-six cases. Among other congenital defects, there were two cases of absence of the pectoralis major muscle.

Dr. HENRY O. MARCY, of Boston, said that the history of surgery gave unmistakable evidence that from the very early period of Egyptian civilization through the many centuries, the medical profession made earnest effort to control pain and lessen suffering because of surgical need. The remedies used were considerable in number. First, and most important even to the present, was alcohol and its derivatives, of which sulphuric ether was the most important. The knowledge of the effect of the poppy was certainly of long ago, and its so called juices were used in various products. The ancient Peruvians early ascertained the value of the coca plant; its leaves were in general use among all classes from the laborers to the Incas, who by royal edict consecrated it to the gods. Inhalation of various volatile products was in more or less common use and the problem of the control of pain was never forgotten. It was a singular coincidence that men unknown to each other, for the most part, of limited knowledge and training, should independently and almost simultaneously have demonstrated the great value of sulphuric ether. America was justly credited with the discovery and introduction of this priceless boon. On the contrary, Sir James Simpson was one of the leading surgeons of Europe in training and knowledge. To him was rightly due the discovery of chloroform as an anesthetic. He emphasized the just value of anesthetics, not alone

in the relief of the suffering incident to surgical intervention, but especially the revolutionary progress of the surgical art, broadening the field of surgery into that of true science. To the present generation, the great surgical advance was accredited; the discoveries of Pasteur, Lister, and his pupils thus having completed the Æsculapian temple of the present. The building of the fathers in the early centuries was ever to be held in reverence by the worshippers of the present day. The future was yet full of promise, and the field of medicine at the present could enroll its victories, not less brilliant than those of surgery. To both, however, as never before, science pointed to still greater achievements.

Gynecological Pelvic Drainage.—Dr. J. WESLEY BOVEE, of Washington, D. C., contrasted the attitude of the medical profession toward drainage forty years ago and the present. He asserted there was still much need for the use of drainage material in pelvic surgery, at the same time deprecating the suprapubic use of it and pronouncing in favor of the vaginal route for its use. He mentioned the various materials in use, but specially recommended for the purpose, paraffin-stearin gauze as prepared by the formula of Dr. Hart E. Fisher, chief surgeon of the Chicago Elevated Railroads (*Journal A. M. A.*, 1916, lxvi, 939) and which he had used since March, 1916. The chief advantages claimed for it were its nonadhesion to the tissues and consequent easy and painless removal and its permitting endothelialization of denuded areas of pelvic peritoneum without the formation of lasting adhesions.

Mustard Gas Burns.—Dr. WILLIAM P. CARR, of Washington, D. C., reported a number of cases of burning with mustard gas. He spoke of the remarkable difference between these burns and ordinary burns or scalds. The remarkable features were, he said, as follows: A long period between exposure and the appearance of any symptoms, which varied in his cases from sixteen to thirty-six hours. No disagreeable sensation was felt on exposure and patients were sometimes not aware that they had come in contact with the gas until a day or two later. The destructive action of the gas absorbed into the tissues continued for days and in one case continued for two and a half months. The symptoms began with stinging and itching sensations, much brown pigmentation of the skin and a few hours later vesicles appeared which soon coalesced into large blebs filled with coagulated lymph stained a deep yellow with broken down hemoglobin. These blebs always destroyed the whole thickness of the skin and might extend deeper. They were solid and looked and felt much like lipomata after they had been removed. Fluid from these blebs was very irritating and might cause burns on the sound skin. Some of these blebs were two or three inches in diameter and elevated an inch above the surface. During the active stage the burns were extremely sensitive. Some persons were practically immune to the gas and the degree of susceptibility varied greatly in different individuals. Healing was fairly rapid except under the blebs, where continued destruction after their separation or removal might continue for

a long time after other parts of the wound had healed. The most satisfactory treatment he found was removal of the blebs with curved scissors, thorough cleansing with sterile water, thorough drying with a warm air blower, and the application of ambrine or paraffin with a spray. Cauterizing sloughs with silver nitrate was followed by severe reaction and did harm. Very little scar followed under ambrine or paraffin treatment.

Visceroptosis.—Dr. CHARLES L. BONIFIELD, of Cincinnati, Ohio, said that some of his cases of ileosigmoidostomy had been under his observation for five years and were still doing well. In none had he found it necessary to remove the colon, although the colon was removed in one case by a surgeon while he was out of the city. He had always felt that his youthful enthusiasm led him to do an unnecessary operation. Some of them had had slight trouble with feces getting into the colon above the anastomosis, but to the best of his knowledge in none of them had it been serious, and as time went on it became less and less frequent. Reed, of Cincinnati, for a time, removed the colon in all of his cases of ileosigmoidostomy, but he found the operation attended with a high mortality rate, and in later operations he left the colon, but severed it just above the anastomosis and brought that end out to the skin on the right side of the abdomen and the end of the ileum out on the left side, so he could wash through and through the unused portion of the bowel. His results with this procedure were very satisfactory, and he never found it necessary to remove the colon afterward. The same beneficial results could be obtained by doing an ordinary appendicostomy or cecostomy without severing the colon. The mucus and any feces that accumulated in the transverse colon could be washed into the lower bowel, but his experience, although limited, would lead him not to do even this until symptoms indicating it arose. He performed cecosigmoidoscopy on three patients, but his results were not as satisfactory as he had always obtained from ileosigmoidostomy. A large part of the fecal current continued to flow through the old channel and to produce the old symptoms. The result of his study and experience with this condition would lead him to believe that many cases required no surgical treatment; that others required operative treatment only for the pelvic condition; others would require fixation of the kidney as well, and for the type where colonic stasis was most severe, ileosigmoidostomy was the best procedure yet devised, and that the colon should be removed at a second operation, and only when symptoms made it necessary.

Notes on the Treatment of War Wounds in the Hospitals of the A. E. F.—Colonel CHARLES H. PECK, M. C., U. S. Army, formerly senior consultant, general surgery, A. E. F., stated that the scientific treatment of war wounds had been developed greatly during the second and third years of the war in the French, British, and Belgian services. It passed from the stage in which all wounds suppurred profusely to the discovery of the Carrel-Dakin method of chemical sterilization, and later to the method of early *debridement* healing by first

intention in a large proportion of cases. Successful early *debridement* depended upon well equipped operating hospitals near the fighting line; upon conditions of combat and transport which permitted of evacuation of the wounded from the field to the operating hospital in less than fifteen hours; and upon an adequate number of skilled operating teams to care for all wounded promptly in time of battle. These conditions had been met in the French and British services by the evacuation hospital and the casualty clearing station, established eight to twelve miles behind the lines, and by large numbers of mobile operating teams which were moved as needed to meet the changing demands of battle at different points. The American service was developed on similar lines, but soon had to meet the changed condition of open warfare as contrasted with the fixed line of trench fighting, which had existed for more than two years. In open warfare the frequent delays in evacuating wounded from the field; the difficulty of providing for early operation near the front for all cases needing it; the necessity of using small mobile hospitals, and improvised operating units in field hospitals, instead of well organized evacuation hospitals, had interfered seriously with the ideal treatment of war wounds. In spite of these difficulties and new problems, the Medical Department of the A. E. F. had met the situation in a masterly way; had provided adequate hospitalization and skilled surgeons for the care of the wounded, and had performed this gigantic task for an army of two million men with a minimum amount of confusion and delay. The excellent morale and physical condition of returning overseas wounded was evidence of the efficiency of the service.

The Limitations of Cæsarean Section.—Dr. E. GUSTAVE ZINKE, of Cincinnati, Ohio, after a brief reference to the history of Cæsarean section; the evolution and completion of the doctrine of narrow pelvis; the introduction of compromise operations, namely, the induction of premature labor, the high forceps, version of the child, and embryotomy in any of its forms; and a general consideration of the positive and relative indications for Cæsarean section, as well as the reasons for the present popularity of the operation, summarized as follows: 1. Abdominal Cæsarean section is positively indicated, as in the past, in all cases in which the child cannot be delivered by any means, dead or alive, though the parturient canal. 2. The operation is not only justifiable, but almost imperative, and should be selected as the best mode of delivery in all cases of deformed, narrow, and contracted pelves in which the diameters are so reduced in size as to forbid the test of labor, the use of the high forceps, or version of the child upon the feet. 3. Abdominal hysterectomy will furnish the best results for both mother and child in all of those cases of placenta prævia in which the hemorrhage is either profuse or moderate and protracted, and beyond control. When an elongated or unobliterated cervix or rigid os complicates placenta prævia, Cæsarean section is all the more imperative. Fortunately, in the majority of these cases, the hemorrhage may be effectually arrested; elongated cervixes are quite rare; and an unobliterated cervix, or rigid os usually

yields to well applied tamponade or the careful and skillful use of the rubber bag. 4. Cæarsean section may be chosen as a just procedure in cases of sudden and profound eclampsia, or severe toxemia in a primigravida when associated with an elongated or unobliterated cervix, acute suppression of the urine, general edema, and cyanosis. In the milder cases of this disease, when the life of the child is considered equally as important as, or more important than, the life of the mother the operation finds a justification. This fact, more than anything else, renders Cæsarean section almost entirely unnecessary in the treatment of eclampsia. 5. As to the advisability of abdominal hysterotomy in cases of asthenia, no matter what the cause, the justification of the operation rests upon the mature and accurate judgment of an able, conscientious and experienced attendant. That, occasionally, both lives may be saved by the performing of this operation in these circumstances may be granted; but that the operation will be but rarely indicated for this condition, also admits of no doubt. 6. In the past, Cæsarean section was not resorted to often enough; at the present time, it is performed too frequently. In order to guard against an abuse, it may be well to establish the custom that the Cæsarean operation should never be performed without the consent of an experienced consultant of recognized standing and an authority on obstetrics. 7. Cæsarean operation should never be regarded lightly because it is easy of performance; on the contrary, it should always be considered a formidable procedure, one which may be followed by serious consequences; and it should not be forgotten that, even under the most favorable circumstances, the operation invariably involves extensive exposure of the abdominal and uterine cavities. 8. The question as to whether an existing septic infection is a contraindication has been discussed repeatedly and extensively. Judging from the favorable results reported by men who have performed Cæsarean section. A strictly septic infection is always systemic and almost invariably fatal; a sapremia is, usually, local in character, and even if some of the saprophytes do find their way into the circulation the police force within the organism, as a rule disposes of them, and the patient recovers notwithstanding the Cæsarean section.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting of Wednesday, May 1, 1918.

Dr. THOMAS R. NEILSON, Acting President, in the Chair.

Report of a Case in Which the Patient Survived the Removal of a Large Tumor of the Brain for Over Thirty Years.—Dr. W. W. KEEN and Dr. A. G. ELLIS presented this report. Doctor KEEN said that the case was his first modern brain case, and showed the technic then in use, being one of the earliest operations on such tumors and following by two years Goodlee's in 1885. The patient, a man aged twenty-six years, consulted Doctor Keen in May, 1887. When three years of age he had fallen out of a window, striking his head. The skull on the left side was indented and operation disclosed detachment of a

small fragment of bone from the inner table without fracture of the outer. Twenty-one years after the fall violent epileptic attacks ensued followed by intense pain in the head. By the end of April the right arm, leg, and face had become paralyzed and by August of the same year he had become totally blind; there was, however, some intermittence of vision. When seen by Doctor Keen on May 30, 1887, there was some improvement in the paralysis. After an interval of several months, during which time a course of potassium iodide treatment was continued, operation was done on December 15, 1887. Removal of the first button exposed the tumor but it was larger than the opening. A second button was removed and the opening was further enlarged until it measured three by two and a half inches. The upper margin was three quarters of an inch from the midline. The tumor dipped behind the squamous portion of the temporal bone for half an inch. The dura was adherent to the brain except at the margin of this large opening. I incised the dura one quarter of an inch from the margin of the opening in the bone, and with my little finger, to my surprise and relief, enucleated the tumor with as little difficulty as one scoops an egg out of its shell. Hemorrhage was free but not alarming. The tumor was practically a foreign body starting at the dura as a result of the constant irritation from the little loose fragment of the inner table broken off at the time of the accident and never consolidated with the skull. Every inspiration and especially every impulse from the throbbing heart produced slight movement of this fragment. The tumor weighed three ounces, forty nine grams, and proved to be a pure fibroma. Eight days after the operation the floor of the cavity which was also the roof of the ventricle evidently gave way, thus opening the roof of the lateral ventricle and until the fifth week the cerebrospinal fluid continued to escape very freely. At the conclusion of the operation two drainage tubes had been inserted and an abundant gauze dressing applied. The bone could not be replaced as the dura was gone. On the fourteenth day a moderate hernia cerebri, crescentic in shape, had appeared and from two small pinholes at its middle, clear fluid, evidently cerebrospinal, continued to escape until the end of the fifth week. By the seventy-first day the hernia cerebri had subsided until it was nearly on a level with the skull. On the seventy-fifth day this elevation had changed to a deep hollow 5.5 cm. in depth. Twenty-one years after the operation this depression was still present. A striking phenomenon was that whenever he sat upright, any muscular effort, and a change of posture, e. g., leaning forward, caused this hollow to bulge about an inch beyond the level of the skull. To protect the brain against injury I bent a piece of tin to fit the surface of his head, covered it with black silk and sewed this to the inside of a skull-cap which he always wore. Only three cerebral fibromata appear in Bernhardt and Hale White's table of 580 intracranial tumors. I gave an "entirely favorable prognosis" at the time of operation, and thirty years have fully justified it. The patient died on January 29, 1918.

Tuberculosis in the Army.—Colonel GEORGE E. BUSHNELL, U.S. Army, retired, said that in the examination of men for the army the welfare of the army was the first consideration. The examination should be made rapidly with the idea of excluding manifest tuberculosis, of getting the affected men out quickly and filling their places without delay. The idea of speed was extremely foreign to most examiners. The work was standardized in the Surgeon General's Office and a minimum of fifty examinations per day was one of the directions. The belief held by most of the examiners that it was better to wait until the cases were referred by the regimental surgeons would delay the matter too long and would in addition create the presumption that the disease had been contracted while in the service and was therefore pensionable. The plan tended to prevent too much weight being given to signs of slight organic change. If those believing any evidence of an old healed obsolete tuberculous lesion to be sufficient cause for rejection were afforded time for minute examination many men perfectly fit to serve would be rejected with injurious results to the army. As a rule a man who entered the military service with a not too large quiescent pulmonary lesion improved in the long run in army life. It was directed that all men with active tuberculosis should be rejected, also those with inactive lesions of any considerable size. Quiescent lesions above the clavicle were not regarded as of sufficient size to cause rejection. A further provision was that the diagnosis must be based upon positive signs. Many examiners wished to label some of the cases arrested tuberculosis, retain the men in service and have them frequently examined. Such a man, however, would be spoiled as a soldier although he might be one of the best physical specimens. Again, if labeled tuberculous from the beginning the man was barred from being pensioned, which was an injustice. Two schools are represented in the diagnosis of tuberculosis: The old school which does not make the diagnosis until the signs are clearly marked. The other group perhaps should not be called a school, because it is composed of a number of individuals who do not agree with one another. Recent official word from the French Secretary of War states that of the 86,000 men said to have tuberculosis in the first year of the war less than fifty per cent. were found upon reexamination to have pulmonary tuberculosis. It is believed by some French authorities that twenty per cent. more truly represents this group. If, however, it were fifty per cent. it would still mean that the transcendental diagnostician is wrong, that you cannot safely diagnose tuberculosis until you have definite signs. I consider this a vindication of what you might call the old school. While much has been said of the danger of infection of one adult by another a study of the cases in the French Army showed that the men who had broken down had brought the disease with them. The experience with the repatriated French civilians reported by Doctor Miller is a striking illustration of the fact that even semistarvation and hardships of all kinds do not lead necessarily to the development of tuberculosis on a large scale. In the care of the tubercu-

lous soldier the government has provided seven institutions for the treatment of the disease. The number of men who will remain under treatment will depend upon the matter of their compensation.

Dr. THOMAS McCRAE said that having had experience handling men from the front in a base hospital he believed it perfectly absurd to hold the view that a man who has had tuberculosis is probably going to be benefited by going to the front. This, when you consider the tremendous strain of being in the trenches, the loss of sleep, the crowding together in small areas, nearly all the men with some bronchitis. Would any of us who had had tuberculosis and who are now in health consider living such a life. Why should we say that probably the soldiers will be benefited by it? Not only in the front line trenches does this apply. It was very significant in my work, particularly with the Canadian soldiers, to find in the labor battalions where the men were living under healthful conditions the large number who came in with tuberculosis. Of these probably the vast majority had the disease before. None of us know how many cases of tuberculosis in adults are instances of fresh infection and how many are the lighting up of old lesions. The examiner who passes a man with the signs of old tuberculosis is sowing the wind, and the medical officer abroad is the chap who will reap the whirlwind. From seeing the work "at the other end of the funnel," Doctor McCrae believes we cannot be too rigid, for the sake of the service and for the man, in the matter of examinations for tuberculosis.

Dr. CHARLES J. HATFIELD said he would like to bear testimony to the fact that Colonel Bushnell, besides being enthusiastic, was also patient because he received many suggestions from people interested in tuberculosis. Doctor McCrae gave expression to a feeling held by many of the examiners relative to the difficulty of obtaining any standard by which a tuberculosis once diagnosed could be legitimately included in the army. I would like to ask Colonel Bushnell in this connection, how can an examiner, where the signs of tuberculosis have been demonstrated, certify on paper that the man is sound, that there is no tuberculosis? I understand that if the tuberculosis is actually recorded, such record will follow the man, will be known to his superior officer, and that it will have an effect upon his compensation later. Colonel Bushnell's experience in military service has given him a basis for his opinion of improvement under working conditions and his opinion is to be highly considered. In connection with the National Association it has been my privilege to see how splendidly the Surgeon General's Office has considered the question of tuberculosis in the army and to note its cooperation with outside agencies wishing to have certain conditions fulfilled. I believe that our army today with the various measures enforced by the surgeon general is in a splendid condition.

Colonel BUSHNELL said that the difficulty in understanding how a man who has once had signs of tuberculosis can ever be regarded as a safe man depended entirely upon what is meant by tuberculosis, how much tuberculosis there has been, how

nearly bacilli have been present. In my opinion there is hardly a man who if looked at closely and studied with the x ray would not show some little signs of abnormality somewhere in the lung. I believe that some examiners could find that ninety per cent. of those present this evening have what some would call evidences of healed tuberculosis. Many come to me with the diagnosis of active tuberculosis in whom we can find no signs at all. In others, who have a diagnosis of healed tuberculosis, we find signs varying from a misinterpretation of the normal signs in the right apex to a slight degree of evidence of old trouble. I am increasingly impressed with the fact that many perfectly healthy people show slight evidences of organic change in the apices of the lungs.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Trench Fever. Report of Commission, Medical Research Committee, American Red Cross. Prepared for Publication by RICHARD P. STRONG, Major, Medical Reserve Corps, U. S. Army; Assistant Director, Division Laboratories and Infectious Diseases; In Charge, Subdivision of Infectious Diseases, American Expeditionary Force. Illustrated. New York: Oxford University Press, 1918. Pp. viii-446.

This extraordinarily interesting volume contains a complete account of the study of the clinical manifestations, etiology, and mode of transmission of trench fever, made by the commission appointed for this purpose under the auspices of the American Red Cross. The entire work comprises a beautifully complete and well rounded piece of investigation, and is an excellent example of what is possible under the modern conditions of combined intensive clinical and laboratory research. The rapidity and completeness with which the problem was solved appears all the more remarkable when one considers the fact that the work was carried on under the stress of active warfare, almost at the very firing line. All the clinical and experimental records are reproduced in full detail, copiously illustrated by charts, diagrams, and photographs, and leave no doubt as to the foresight and thoroughness with which the investigation was conducted. The knowledge of the results reached has already become fairly well popularized, and may be summed up briefly as follows: Trench fever is a specific infectious disease and is not related from an etiological standpoint to typhoid or paratyphoid fever. It is caused by a resistant filterable virus which is present particularly in the plasma of the blood of trench fever patients, and the disease may be produced by inoculating the plasma into healthy individuals. The important and common means of transmission is by the louse *Pediculus humanus*, Linn., var. *corporis*, and this may take place either through the bite alone of the insect, which is the usual manner of infection, or the disease may be produced artificially by scarifying the skin and rubbing in a small amount of the infected louse excrement. The virus is also sometimes present in the

urine, and occasionally in the sputum, and the disease may be produced in man by inoculation of the scarified or abraded skin with these excreta. Accordingly, in order to prevent trench fever, or limit its spread, greater efforts must be made to keep soldiers free from infestation with lice, and the urine and sputum of trench fever patients should be sterilized so as to avoid the possibility of accidental infection through these agencies.

The practical value of this investigation in preserving manpower to the Allied armies can hardly be overestimated, and all those who took part in it deserve the highest possible praise and congratulation.

War Neuroses. By JOHN T. MACCURDY, M. D., Psychiatric Institute, Ward's Island, New York; Lecturer on Medical Psychology, Cornell University Medical School, New York. With a Preface by W. H. R. RIVERS, M. D. (London); Fellow of St. John's College, Cambridge, England; Cambridge University Press, 1918. Pp. ix-132. (Price, \$2.50.)

Doctor MacCurdy's excellent discussion of the war neuroses, which has already appeared in the psychiatric bulletin of the New York State Hospital, is now given to us in a more permanent form. As we have already had occasion to comment upon this volume, will therefore only take this opportunity to call attention to the medical profession that it may be obtained through its publishers.

Births, Marriages, and Deaths.

Died.

- BARGE.—In New York, N. Y., on Saturday, February 15th, Dr. Henry Frederick Barge.
BOBB.—In Philadelphia, Pa., on Monday, February 10th, Dr. Henry H. Bobb, aged seventy-two years.
BOWMAN.—In Escondido, Cal., on Friday, February 7th, Dr. Carlos E. Bowman, of Alden, N. Y., aged sixty-four years.
BRASHER.—In Madisonville, Ky., on Thursday, January 30th, Dr. A. W. Brasher, aged eighty-eight years.
COLES.—In Wakefield, Mass., on Thursday, February 6th, Dr. William W. Coles, aged forty-three years.
HODGHEAD.—In San Francisco, Cal., on Wednesday, February 5th, Dr. David A. Hodghead, aged sixty-one years.
KALAHER.—In Toul, France, on Wednesday, February 12th, Dr. Leonard Kalaher, Lieutenant, Medical Corps, U. S. Army, of Jersey City, N. J., aged twenty-six years.
KUNZE.—In Phoenix, Ariz., on Monday, February 10th, Dr. Richard Ernest Kunze, aged eighty-one years.
McCORMICK.—In Farmington, Mo., on Sunday, February 9th, Dr. Emmett C. McCormick, aged sixty-five years.
MARIN.—In New York, N. Y., on Saturday, February 15th, Dr. Jacob Marin, aged thirty-four years.
MARKS.—In Jackson, Mich., on Friday, February 7th, Dr. Willis J. Marks, aged forty-nine years.
POMEROY.—In Windsor, O., on Tuesday, February 11th, Dr. Alexander L. Pomeroy, aged ninety-six years.
ROBERTSON.—In Ridgely, Tenn., on Wednesday, January 20th, Dr. Charles Andrew Robertson, aged fifty years.
SALTER.—In Brooklyn, N. Y., on Tuesday, February 11th, Dr. George W. Salter, aged sixty-eight years.
SHERRICK.—In Alverton, Pa., on Wednesday, February 12th, Dr. Albert S. Sherrick, aged fifty-seven years.
SOMMERS.—In Philadelphia, Pa., on Wednesday, February 12th, Dr. William F. Sommers, aged forty-five years.
SPALDING.—In Turlock, Cal., on Monday, February 3d, Dr. Thomas F. Spalding, aged eighty years.
TOMLINSON.—In Shiloh, N. J., on Thursday, February 13th, Dr. Sophia Tomlinson, aged eighty-two years.
WALKER.—In Edmonston, N. B., on Tuesday, February 4th, Dr. Alba G. Walker, of Houlton, Me., aged forty-two years.
WILTSE.—In Brewster, N. Y., on Sunday, February 2d, Dr. James Wiltse, aged fifty-four years.

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Original Communications

FOURTEEN POINTS CONCERNING OPHTHALMIA NEONATORUM.*

BY FRANK ALLFORT, M. D.,
Chicago, Ill.

In participating in this symposium concerning ophthalmia neonatorum, I shall not even attempt, in the brief time allotted to me, to do more than refer to certain essential features connected with the subject. Like President Wilson, I have endeavored to formulate fourteen points that I consider especially important in connection with the subject which is under consideration this evening.

First. Ophthalmia neonatorum is responsible for about twenty per cent. of the blind in the United States and for about twenty-five per cent. of the inmates of blind asylums.

Second. It costs about thirty dollars a year to educate an ordinary child, and about four hundred dollars a year to educate and care for a blind child. This does not take into consideration the many financial and sociological sidelights to blindness, and the personal and municipal misfortunes incident to blindness, and unproductive citizenship.

Third. There are about fifty blind schools in the United States, costing about two million dollars a year to maintain.

Fourth. Ophthalmia neonatorum costs the United States about seven million dollars a year in actual money.

Fifth. Next to optic nerve atrophy, ophthalmia neonatorum is the most prolific cause of blindness in the United States.

Sixth. The Credé treatment for all newborn children would almost entirely eliminate ophthalmia neonatorum and its dreadful consequences from the world.

Seventh. The use of this evidently necessary treatment is by no means universal, and its omission is not confined to midwives. Some reputable physicians use it invariably; others, never use it; still others use it when conditions are suspicious. In order to accomplish its purpose the use of this treatment should be invariable. It should become recognized as an integral part of a woman's confinement, and as a reliable provision against blindness. It should be understood that gonorrhea is not the only condition that will produce this disease, but it may occur from other and nondisgraceful causes.

Eighth. Midwives are a financial and sociological necessity. Fully one half the confinements are attended by midwives. If it were not for midwives most of these cases would be merely looked after by friends and relatives. Midwives should be educated, examined, licensed, and inspected, and should always call in medical assistance in complicated cases. The first school of this kind was established in 1913 at Bellevue Hospital, New York, and has abundantly proved its usefulness. Intelligent women are receiving these instructions, and many graduate nurses have undertaken midwifery as a profession.

Ninth. Births should be compulsorily reported within a few hours. The ocular condition should be reported, and the physician should state whether or not he has used the prophylactic treatment. The method of using the prophylactic, and the state law (if any exists) should be printed on the report blank. Immediate action should follow reporting. By action is meant medical attendance (hospital preferred), nursing, etc.

Tenth. Suitable laws should be passed in each state providing for the invariable use of Credé prophylaxis in all newly born children, and proper penalties should be imposed for the nonobservance of such instruction. Such laws should be not only enacted, but observed. A few punishments for disobedience would result in the universal state observance of the law. Laws in themselves are not sufficient; they must be obeyed. One of the best means of insuring such obedience is to create intelligence on this subject, by propaganda, publicity, etc. Every legitimate method of educating and enlightening the people, the midwives and the doctors should be encouraged. If this is done, and proper laws are passed and obedience enforced, it will not be long before the Credé idea of preventing much needless blindness will become a matter of course, and its use demanded by expectant mothers and their families.

Eleventh. While not prophesying as to what the future may produce, in the way of prophylaxis, it is reasonably certain that at present there is no remedy that can take the place of nitrate of silver. Argyrol, protargol, collargol, and many other remedies have been proposed, enthusiastically indorsed, widely used, and gradually abandoned. Nitrate of silver alone has stood the test of time. The ideal remedy is of course one that: Reliably destroys the microorganisms, does not injure the eye, does not

*Read before the Chicago Medical Society, December, 1918, as part of a symposium on Ophthalmia Neonatorum.

produce prolonged redness, does not cause pain, does not deteriorate by time, light or exposure, and one that can be used freely.

Unfortunately, nitrate of silver only responds to one of these qualifications, viz., it reliably destroys the microorganisms. It does, however, sometimes injure the epithelium, produce prolonged redness, cause pain, deteriorate by time, light and exposure, and should not be freely used. There is, therefore, room for improvement, and it is hoped that a perfect drug will be found; but until then, nitrate of silver should be the standard remedy, for it can almost invariably be depended on to destroy the microorganisms, and after all that is the main thing to be considered. Besides this all the objections to its use are really trifling, and can be easily overcome. Cases of injuries to the epithelium are extremely rare: continued redness is not often seen; the pain is slight and temporary: deterioration can be overcome by only using absolutely fresh solutions: and it is easy to only use one or two drops. Many careful observers believe that the two per cent. solution of Credé is unnecessarily strong and severe, and that just as good results will be attained by a one per cent. solution, thus reducing by one half the objections to its use. It is quite possible that this view is correct. It should not be forgotten, however, that cases where a two per cent. solution have produced really objectionable results are extremely rare, and might have been easily due to drug deterioration, rather than to drug strength. The cloudiness in a deteriorating silver solution is due to the liberation of free nitric acid, which is, of course, very irritating to the delicate ocular epithelium.

In order to provide free and reliable silver solutions some states and cities prepare and distribute fresh and carefully compounded solutions to doctors and midwives on application. For instance, New York State distributed last year nearly 20,000 outfits of a one per cent. solution of nitrate of silver. Circulars in English, Italian, and Polish were freely distributed through about 1,600 health officers to doctors and midwives. It cost about \$5,000. Think of the economy of this measure, to say nothing of its benefits to individuals, families, municipalities and mankind in general. Free distribution does not imply parsimoniousness on the part of doctors and midwives. It is done to provide reliable aseptic solutions to prevent accidents in writing prescriptions and in druggists' work, to insure against drug deterioration, etc.

Twelfth. One almost insurmountable difficulty in the way of proper treatment of ophthalmia neonatorum is the paucity of resources in combating the disease. This disease apparently has no friends. Nobody wants it around. A small hospital should be established in all large cities for the prompt reception of such cases. Or it should be clearly understood by health officers, doctors, midwives, and visiting nurses, that certain hospitals will receive such patients, in special wards, at any time, day or night, and undertake to provide expert medical attendance, care, day and night nursing, etc. Mothers who are nursing their babies should either stay with them or come at stated intervals if pos-

sible to continue the nursing. Its progress is swift and terrible. A few hours may mean permanent blindness. There is no time to wonder what can be done. This should all be understood beforehand, and prompt action immediately taken. Private homes, especially of the squalid variety, are no places for the treatment of this disease.

Thirteenth. Health departments in the larger cities should employ an experienced eye nurse to search out and follow up cases of ophthalmia neonatorum, and to see that immediate action is taken when cases are found.

Fourteenth. I believe that great benefit can be accomplished by the free and frequent distribution of brief and pointed pamphlets, printed in several languages, by some central organization such as the National Committee for the Prevention of Blindness. Such leaflets should be sent to different organizations in the different states, such as boards of health, dispensaries, etc., to be freely and frequently distributed to doctors, midwives, expectant mothers, etc. I am here submitting a sample of such a leaflet.

WHAT TO DO BEFORE THE BABY IS BORN.

1. The care of a child's eyes begins BEFORE it is born.
2. The mother's parts, through which the child passes at birth, should be washed several times a day with soap and water, for about one week before the baby is born.
3. If a discharge comes from these parts, the mother should at once consult a doctor at his office or take it to a free dispensary, for this discharge, if not stopped, will be a TERRIBLE POISON to the baby's eyes.
4. This discharge may be caused by the "Bad Disease," or it may not.

In either case it should be stopped, OR A BLIND BABY MAY BE THE RESULT.

5. If for any reason a doctor is not consulted, the mother should not only keep her parts clean, with soap and water, but she should get a fountain syringe and syringe out her parts, several times a day, with warm, boiled, soap and water.
6. The mother should be careful to keep her hands clean and to keep her hands away from her eyes, or she may get some of the poison in her own eyes, and cause blindness.
7. All cloths, etc., used by her in cleaning her parts SHOULD BE BURNED, as they may be full of poison. It is better to get quantities of cheap cheese cloth and then burn it.
8. If the mother has a discharge coming from her parts, she should keep away from the other people in the family as much as possible, for she may poison them and cause the same disease, and possibly blindness.
9. If the mother has a discharge, she should try and use a separate water closet or vessel, and keep everything perfectly clean with soap and water cleansings.
10. IT WOULD BE BETTER FOR BABIES TO BE BORN IN HOSPITALS, where everything is convenient and clean, and where the mother may be sure of a good doctor and nurse, and where, if mothers are too poor to pay out money, they can be cared for free.
11. If the mother does not go to a hospital she should, if possible, call in a good doctor, as midwives are unsafe.
12. If the mother is poor, she should not forget to call a visiting nurse. THEY KNOW THEIR BUSINESS and CAN TELL THE MOTHER what to do.

WHAT TO DO AFTER THE BABY IS BORN.

1. As soon as the head is born the mouth should be swabbed out with a cloth upon a finger, the face should be washed with clean water, and the lids should be especially cleaned.
2. After the child is separated from the mother, the face should be again washed, WITHOUT SOAP, giving especial attention to the lids.
3. The eyes should now be washed out with a solution.

of boracic acid. To do this, take a pint of clean water that has been boiled and allowed to cool. Then put two teaspoonfuls of boracic acid in the water and stir it up with a clean spoon. Then open the baby's eyes and flush them out with a few teaspoonfuls of this solution.

4. The lids should now be opened and two or three drops of a two or one per cent. solution of nitrate of silver should be carefully dropped into the eyes.

BE SURE the medicine gets INTO the eyes.

This should be done ALWAYS, EVEN in cases where there is no reason to suspect disease.

IT ALMOST SURELY PREVENTS DANGEROUS "BABY'S SORE EYES!"

5. The drops usually make the eyes a little red for a few hours, but this does no harm.

IF IT IS NOT DONE, A BLIND BABY MAY BE THE RESULT.

6. Mothers should BE SURE that this is done, EVEN if the doctor does not think it necessary.

7. Mothers should not think that breast milk, or tea leaves, or poultices, or ANYTHING ELSE, will serve the purpose. Cleanliness and the nitrate of silver solution are the only things that will do; ESPECIALLY THE SILVER SOLUTION.

8. If the baby's eyes get red a few days after birth, THE BABY SHOULD BE TAKEN TO A GOOD DOCTOR AT ONCE. Or, better still, take the baby to a good eye doctor AT ONCE.

DO NOT WAIT, thinking it is "just a little cold," and hoping the eyes will be better in a day or two.

10. Do not listen to what the neighbors say. CONSULT A DOCTOR AT ONCE! DELAY MAY MEAN BLINDNESS TO THE BABY.

11. If a newly born baby has "sore eyes," the best place for it is IN A GOOD HOSPITAL, where it can be properly cared for. Such cases require careful treatment EVERY HALF HOUR DAY AND NIGHT. If the child is not taken to a hospital, however, two paid nurses, or two visiting nurses, should take care of the baby, day and night.

ALL THIS COULD HAVE BEEN PREVENTED IF THE SILVER SOLUTION HAD BEEN DROPPED INTO THE EYES WHEN THE BABY WAS BORN!

12. All cloths, cotton, etc., used around the baby's eyes should be INSTANTLY BURNED. Every one touching or treating the baby should keep perfectly clean. THE HANDS SHOULD ALWAYS BE WASHED IMMEDIATELY AFTER TOUCHING THE BABY. People coming in contact with a baby having "sore eyes" should, if possible, be kept in a SEPARATE ROOM, away from the rest of the family.

On the first or outside page will be the following printed matter:

BABY'S SORE EYES AND HOW TO PREVENT THEM.

CLEANLINESS AND TWO DROPS OF THE FOLLOWING FORMULA WOULD HAVE PREVENTED THIS CHILD FROM BECOMING BLIND. (Picture of a blind child.)

Nitrate of silver, eight grains, or four grains.

Distilled water, one ounce.

Put two drops in the baby's eyes immediately after birth. The face and lids should first be cleaned with pure warm water.

THIS FORMULA CAN BE OBTAINED AT ANY DRUG STORE, AND MUST BE USED ON EVERY BABY.

7 WEST MADISON STREET.

Irrigation of the Subarachnoid Space.—L. B. Alvord (*Journal of Nervous and Mental Disease*, November, 1918) by employing a suitable technic succeeded in passing certain solutions from one extremity of the subarachnoid space to the other both in animals and the human cadaver. He suggests that this procedure may offer a useful method of investigating the action of drugs in the meningeal spaces and perhaps of studying the physiology of the cerebrospinal fluid. It is possible also that it may be utilized in certain types of meningitis to clear away the exudate and to bring immune sera, or antiseptic solutions, into contact with the vital centres of the brain.

CHRONIC HEADACHES WITH PAINFUL POINTS.

By GEORGE T. STEVENS, M. D., Ph. D., F. A. C. S.,
New York.

It is my purpose to call attention to the common form of frequently recurring headaches associated with painful points in the region of the back of the head, of the neck and back, a combination which is about as frequent as simple headache unattended with other pains. In my prize essay, published by the *Académie Royal de Médecine de Belgique* thirty-five years ago, the painful points are thus located: "Habitual pain at the origin of the trapezius muscles, at the point over the extremity of the spinous process of the seventh cervical vertebra, and at the lower angles of the scapula. Less common but quite characteristic pains accompanying headache are between the angles of the scapulas and at the lower part of the dorsal region. It is worthy of observation that, in general, if the pain is habitually experienced at the lower ends of the scapulas, it is rarely found at the point over the spinous processes of the vertebræ situated between these points; and again, if pain is habitual over the spinous process of the seventh cervical vertebra, it may be presumed to exist at one of the other localities below it. . . . Other . . . pains are, at the turn of the shoulders and along the course of the triceps muscle and in the upper part of the chest." (From the version of the essay in English, page 36.)

Attention had been called to some of these painful points before, but in less definite detail as to location and number and they had been attributed to that scapegoat for many ills, rheumatism. It is easy to attribute pains of obscure origin to rheumatism, for it is hard to prove that they are not rheumatic. It is far too much the fashion thus to account for unexplained pains by labeling them rheumatic. It is comparable to the earlier expedient of attributing obscure symptoms to "liver complaint," which served so long for a final resort for easy diagnosis, and to "malaria," which still serves as a final verdict in most cases where a correct analysis would be too much trouble. Beside the points indicated above, should be mentioned that of the forehead at or just above the brows, the vertex of the cranium and finally the lowest point of the spinal column. These are in some cases the local manifestations of chronic headache with painful points, sometimes one group and sometimes another of these painful points prevailing.

Before I was better informed I attributed these and some other localized pains which accompany the symptom of chronic headache to the principle of reflex and I was able in a great many of these cases to banish these supposed reflex results when I relieved the patient of the assumed cause of the reflex. But the view of reflex seemed too narrow with the advance in observations and the question arose again what should account for the habitual localization of this group of well defined points of discomfort or pain which were secondary to the more diffused pain in the region of the head.

Owing to the fact that these painful points were

not uniform nor even constant with chronic headache they were, for the most part, generally overlooked or regarded as simply a part of the general nervous disturbance accompanying the headaches and even in treatises devoted to headaches especially were passed over in silence. Now, phenomena as prominent as these points are not to be ignored or regarded as simply parts of a symptom complex and it is well worth while to inquire what may be their origin and what their immediate cause. As remarked above, they were and are assigned to rheumatic origin. But why the rheumatic affection should confine itself to these special locations and not to others and why they should appear in certain groups affecting in one group certain localities, while in others certain other well defined relations of localities should experience the discomfort, was left quite unexplained.

The truth is that these phenomena were either unobserved or assigned to obscure and fanciful causes. In character they are of differing intensity and of unequal duration. They are not of the intensity of a severe neuralgia nor are they usually accompanied by severe paroxysms, continuing for a few moments and then followed by intermissions. They are usually of a more or less continuous and rarely of an intense character. They are often revealed by pressure, even a moderate compression serving to intensify the pain. The affection is somewhat more common in women than in men and is not common in children; in fact, it is generally about the age of fifteen that it makes its appearance.

As early as thirty-five years ago I recognized certain groupings of these painful points and observed that if these points were located above the spinous process of the seventh cervical vertebra all the points were likely to be found above this point; whereas, if this cervical vertebra locates a painful point other sensitive locations are found below this locality. There were, therefore, regions of the body which were subject to these pains in groups which were pretty well defined. If these pains arose from malaria or rheumatism or liver affection what was to account for the special and almost uniform grouping of the painful points? Now, to what cause can we rightly attribute these distressing points with the accompanying headache?

As I have remarked above, before I was better informed I attributed these points to the principle of reflex and reflex from eye peculiarities, for, with the correction of certain eye defects the pains as well as the headaches often disappeared. This view of reflex was seen to be too narrow when the results of examination by the tropometer and the clinoscope became known. Indeed, very many phenomena which I had regarded as of a reflex character proved by these scientific means of examination to be direct results of specific mechanical causes which had their origin in the peculiarities of the adjustments of the eyes. These new views opened the way to a practical relief to a class of cases which had been only partially or not at all relieved by preceding methods.

Let us inquire into the reasons for these painful points. For the present we may defer the discus-

sion as to the cause of the general headache, though, as we shall see, they are related to the same general class of causes. Our attention is drawn to the important fact that these points are situated at prominent locations which are the positions of the attachments of important muscles or their tendons. They all have to do with the balancing of the upper parts of the body and are all influenced in their tensions by the position of those portions of the organism. Let us for a moment recall them to mind.

Leaving the frontal pains for the time, which are often more diffuse, and the pain at the vertex of the skull, which is in certain cases very acute but still somewhat diffuse, they are: First, the location of the two occipital protuberances; second, the extremity of the spinous process of the seventh cervical vertebra; third, the lower points of the scapula; fourth, the vicinity of the twelfth dorsal vertebra, this point being, however, more or less diffuse; fifth, the turn of the shoulders, this point being also diffuse, and sixth, and finally, the point at the lower extremity of the spinal column. These are the most commonly conspicuous points of pain associated with chronic headaches, and some of them are painful points even when headaches are rare.

We should associate these pains with the muscles whose attachments at these conspicuous points are subject to special tension under certain conditions. There is no reason, for instance, why pain should be located at the point of attachment of the splenius capitis, the most common of these painful points, simply because one is affected with malaria, though the fact that one has malaria might tend to emphasize any special sensitive points which might exist. Some cause, therefore, should exist for special tension of the muscles at their attachments at these points.

This is found in the relative positions of the parts of the body to other parts of the organism. In the case of the muscle above referred to the tension would arise from a backward pull on the occipital prominences. Or it might be a forward balance of the cranium which brings a tolerably constant tension upon the same muscle. Are there, in certain individuals, reasons why the cranium is tilted backward or leans much forward? For, in the ideal posture of the cranium, it would be carried in an erect position relative to the spinal column, the position of greater equilibrium, and therefore the most restful. Naturally there must be changing relations between the body and the head, and abundant provision is made for such changes. But in the interest of an equilibrium of muscular tension there must be, and there is, a natural relation of the greatest repose. To this natural relation the head adjusts itself to the body as a rest much of the time and another form of adjustment is accompanied by fatigue or pain if continued for a long time. And this long time depends upon a number of elements, for example, the age of the individual, the general state of health, the degree of fatigue to which the person has been subjected; these and other conditions influence the degree of discomfort experienced

from a failure of equilibrium in the adjustment of the cranium to the remainder of the body.

But what should cause a loss of equilibrium between the head and the remainder of the body? We are continuing to inquire in regard to the relations of the *splenius capitis* and the head, and between this and the painful points at the insertion into the base of the cranium at the basal prominences. The other points require special discussion. It is evidently not malaria, nor rheumatism, nor indigestion. It is a mechanical reason and should be considered from that point of view. What mechanical reason exists for this absence of equilibrium?

Years ago I indicated that this and various other positions of the head are dependent on the natural desire for clear vision, and that this clear vision is dependent upon certain adjustments of the eyes. This relation has not been accepted with readiness, yet it is the true solution of the problem of painful points as well as the recurring headaches. The questions to be determined are, in what way does the demand for clear vision affect the pose of the head, and in what manner can the pose of the head in its relation to the body influence the painful points? In response to the first question it may be asserted without qualifications that the adjustment of the eyes influence the pose of the head in a very marked degree. The plane in which the orbits are arranged and the leaning to which the vertical meridians of the eyes are subject are contributing elements in the problem. In the first case, if the plane of vision is somewhat depressed, as it is in case the orbits are adjusted in such a way as to induce such a depression of the plane of vision, then both the muscles immediately affecting the direction of the eyes and the surrounding muscles of the ball are brought into action. Not only these but those at the posterior aspect of the cranium are enlisted in the work of adjusting the plane of vision to its most effective level. For a corresponding reason the position of the head is influenced in order to adjust for certain declinations.

On the other hand if the plane of vision is too high, which it may be by reason of the direction of the orbits to the cranium, or if, by reason of certain forms of declination of the vertical meridians, an approximation to the best adjustments of these meridians can be made by throwing the head forward. This is accomplished in the interest of clear vision by the means of adjusting the muscles of the neck.

These are not fanciful conditions conjured up to brace a theory, but practical every day facts of which any one with his eyes open to the truth can assure himself. They are facts which have been often stated but are too generally overlooked. In the case that the head is habitually raised the large *splenius capitis* is one of the most influential agents in the process while in case the head is thrown forward the trapezius muscles are largely involved in the action of supporting the cranium with their influence upon the spinous process of the seventh cervical vertebra. These are but prominent examples of the tensions which occur in the adjustments of the head in response to the demands of clear vision. Other and various muscular influences are brought

into effect in the process of adjustment, which will occur to the thoughtful observer. Many of these have been largely discussed in former communications and it is hardly necessary to repeat them here.

If we take these muscular tensions into consideration it will not be hard to locate the reasons for the painful points of chronic headaches nor will it be difficult to assign other specific causes if we examine with intelligence the conditions of the eyes and their immediate surroundings. Now, an important inquiry arises as to the reason for the headaches themselves. They are the response to similar influences to those which give rise to the painful points. They are, by reason of the more general and in many cases more flexible attachments of muscles involved, of a more diffuse character. For example, the frontal pain in the ordinary form of headache arises largely from the tension of the frontal muscle. To this may be added various muscles of the face and especially those controlling the eyes. The latter are especially involved in the general pain of headache and may arise from the tensions due to adjustments of the eyes or to accommodation. In the latter case the pain is likely to be more localized than otherwise.

There are, associated with these pains, other more general symptoms such as general malaise, nausea or vertigo. These general symptoms may arise from the pressure of muscles upon certain nerves or from the position of the cranium in its relation to the body. In either case a nerve pressure may act as inducing cause. These headaches are influenced by general causes, such as long continued fatigue, confinement in impure air, and malnutrition, etc., but these are contributing and not original causes. The remedy is found in such attention to the condition of the eyes as may be demanded by the state of accommodation or adjustment.

It is true that temporary relief may be obtained from various expedients, including rest, change of air or scene, tonics, attention to the teeth and other means but these are of only temporary service and more radical measures are demanded for a permanent cure. The use of properly adjusted glasses will in a certain proportion of cases serve as effective and permanent means of relief. In other cases the position of the eyes in relation to the cranium may require adjustment. These last receive by far too little attention.

Without a proper adjustment of the eyes to the cranium the employment of glasses is often far short of a means of relief. The question of the sufficient rotations of the eyes and the great importance of declination should be realized and made the subject of careful treatment. With such measures as correction of refraction and correction of the adjustments of the eyes there need be no doubt as to the result of treatment of headaches with painful points.

Surgical Treatment of Gastric and Duodenal Ulcer.—R. Finochietto and R. F. Vaccarezza (*La Semana Medica*, December 12, 1918) report in detail seventy-five cases treated surgically with a mortality of sixteen per cent. Sixty-two of these cases were treated by gastroenterostomy, which the writers consider the operation of choice.

A DESCRIPTION OF THE CARREL-DAKIN TREATMENT.

A Treatise Which Has Never Used It, for the Information of Other Physicians Who May Never Use It.

BY WILLIAM P. CUNNINGHAM, M. D.
New York.

This reads like a farcical programme, but I protest that it is written in all seriousness of purpose. The general practitioner and specialist other than surgical have almost to a man passed over the subject with the indifference born of practical unconcern. They know that they will never use the method: why take time to familiarize themselves with it? This is a faulty attitude due to want of serious consideration. The logical rejoinder is twofold. First, every intelligent person ought to give heed to the intellectual developments that come within his comprehension. Second, even if the practitioner is sure that he shall never be called upon to put in operation the Carrel-Dakin treatment, he may be the first consultant in cases where it should be employed, and he will be recreant to his duty, if he does not learn of its merit and the conditions for which it is recommended. For let it be clearly understood that it is not merely a war measure. It has established a principle whose applicability reaches far into peace conditions. Peace has its wounds as well as war. Many of these will be brought to a speedy and happy termination by the adoption of this master stroke of surgical iconoclasm. Illness too, not due to trauma but resulting in complications demanding surgical intervention, will fall directly under the supervision of the general practitioner, and in such infelicitous developments Carrel-Dakin or a derivative procedure may often prove a veritable godsend. It is the purpose of this paper to get to the man who has ignored the subject and give him a little intensive mental training in its theory and practical workout. This shall be done with the least possible technical tediousness. He shall be spared statistics and scientific formulas in very great degree. The matter will be presented in a large way more with the idea of impressing the great underlying principle than the minutiae of its application. Unto the sufferer of the wounds of war has come a new Evangel.

Keen, of Philadelphia, bridging with his famous years the surgical accomplishments of two tremendous conflicts, gloomily remarked the continuance into 1914 of the complications and fatalities of 1865. Added thereunto were the deplorable consequences of more massive and more numerous injuries. Sepsis, gangrene, the loss of life and limb, followed in the wake of shot and shell undeterred by any of the alleged advantages of improved surgical methods in the interval. Surgery could take care of the wounds it made itself. There asepsis was supreme. But the mangled tissues presented to its ministrations by the horrible rending wounds of modern warfare found it impotent and afraid. Legs were coming off and men were dying in ever growing and appalling numbers because of the failure of surgery to provide effective intervention. War wounds were all infected wounds. No means had been evolved of meeting that infection.

Asepsis was helpless against it. Antisepsis had been decried as an unattainable dream. The attitude of Lister, in the course of the development of the principles of asepsis was relegated to the rear and regarded as a halting step in the direction of higher things. With antisepsis held in such esteem little was possible for the cleaning of the field rent by shrapnel and riven by foreign particles. The soldier was foredoomed to die or to lose one of his members. Sepsis was certain and its subjection a most unpromising problem. If he recovered after the usual protracted convalescence, he was a used up man probably minus a leg or an arm, or nursing a chronically suppurating sinus. The cleansing of the wounds by the methods in vogue and the application of the principles of drainage were powerless against the forces let loose by the driving into the extensive lacerations of germ laden foreign bodies, and the creation therein of necrosing foci of muscle tendon, fascia, and bone. Irrigation was useless against the conditions presented, and drainage drew off a negligible number of the destructive bacteria. If any head was to be made against the disastrous situation it could not possibly be along the lines pursued by the prevailing school of military surgery.

Providentially the man had arisen with the wit to see and the courage to proclaim a radical alteration in the management of wounds which would put an end to this increasing reproach. He boldly arraigned the accepted principles as utterly incapable of accomplishing the object aimed at; nay more, of actually accelerating disaster. The early closure of wounds was a reliable method of developing septicemia. The draining of infected wounds took no account of the necrotic tissues and the narrow tracts that harbored and begat bacteria. Sterilization was impossible under the circumstances. And sterilization was necessary for the preservation of life and the restoration of function. How was it to be effected? Nothing trickling over the surface of the wound and running off by way of a drainage tube could be of any service. The disinfecting solution (if one could be procured) must be kept in contact with the infective bacteria constantly and in concentration sufficient to destroy them. This at once negated drainage. Carrel saw that the wound in all its recesses must be constantly bathed in a solution of ascertained and reliable germicidal power. To realize this two elements entered into his problem. One was to find the solution and the other was to keep it from running out of the wound. This was a complete reversal of the procedure hitherto in vogue which favored the easy escape of discharges. The underlying principle of Carrel's treatment is thus seen to be the complete antithesis of the principle actuating the opposing school of surgeons. Drainage is to be avoided. If it exists it is to be stopped. Under no circumstances is it to be established. It is not drainage but the destruction of pyogenic bacteria which is sought. These must be hunted out in all of the nooks and crannies and devious bypaths of the ragged laceration. If any escape attention they will inevitably defeat the treatment. It is evident that no intermittent washing of such a wound with any sort of sterilizing fluid will achieve any appreciable result. Constant contact with the infected areas of a solution of suf-

ficient strength to destroy bacteria and of a character not to destroy the tissues, is the object aimed at. After much experiment Dakin found that in the neutral hypochlorite of soda he had a remedy which in one half of one per cent. solution would destroy bacteria and would not interfere in any way with the cicatrization of the tissues. It would also dissolve necrotic bits of tendon and fascia which otherwise would maintain the supply of microorganisms. After two hours it had lost much of its efficacy because of its union with the protein elements of the infected locality and renewal was indicated. Thus the revolution in surgical practice developed. Carrel established the principle and Dakin the means. At the military hospital at Compiègne the method was put to the test and success was immediate. Wounds that had demanded amputation and threatened life by causing prolonged septicemia yielded promptly to scientific sterilization, and afforded results of unparalleled brilliancy. The reports of these marvels reached Paris, only two hours away, but Paris declined to be impressed. It refused to investigate. It pooh-poohed the idea without stopping to consider it. In the hidebound conceit of scientific positivism, it refused to surrender any of its preconceptions. The thing was all wrong because it was done on a principle subversive of rational surgery. Results counted for nothing in the face of this *a priori* antagonism. From May, 1915, wounds were disinfected with this method and by September, 1915, suppuration might have been suppressed in the French hospitals but for the unfortunate opposition met with in the Société de Chirurgie and the Académie de Médecine. However, earnest men who had seen for themselves the proof of the new conception persisted in their efforts to secure its adoption with the result that today it is widely accorded the appreciation it deserves. Here and there conceit or intolerance will not surrender but the instances are becoming more and more isolated and inconsequential. To the propagation of this wonderfully simple and effective principle of wound sterilization the War Demonstration Hospital, at New York, has markedly contributed. Designed to illustrate this and nothing else its hundred beds have furnished Doctor Carrel with splendid means of spreading his gospel among the quick witted American surgeons. Young men called to the colors have been there instructed in the practical working of the system before they were confronted with the actual problems of the battle field.

Having grasped the fundamental idea of the Carrel-Dakin treatment of infected wounds, the details of its application present absolutely no mental difficulties. Concrete difficulties there may be aplenty, in making adjustments upon the operating table but the ratio agendi is in every instance of the simplest and most direct. Given a lacerated wound of the thigh into which have been thrust fragments of clothing, dirt and shell; what are we to do? First and foremost remove all the foreign matter. So far surgeons are all agreed. Open up the wound in all of its ramifications and effectually clean it out. The size of incisions is of no consequence and does not add to the gravity of the case. The

patient's chance of complete recovery depends not on the trauma, but on the resulting infection. Hence it is imperative to get out of the wound everything that has been forced into it, no matter how far we may have to follow it. Especially must all little inconspicuous tracts be wiped out as they shelter foreign particles or prove inaccessible foci of suppuration. Everything having been laid open so that the whole extent of the wound may come under the eye, it is thoroughly cleaned out with scalpel or scissors so that no fag ends of tendon or fascia are left behind to suppurate. Bruised muscular tissue should be removed as it is certain to cause trouble from its speedy necrosis and its being the host of shreds of clothing or minute fragments of projectile. The cleansing having been effected and hemostasis accomplished a tube or tubes carried to the bottom of the cavity will distribute the hypochlorite of soda solution to every part of it. If the cavity is single and cup shaped one tube may suffice. If it is irregular and has several ramifications that cannot be converted into one chamber a tube must be placed in every one of these. It is essential that no region that has suffered injury shall be omitted from the influence of the sterilizing fluid. The overlooking of even a slight diverticulum may be the cause of persistent infection. The tubes having been put in position, the solution is allowed to run in under gravity pressure, until the cavity is filled. A dressing of two layers each of gauze and cotton wool is placed over the wound, care being observed not to kink or choke the tubes. The skin is protected from irritation by pieces of gauze soaked in sterilized petrolatum. After two hours the same amount of fluid is allowed to run in again. The gauze dressings and the one layer of absorbent cotton wool catch the excess which is not sufficient to make the patient uncomfortable. Every two hours fresh solution is allowed to replace that which has evaporated or lost some of its sterilizing power in the cavity. Once a day the dressing is changed. At this time, on alternate days, smears of the various sections of the wound are taken and examined for bacteria. The progress of the infection is thus accurately recorded. The number of bacteria in a wound that is advancing favorably, soon diminishes, and finally falls to one to several fields. When the proportion is one bacterium to five fields the wound is surgically clean and may be closed. It is obvious that in this method nothing is left to chance or surmise. Certainty is had by the bacteriological supervision and when the wound is pronounced clean there is no doubt about it.

After closing such wounds they give no trouble in a great majority of cases. The time in which this consummation may be brought about varies with the interval between the injury and the cleansing and with the character of the trauma. Many wounds may be sterilized in a few days; from five to eight. If there are fractures the time will be longer but the outcome is just as sure. If the wound is badly infected when treatment is begun, because of a long interval since its infliction or of faulty management at the beginning, it will naturally require more protracted care before it yields to the hypochlorite. But the

worst of them yield eventually unless absolutely fatal by reason of the involvement of blood vessels or vital organs. If a wound resists the proper application of the solution and sepsis persists it is positive that there is a foreign body somewhere in its depth, and search for it must be made. A bit of shell no bigger than a bird shot may have escaped our "mopping up" and may be maintaining a focus of infection. If it is rooted out the whole aspect of the case will promptly change. It cannot be too strongly impressed even at the risk of tiresome reiteration that the requisites for success are open fairways for the disinfecting solution and bacteriological control of the situation. If the fluid can reach all the recesses of the injured depths and the microscope keeps toll of the bacterial recession we can not possibly go astray. When the wound is closed it is closed for good. The tubes are applied directly to the wound without the interposition of gauze or wicks because a layer of gauze upon a shallow wound for instance would soon become impregnated with the discharges and impervious to the disinfecting solution. In deep and narrow diverticula, it is necessary to wind turkish towelling around the tube to bring the instilled fluid to all parts of the walls. The tube being perforated with several holes allows the fluid to trickle out and pressure passes it through the wrapping. This device is serviceable also in cavities with dependent drainage which will not retain the fluid. Large cavities of this sort are plugged at the bottom, with gauze, to occlude dependent drainage. Tubes with lateral perforations are employed where more than one have to be inserted. If the wound is a single cavity, it is served by one tube with an opening only at the end. If however there are compartments to be filled tubes with lateral perforations are demanded. They are of red rubber, with a calibre of four mm. and a mural thickness of one mm. They are flexible and strong; capable of being insinuated into tortuous tracts without yielding to muscular pressure and contracting their lumen. There are about eight holes to each five cm. Their diameter is about one fiftieth of an inch. These instillation tubes are connected with glass distributing tubes with two or more branching stems. These are made in the shape of the letter Y or of a comb with three or four teeth. They are connected with the supply tube from the reservoir, which is controlled by a pinch cock. The reservoir is a flask holding one litre. Every two hours a nurse releases the pinch cock for a few seconds and thus renews the instillation fluid. In wounds supplied by a single tube, the continuous method of instillation may be employed. Here the tube is fitted with a drop counter and a screw pinch cock regulating the flow. When the intermittent method is in use, the nurse can pass quickly through a ward, and release the necessary amount of solution for a large number of cases. In extensive institutions, an electrical apparatus may be installed, to release the solution simultaneously for the whole establishment. These are details which may be adjusted to the needs or accommodations of the various hospitals. The solution we have seen is the hypochlorite of soda rose colored by potassium permanganate to stabilize it

and prevent its being mistaken for normal saline. It is made from chloride of lime, anhydrous carbonate of soda, and bicarbonate of soda.

The chloride of lime of commerce is very variable and it is important to use a specimen of known titration. Chloride of lime whose titrage is twenty should be used in the proportion of 230 grams to ten litres. To this must be added 115 grams of anhydrous carbonate of soda and ninety-six grams of bicarbonate of soda. This will give a solution of hypochlorite of .475 per cent.

Put the chloride of lime into five litres of tap water. Shake vigorously and allow to stand overnight. Dissolve the soda in five litres of cold water. Mix contents of the two flasks, shake and allow the carbonate of lime to settle. After about an hour siphon off the supernatant fluid, filter and protect from the light. A small quantity of permanganate of potassium may be added as already noted. This solution contains no free alkali which would be extremely irritating to the tissues.

The bactericidal action of the hypochlorites is due to the formation of substances at the expense of proteins, containing chlorine in combination with nitrogen. They are formed in situ when wounds are treated by hypochlorites. After the disappearance of free hypochlorite there still remains a substance having antiseptic power. Certain aromatic chloramines forming soluble salts give similar or superior germicidal results. The most efficacious of these is paratolouene sodium sulphochloramine. It has marked antiseptic power and can be used more concentrated than the hypochlorites. It is a by product in the manufacture of saccharine and is sold under the name of dichloramine-T. It is highly germicidal, soluble in oil, but not a solvent of necrosed tissues. Dakin's hypochlorite being strongly bactericidal, a solvent of necrosed tissue and cheaply and readily made; it is the antiseptic of election for the purposes of the war. Chloramine rapidly decomposing in contact with the tissues is much more expensive because of the necessity of quickly replacing it. It should be reserved for wounds already cleaned or for skin and mucous membranes.

The hypochlorite solution may also be made very readily by passing chlorine gas into solution of soda. A chlorinometer indicates the amount of gas combining with the soda: so that the right strength of chlorine may be obtained.

There are three stages in the pathology of wounds inflicted on the battlefield. One is the pre-inflammatory; the second is the inflammatory, and the third is the suppurative or phlegmonous. The management varies with the time elapsing since the wound was sustained. If the patient comes to the operating table in less than twenty-four hours, interference may be bold and fearless. Inflammation has not yet developed and bacteria have not appeared in numbers sufficient to give us pause. The "toilet" should be thorough and far reaching. The track of the missile should be excised to get rid of the foreign matter and of the bacteria which have accompanied it. No amount of swabbing will accomplish this as they have been forced into the tissues. The loss of substance is of no practical con-

sequence as it is bound to slough if allowed to remain. All bruised and damaged muscle tendon and fascia must therefore be ruthlessly sacrificed, regard being given of course to the restoration of function after the infection is controlled. Special care must be exercised in seaching out and obliterating pockets and narrow tracts, where infection would lurk undetected, but not inactive. The whole wound should be made, as far as possible, into one cavity. The incisions through the skin and underlying parts must be long and free. The problem is to get out foreign and infective material and make a clear road for the operation of the instilled antiseptic. No damage to the soft parts which does not include vessels, nerves, or tendons need be taken seriously. It is not the extent of the wound but its subsequent infection that produces most of the evil effects. So, free exposure of the entire depths offers the best chance for combating this disastrous complication. When this has been accomplished in a recent wound, the tubes may be inserted at once and the instillation begun. The inflammatory stage will be avoided or abridged. Pain and swelling will be forestalled or minimized. If the surgeons at the advanced stations who first minister to the wounded man will confine their efforts to the laying open of the field of trauma and such cleansing of the parts as may be possible with their facilities, they will contribute largely to the saving of life and function, because even if the instillation of the antiseptic cannot be begun until the patient is transported to a better equipped establishment, the preparatory measures have been taken, and the full treatment can be instituted as soon as he is favorably situated. Otherwise, if the wound has been left unopened; if it has been simply cleaned up in the ordinary sense or if ambitious but misguided surgery has attempted to close it, then, when the opportunity occurs a day or two later to apply the Carrel-Dakin treatment, the inflammatory stage has been reached, during which time it is felonious to meddle with the condition at all. If we are presented with such a situation the only recourse is to apply fomentations of hot water and alcohol and maintain the patient's strength in his fight until the inflammatory stage has passed into the suppurative or phlegmenous. Dakin solution may be dropped into such open spaces as exist. But no attempt should be made to establish others. If the patient happily survives this period, if gas gangrene does not take his life or his limb; if fatal septicemia is successfully combated; he goes over into the third or suppurative stage during which much may be attempted and accomplished by recourse to the Carrel-Dakin method of sterilization. Abscesses should be opened, infiltrations of pus in the muscular sheaths should be evacuated; the tissues cautiously incised to make room for the tubes and after the acuteness has entirely subsided, a search for foreign bodies and necrotic tissue instituted. Wounds reaching this stage come readily under the influence of the antiseptic and are soon converted into surgically acceptable cases for secondary closure. The bacteriological examinations made every second day give the watcher absolute mastery of the situation. When the percentage of microbes

falls from one to five per field the case is surgically clean and may be closed with perfect security. The closure of a wound of the soft parts brought under the influence of the hypochlorite within twenty-four hours can be effected in from five to eight days. The wound, that has come under its influence later than that: where inflammatory symptoms have developed and where time is consumed in dubious expectancy, naturally will experience a more protracted convalescence. But even under these unfavorable conditions, closure should be possible within twenty days.

Wounds complicated with fracture necessarily offer a more serious outlook than those already discussed. If the fracture is clean (that is to say is not comminuted), the instillation treatment will, after the lapse of six to twelve days, allow of the closure of the soft parts over it and its conversion into a simple fracture which will solidify in the usual time. Here the tube must carry the solution down to the ends of the bones which should have a little of the marrow removed to make certain that no infection lurks therein. If the bones are splintered, the loose fragments are to be removed, but large attached ones are to be carefully retained; the periosteum especially being preserved for the regeneration of osteoblasts. If bones are grooved or scratched or rasped, those places must be scraped to remove the foreign matter that is affixed to them if after the subsidence of infection, and the arrival of the moment for secondary closing, there is a gap in the length of the femur for example, it may be filled in by an adipose graft. An adipose graft is a piece of fat cut out of the patient's abdomen or buttock and inserted between the shortened fragments. If asepsis has been attained this will furnish a framework for the reduplication of osteoblasts from the proximal ends. The result is good when the conditions have been scrupulously carried out. The patient who under other methods would suffer amputation is set upon his feet again with a serviceable limb.

Where irremediable damage has been done to a limb and its amputation is unavoidable the amount of tissue sacrificed is very much lessened when the Carrel-Dakin method is used. If the circulatory destruction is so great that the distal portion of the limb is doomed, it may be taken off through a section, which though too much injured to provide a flap, is yet in such a state that it may be sterilized into surgical adaptability and on healing will provide a stump many inches longer than under the system of immediate amputation. The sterilization here is accomplished by means of a rubber tube perforated with many holes in its middle portion and attached by both of its unperforated ends to a glass distributor. The perforated part is laid upon the stump in the form of a circle or loop and the solution distributed over it by means of the intermittent method usually employed. The infection will soon be under control and the necrotic shreds and contused debris dissolved away by the hypochlorite.

If, after closure, evidences of internal disturbance occur in the wound; if pain, redness, and swelling appear; if the patient's temperature and

pulse, start upward; there is nothing for it but to admit, that for some undiscovered reason the sterilization was incomplete in spite of the evidence of the microscope, and to reopen the approximated edges and search anew for foreign matter or necrotic tissue. Occasionally the reinfection may come from the skin, but this is unlikely if it has been properly handled in the days preceding closure. It should be cut away to the extent of two mm. at the initial toilet and if the condition is an old one (reckoning the chronology in days) it must be loosened from the underlying tissues along the edges. When the sutures or other means of coaptation have been divided and the wound is again agape the sterilization must be renewed and on the subsidence of acute manifestations the hunt for retained particles (missile, dirt, clothing, or mortified organic matter) is to be resumed. It is rare that this embarrassing situation is encountered. When the microscope tells us again that the bacterial count is at the level of safety closure may be effected with as much confidence as in the first place; in fact with greater confidence in view of the resterilization.

The means of closure are threefold: First, if the edges come readily together, adhesive straps may be set at right angles to the line of union. Under these should be laid a strip of sterilized paper or celluloid to prevent infection from them. If the edges are yawning widely and apposition is impossible at the time elastic traction may be used to gradually reduce the interval, and either obliterate it eventually or so contract it that cicatrization can proceed with much greater rapidity. This is accomplished by laying strips of plaster provided with lace hooks parallel with the edges of the wound, and bringing them as closely together with elastic laces as may be without distorting them. Little by little the tissues yield to the constant traction. When sutures are indicated from the nature of the injury a general anesthetic must be employed. At the time of closure deep structures and aponeuroses may be brought together, and tendons and nerves sutured. Everything necessary in the way of repair may be effected just as in a wound made by the surgeon for a pathological process under the strictest aseptic precautions.

It has been noted that objectors to this method of wound treatment were numerous and resolute although rather losing ground in both particulars. At the beginning the opposition was based on purely academic considerations. The innovation was contrary to the accepted doctrine of the prevailing surgical cult, therefore it could not be sound. There was no need of going into the statistics of the ridiculous proposition. It was impossible that they could be trustworthy. A priori the whole thing was indefensible, and mendacious. It must be frowned upon by orthodox operators. When statistics accumulated to such a degree that they could no longer be waved aside, the opposition took other ground while here and there presenting the still adamantine impenetrability of the a priori obstructionist. Compelled to acknowledge that something had been attained in the way of sterilizing war wounds, those who refused to be entirely convinced

raised the cry of expense, of impracticability, and of the equal excellence of simpler procedures. Under the charge of expense they enumerated the large force of assistants in the shape of nurses, chemists and pathologists that would be needed to carry the treatment out. The solution had to be made out of chemicals of ascertained strength, combined with scrupulous accuracy. Every bed had to have an instillating apparatus. A pathologist or pathologists had to be on hand to examine smears. Nurses in great number would be needed to take care of the apparatus after it was got going. It was a slow, cumbersome and tedious performance, out of place in the rush of affairs behind a battle front. To the objection of expense Carrel had one trenchant response that rendered all others superfluous. Nothing that would save the life or limbs of a wounded soldier could possibly be too expensive to a grateful country. If the expense were twice as great as these economists maintain it would be little to devote to such an end. He who would haggle over a few additional pennies spent to guarantee the life or efficiency of the man who had gone forward in the fulness of his youthful strength to defend, among others, these very cheeseparers in his rear, was beneath the contempt of all red-blooded Americans! But, in fact, the expense is far below what the fevered imagination of the parsimonious caitif conjures up! Dressings have to be done under any system of treatment. No more people are needed for this system than for any other in that respect. The same force of doctors and nurses that can dress a certain number of wounds can as easily instal and maintain the instillating process. The tubes once inserted the fluid is kept renewed by a nurse passing down a ward every two hours and pausing a few seconds at each bed to open a cock. She could do thirty in as many minutes. The taking of smears is done once in forty-eight hours and the surgeon accomplishes this herculean task while the dressing is in preparation. The pathologist who ought to be a part of the force of every modern hospital, field or base, can count the bacteria in a very short time. Truly, the whole matter of practicability is one of system and experience and a few persons well trained can accomplish a vast amount of detail, in an astonishingly limited period. This accounts, as you see, for the question of expense, time and feasibility. The decision in every debated matter of practical concern rests with the results. No matter how firm may be our conviction that a certain achievement is impracticable, no matter how many excellent arguments we may adduce in support of our position, we are compelled to give way upon the presentation of the results which we have scouted. An illustration of this is furnished by the consternation of the Southern attorney who was pleading in court that his client could not be hung for the crime of which he was accused; and was interrupted in the midst of his eloquent argument by the report that the prisoner has been taken out by the mob and lynched! The results upset all of his logic. So here the scientific verbose disapproval of the Carrel-Dakin treatment and the contemptuous rejection of its claims by uninformed savants are

met by the disconcerting demonstration of its successful operation under circumstances of the most trying character!

A calm dispassionate survey of the evidence will convince any one except a bigot wedded to his idols, that in this departure of Carrel from the routinism of defeated surgery, an advance has been made commensurate only with that of antitoxin and salvarsan! Surgery was standing in dismay at the beginning of this war crushed by the realization that the tremendous trauma inflicted and the invariable infection resulting were immeasurably greater than its power of amendment! If conditions continued through the conflict as unfavorable as during its early months, the harvest of death and mutilation would be appalling. It was the duty of every surgeon to cast about for means of improving this deplorable prospect. Nothing that offered promise should be refused attention and investigation! It was a wretched commentary on the prejudice of the dominant system of practice, that it took nearly a year for Carrel to get even the privilege of dignified discussion at Paris. His successes had been contemptuously discredited. It was only by the tireless energy and courage of his coworkers at Compiègne, Guillot and Woimant, that the facts were eventually forced upon the unwilling notice of the medical bodies and accorded grudging consideration. The taunt that the Germans had acknowledged the value of the Frenchman's discovery while his own countrymen were ignoring it went far toward stinging them into action. Many were finally converted but many remained obdurate. Many were partly converted in acknowledging the possibility of sterilizing war wounds but decried this particular method of accomplishing it. Advocates of early closure or rather of immediate closure are still numerous in England, France, and America, but they have come to realize that asepsis must be effected first. This they claim to do by a thorough mechanical cleansing of the wound, Carrel disputes the possibility of this unless the infection has been very slight. If bacteriological control is not exercised we can never know whether the wound is aseptic. And this control is not possible in a wound closed immediately, as bacteria do not develop appreciably for nearly twenty-four hours after the injury.

A lamentable exhibition of the less creditable qualities of frail human nature is the division which has arisen between the two men who together made the new treatment famous. While the hyphen persists in the description of the process it has disappeared from their actual relations. The two are now at odds. Carrel asserts that the method of instillation is the secret of success, Dakin asserts that it is the quality of the antiseptic. As far as Dakin is concerned the system has broken down. Carrel sticks to the original proposition retaining the hypochlorite solution devised by Dakin. Dakin to belittle the method he once upheld sought for an antiseptic which should not require the instillation method of application. He searched among the chloramines and finally evolved dichloramine-T a byproduct of the manufacture of saccharine, a combination of chlorine and the amino acids. Hence

the name chloramine. A double volume of chlorine converts it into dichloramine. This product is not soluble in water but is soluble in oil. It is sprayed into the wound. Its oily menstruum, usually eucalyptol—causes it to cling to the sides of the wound and the instillation tubes can be dispensed with. Dependent drainage also may be retained, a circumstance which places this method of disinfection in direct antithesis to that of Carrel. Dichloramine-T is a powerful antiseptic. It may be used much stronger than hypochlorite. But it will not dissolve necrotic tissue. The experience of the best observers confines it to surface wounds of the skin and mucous membranes. It is not a cutaneous irritant.

To illustrate the development of thought along the lines of the Carrel-Dakin initiative, it may be mentioned that at Blake's hospital there is used a solution of quinine and acetic acid with the Carrel technic. They claim better results than with the hypochlorite. Major Sinclair of Boulogne declares that he "had no use for Carrel-Dakin" as it injures the tissues still more and washes away the antibodies which would combat the infection. Morrison presents Bipp; a compound of bismuth iodoform and paraffine. His achievements have not been reproduced to any great degree. A solution of magnesium chloride is urged by another prominent surgeon for maintaining sterility.

In the formative opinion of this period a great preponderance is for the new method. The obstructionists are prominent and clamorous. That creates the impression of strength. But persistently against fossilism, routinism, and egotism the pressure of the truth is making head! "It is hard to teach an old dog new tricks." "It is hard to wean the drunkard from the cup," "it is hard to turn the current of a woman's will," but these are trivial tasks compared to altering the trend of a seasoned surgeon's preconceptions. This stricture to be sure has the usual leaven of honorable exceptions. The big man is big in all directions. He may not like the truth as presented but his mind is so constituted that it must accept it after demonstration. But the younger element of the craft are more easily impressed. This malleable quality, not always a salutary one (as favoring the pursuit of many a will o' the wisp), has been in relation to the Carrel-Dakin conception, the means of its dissemination, prompt investigation and hearty corroboration. The men with no axe to grind, with no supremacy to maintain, with no rooted theories to defend, flew to the gospel of the new dispensation with the ardor of the neophyte! And the statistics accumulated simply compelled the acceptance of the method, willy nilly by the man at the top. The admission must be made that he has largely surrendered to the pressure and consented to readjust his ideas. Dissent is still heard, some from the mountain peaks, but it is losing volume and intensity and the wave of real conservation is rolling steadily on.

It will occur to some who read this that a good deal of effrontery is displayed in passing judgment on something which the writer has never experienced! But—do we need to fight a battle to recognize its outcome? Do we need to study the

whole system of theological dialectics to grasp the fundamental principles of practical morality? As a member of a coroner's jury may not an uninformed layman decide that a certain suicide is dead? And that the bottle redolent of carbolic acid and the burns of the lips and face rationally indicate the manner of his death? If a tremendous vote is cast for one candidate for office may not the ordinary citizen (not an expert accountant) venture the opinion that somebody has been elected? Can not a reasonable being read statistics and draw conclusions. If legs and arms and lives are preserved under Carrel-Dakin which formerly were sacrificed, does it demand an intimate knowledge of surgical technic to come to a correct judgment of the matter? And if in addition to the figures the logic of the situation is clear and compelling, the general practitioner, or the specialist other than surgical, is relieved of all suspicion of self-sufficiency in formulating a decision.

Having finished with the purely speculative aspect of the case let us consider for a moment wherein we are practically concerned in viewing it from the proper angle. Doctor Sherman, of Pittsburgh, in charge of the surgical department of the great steel corporation, is enthusiastically in favor of the use of the Carrel-Dakin treatment for injuries sustained in that industry. Conditions there might, however, be compared to those prevailing on the battlefield. To come a bit close to civil life—empyema that follows pneumonia falls strictly within the province of the internist both as regards diagnosis and the determination of treatment. Carrel-Dakin will clean up an empyema in a small fraction of the time hitherto consumed! Carrel-Dakin is coming into its own in the management of another threatening complication of many infectious diseases. It cleans up necrotic tissue with such invariable promptitude that the conditions existing in mastoid suppuration are quickly overcome. In purulent appendicitis as in empyema the efficacy of an agent that will quickly suppress suppuration and dissolve necrotic tissue is obvious. After the expiration of a few days many such cavities may be closed with the assurance of finality. If for any reason the Carrel-Dakin method is inadmissible dichloramine-T may be substituted.

We have all had disagreeable experiences with digital phlegmons and palmar abscesses. Even if we do not handle such cases ourselves it may be our business to suggest the method indicated. It will be well for the patient, if we have acquired the knowledge requisite for an intelligent selection. The skin is so largely involved in these two manifestations of deep infection, that the hypochlorite solution may be contraindicated because of its irritating properties, but dichloramine-T may be employed with advantage. It is suited to just such emergencies. It is strongly antiseptic and nonirritating. It is applied in an oily menstruum which may be injected. It unfortunately will not dissolve necrotic tissue which always occurs in these conditions, but it will restrain the infection until the necrosis subsides. The instillation process is not employed, but that is a detail which may be omitted if the main object—sterilization—is accomplished.

Take the monstrous leg ulcers which disconcert us the moment they are announced. We know what a losing game it is to try our luck where dozens have failed. We are defeated before we begin. But here is a condition where dichloramine-T ought to prove highly effective. It will kill off the bacteria and keep the ulcer clean and encourage cicatrization. While not strictly within the compass of this paper, which is a description of Carrel-Dakin, it is admissible to speak of it as it is a result of the original process—a refinement of it as it were; a variation suitable to circumstances excluding the former.

Consider the pustular lesions of the skin—dichloramine-T should also be efficacious there. In the purulent discharges of mucous membranes, where it is perfectly innocuous to normal tissue but certain death to germs no plainer indication could be found. Why should it not promptly subdue a purulent rhinitis or otitis media? Or a purulent vaginitis of whatever origin?

Truly the way has been blazed for a more intensive assault upon every form of infection in civil life. And far from the Carrel-Dakin treatment being a matter of unconcern for the average physician, it is vitally important that he grasp its full significance and bearing for the furtherance of his patients' best interests and the behoof of his professional reputation. Nothing which has struck so forcibly at the dogma of orthodox surgery can fail to have a reflex on the whole system of practical therapeutics. Books must be rewritten. Standards must be altered. Points of view must be deflected. Fixed concepts must be overturned. A train of thought has been started which may lead to developments even as far in advance of Carrel-Dakin as Carrel-Dakin is in advance of the out-classed surgical vogue. Changes of this sort do not involve merely a difference of dressing. The consequences of this no one can foresee or control. Thought is limitless in its extension. The timid mind-child of the utopian dreamer may grow into the Gargantua of bloody revolution. So it is the part of prudence for every practitioner of medicine no matter what his position or predilections may be to get in touch with this great development of surgical science in anticipation of its manifold reactions upon civil practice, and of its stimulating effect upon the spirit of modern investigation. We have striven to keep abreast of the times in the news of the movements of armies. We have pored over the maps of battle fields. We exult in the triumph of the Allied forces. Shall we as physicians display less interest in the triumph of that particular element of the Allied forces to which we are most intimately related? Shall the achievement of the Allied Surgeons impress us less than the achievements of the Allied Generals? The thing that we can understand by reason of our manner of education surely shall not be ignored in our efforts to assimilate the unfamiliar details of military strategy. Let us exult in our ability to grasp this magnificent offensive against infection and even if we are never called upon for personal participation, let us realize the sense of intellectual profit resulting from its investigation.

TWO CASES OF ORBITAL DISEASE OF NASAL ORIGIN.*

BY EDWARD L. MEIERHOF, M. D., F. A. C. S.,
New York.

ORBITAL CELLULITIS.

CASE I.—The patient, Mildred D., sixteen years old, was seen by the writer at her home, in consultation with the family physician. She was then suffering with severe pain in and around the right eye, of five days' duration. Upon inspection, this eye was seen to be more prominent than the left and was pushed somewhat forward and outward, with inability to converge to the same relative position as the fellow eye. There was marked chemosis causing an almost complete collar of conjunctival swelling around the cornea. The cornea was clear and the pupil was slightly dilated, reacting to light sluggishly. The interior of the eye was perfectly clear but the retinal veins were somewhat full and slightly tortuous. The patient was able to read the finest newspaper print. The orbital region on the nasal side and inferior ridge were especially tender to the touch. The patient did not complain of her nose, but upon examination the middle turbinate body on the right side was seen to be covered with a crust of old purulent discharge; the left nostril seemed quite normal; temperature, 101°.

As both the patient and her parents were highly excitable, I did not deem it wise at this visit to suggest any radical measures, but contented them by ordering ordinary warm moist compresses to the eye, frequent cleansing of the nose with four per cent. solution of boric acid; and advised the continued use of the synthetic coal tar preparation used before my visit. Under this treatment for a few days, her physician reported to me that the swelling had subsided. I saw the patient again five days after the first visit, but did not think there was any improvement though the condition did not seem any worse. There was no sign of external pointing. The next day I removed the right middle turbinate body and the ethmoid cells. This was accomplished at the patient's home under local anesthesia by means of topical applications of pure cocaine and adrenalin solution. Upon removing the middle turbinate, free pus was seen; the ethmoidal cells were broken down and full of granulations. The patient bore the operation remarkably well, considering her highly strung nature. The cleansing of the nose was continued, and in a few days there was a striking improvement. In two weeks, all signs of the ocular and orbital disturbance had disappeared. The retinal veins became normal and motility was completely restored. Vision, 20/15.

PERIOSTEITIS OF THE ORBIT.

CASE II.—May B. was seen in my office. Her case did not have any of the alarming features of the first case. She complained of a painful swelling of the inner half of the region of the right upper eyelid for the first three days. The swelling was somewhat red and pyramidal in shape, hard, tender to the touch, and attached to the roof of the orbit. There was no redness or swelling of the eye, or

any other ocular disturbance excepting that the act of looking upward caused discomfort. The patient did not complain of her nose, although when examined she said that it caused her some trouble at times. Polypoid degeneration of the middle turbinate body of the right side was found and promptly removed. The ethmoidal cells were found to be full of pus and granulations. In working around the alæ nasi cells severe reaction was produced, from which the patient recovered in twenty-four hours. After three days the external swelling showed marked recession, and after six days it had entirely disappeared. Had the case gone on a few days longer, no doubt the orbit would have become as completely involved as did the first case.

Cases of this type are apt to fall in the hands of ophthalmologists, and treatment is usually attempted by making external openings which are not always successful in revealing the focus of the infected area, and since most of these conditions are of nasal origin there is no reason for not attacking the disease at its origin, which is obviously more desirable.

1140 MADISON AVENUE.

THE FAMILY MEDICINE CHEST OF OUR GRANDMOTHERS.

By EMILY READ JONES.

Washington, D. C.,

United States Public Health Service.

"In the days of our grandmothers," says Surgeon General Blue in an open letter urging a greater interest in home nursing, "every good housewife was expected to know a good deal about the care of the sick." This brings back to my mind how, when I lived in the country in Virginia, the mantle of my grandmother's responsibilities toward her family, servants, and poor neighbors fell on my young shoulders and I was promoted to the charge of her medicine closet. The closet was a cupboard, or, as it was called, a "beaufet," in the wall of the hall, or houseplace. It had a tall door like a window, filled in with small panes of glass behind which was draped a thick curtain of some dark green stuff. It exhaled a composite odor of drugs, dried herbs and rose leaves. On its shelves were ranged medicine bottles containing laudanum, paregoric, sweet spirits of nitre, ipecac, spirits of lavender, squills, gum camphor dissolved in liquor, and many more standard remedies. There were jars of jalap, and blue mass, and iron mass, and calomel, and Spanish flies to make fly blisters, and there was quinine in large containers, for ours was a malarial section of Virginia and daily quininization was our habit during the "chill season." There were also iron filings, resembling steel wire, to be added to wine, a supply of which, in a tall decanter, was at hand. The implements of my trade were a marble mortar and pestle for grinding solid drugs, a tile and spatula for mixing pasty things and rolling pills, and a pair of brass apothecaries' scales with a varied collection of brass discs bearing cabalistic signs indicating that they were "drachmas" or "scruples." These I regarded as belonging to the science of alchemy and far beyond my handling.

*Read before the Metropolitan Medical Society, New York.

In preparing home remedies I followed my grandmother's directions and used whole allspice and whole peppers to represent grains.

One ordinary medicament was absent—salves. My grandmother had a theory that families in which salves were compounded and kept in stock were liable to "risings" and sores of all sorts and she would have none of them. We did, however, prepare and keep on hand a mixture for the hair, consisting of suet rendered to a soft mass, beaten smooth and perfumed with bergamot oil. The bergamot was grown in a garden bed, and I remember what a fine penetrating aromatic fragrance it gave out on hot summer afternoons with the sun basking in it and the yellow jackets humming drowsily above it.

For cuts, a roll of soft old linen and a bottle of a mixture, known in the family as red oil, were provided. If a dressing was needed for a blister the lily of the valley bed in the garden supplied the very thing. Long, green lily leaves laid in water till they became pliant and slightly mucilaginous and then laid on sore or broken skin were as soothing as the touch of cool fingers. Once an accident happened at the woodpile. A small negro boy employed in chopping lightwood for the kitchen fire nearly chopped off the finger of a black baby whom he had in charge and who had crawled too near the axe. The finger was hanging by a thread of skin. The boy was ordered to run to the smokehouse to get some spider web from a rafter of the roof over the hearth where the low fire smouldered for the drying of the meat; but just then a hen cackled. Instantly the proper remedy was suggested. The egg was found and broken and the inside skin of the shell was bound with a linen rag around the finger.

Beside family tradition, I had, to guide me through the mystery of the art of healing, a dull looking brown book, much warped as to cover, dogeared, and well thumbed. The title of the book was *Family Medicine*. On the margins of its leaves could be deciphered minutely written notes, such as "Doctor Booker's practice in such cases was," etc., or "Doctor Skelton was in the habit of applying," etc., referring to the usage of certain country doctors of fifty or seventy-five years gone by. In the days when this old book was conned there were many hours of horseback riding over bad roads between the family and the family doctor; this was long before the days of telephones. Under these circumstances it often happened that a hurry call received the response that the doctor had gone to the other end of the county and that, "Providence permitting and the creek did not rise," he would be with the patient within twenty-four hours.

As a counter current to the practise of the house mistress and the counsel of the annotated old book of family medicine was the secret practise of the negroes. Most of the remedies passed round in secret in the cabins were simple. Often have I seen old Unk Dauphin, greyheaded patriarch of his tribe, with eyes to the ground in some fallow field or in the "slash" along the branch, like an old dog nosing on a trail searching for the herb that instinct

taught him was good for his ill. If I asked him what he was looking for Unk Dauphin would raise himself and answer gently, "Dittany, little Mistis, for de old man's tea," or perhaps it would be boneset or tansy. The negroes were also known to be acquainted with some potent herbs, notably hemlock and the Jimson weed. Red oakbark they believed to be good for some forms of consumption, provided the bark was taken from the north side of the tree. For rheumatism nothing was so good as buzzard oil; but to get this remedy was perilous. The killing of a buzzard meant a fine of five dollars. If by stealth you got your buzzard you must boil him down to a clear oil, with which you rubbed the affected part. It must have been a powerful remedy. I recall an old negro woman who was a skillful herb doctor. The interior of her cabin was hung with bunches of the dried herbs from which she compounded her remedies. She made a salve good for hurts of man or beast, especially helpful to the horse whose shoulder was galled by his harness; I remember only that it contained plantain and that it was made into a cake and kept in stock. For summer complaint she administered with great success a tea made of the leaves of the red raspberry.

Other home remedies which I recall were a gargle for sore throat made from the seeds of the scarlet sumach pod, which have a strong saline taste; the smudge made by burning woolen rag, applied as first aid to a cut (creosote?); burned woolen rag steeped in oil and camphor and applied to the chest to relieve croup, and the kernel of a roasted onion for earache. We possessed a mad stone which was reputed to have magical powers to draw out the poison of any wound, dog bite, snake bite, any bite whatever. It was moistened and stuck on the spot. If there was venom in the wound the stone clung to the spot and finally fell off when presumably it had sucked out the poison.

But malaria was the bedrock of my medical practice. Malaria had come among us from the lowgrounds of the Appomatox River. Before the war—not the world war, but that other unpleasantness which in the light of recent history shows up more like a fratricidal strife—before the Civil War between the States there had been a screen of pines between the dwelling house and the river lowlands which were our alluvial cornland. But the screen of pines had been cut down to give free range to the guns of a small earthwork erected by the Northern troops. The "miasma of the river," as the phrase then was, had a clear sweep from the lowgrounds to the upland settlement. Often after heavy rains the river overflowed its low banks, making an ideal breeding place for mosquitoes, and this, as we now know, caused the region to be malarious. In those days also a misguided company of Hollanders came to our neighborhood, bought land, cut down more woods, because they longed for wide level fields and straight rows of neat roadside trees, and soon fell to shivering and shaking with chills. They were a folk accustomed to lean hard on the landed gentry. To them my father, because he had land stood in the position

of the great man of the community and accordingly they looked to him and the women of his household for aid in sickness and need. It therefore became my duty to make quinine pills not only for my family, but also for the entire colony, a duty which sometimes involved making a hundred pills a day. I enjoyed a high repute for making pills that would not crumble—no small art, as every druggist well knows. Honey and rice powder were my binding materials and sometimes in ambitious moments I ventured to dissolve gelatine and coat my pills. Capsules, of course, were unknown. I remember the first I saw, sent to me by a friend in Richmond who took an interest in my dispensary.

With the first frost my duties became lighter; but I carried on a rather brisk dispensing business throughout the winter in gargles, mustard plasters, calomel and blue mass pills.

And in the spring what so good for purifying the blood as sassafras tea?

THE LINEAR DERMATOSES.

BY FRED WISE, M. D.,
New York,

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The term linear dermatoses has been somewhat loosely applied to designate certain congenital malformations, anomalies and various eruptions of the skin, which exhibit the remarkable peculiarity of arranging themselves in lines, streaks or bands. The best known and perhaps the most striking example of such a linear eruption is the so-called linear nevus. Aside from this congenital anomaly in the integument, certain acute and chronic eruptions also possess a marked tendency toward a striate configuration; of these, the most commonly encountered are: lichen planus, psoriasis and scleroderma. The precise cause underlying the linear disposition of the lesions in these affections has never been definitely determined. Numerous more or less plausible explanations of the phenomenon, more especially with reference to the nevus group, have been offered. In his paper on nevus linearis, Montgomery (1) summarized these as follows:

"The theories are that: 1, The lines follow the course of the cutaneous nerves; 2, they run along what are called Voigt's lines; 3, they follow the lines of cleavage of the skin; 4, they also follow the course of the blood vessels; 5, the lines run in the metameres or segments of the body; 6, the lines lie along the embryonic sutures and follow the trend of growth of the tissues." (2)

The four cutaneous affections in which a linear disposition of lesions is most frequently encountered and to which the term linear dermatoses may be aptly applied, are therefore:

Nevus linearis, lichen planus linearis, psoriasis linearis, and scleroderma "en bandes." To this group may be added a subvariety of lichen planus, the rare condition called lichen ruber moniliformis, which, as its name indicates, occurs in beadlike

streaks and bands, running up and down the trunk and extremities.

Many other cutaneous affections may assume a distinctly striate disposition, but are not practically included under the head of linear dermatoses. Herpes zoster, for example, attacks the skin overlying superficial nerve strands and naturally most often assumes a bandlike disposition. In other diseases the striate conformation may be due primarily to certain underlying physical causes, or to certain anatomical factors which influence the shaping of their pattern, or perhaps to both. For example, keloids and hypertrophic scars are usually elongated tumors whose configuration depends largely upon the outline of the underlying incision

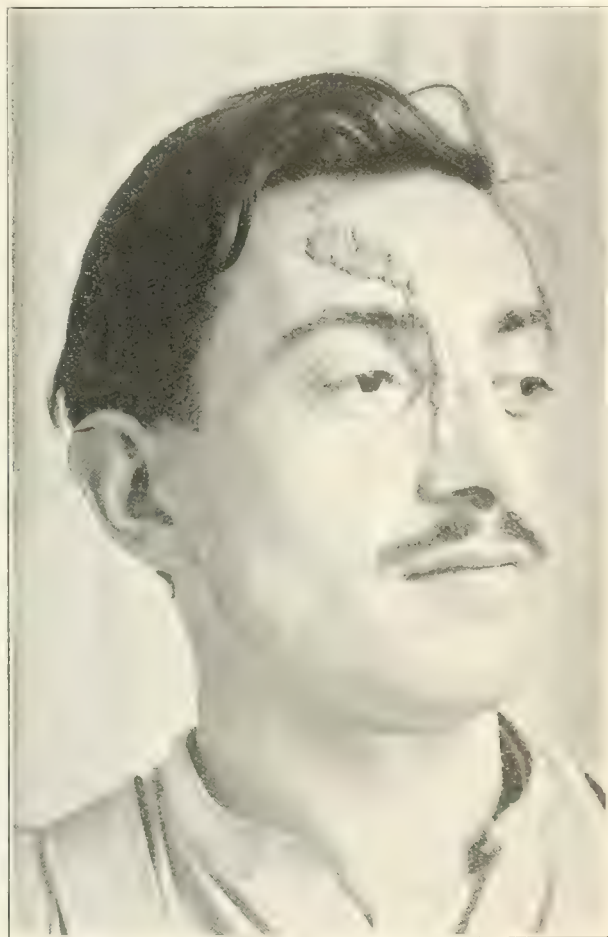


FIG. 1. Nevus verrucosus linearis and telio.

or wound in the skin. The lineæ albicantes, so common in the skin of the abdomen and thighs of women—especially those who have borne children—are due in part to a forcible separation of connective tissue bundles, combined with a partial or complete loss of elastic tissue. Such atrophic lines (striæ atrophicæ), by the way, are not infrequently observed also in obese men who were athletes in earlier life. Similar striate formations are sometimes seen about the knee joints in patients who have had typhoid fever; the cause of the latter is obscure, for they can hardly be interpreted as being due to a distention of the tissues about the knee joints. Then, we sometimes encounter streaked lesions

among malingerers, who frequently use carbolic acid or other fluid caustic agents to provoke sores and ulcers on the skin, and who unwisely permit the fluid to run down from the point of application, giving rise to those characteristic linear formations



FIG. 2. *Nevus verrucosus linearis unilateralis*

which, to the practised eye, are almost pathognomonic of selfinflicted injuries.

The menstrual disturbances of the skin (*dermatitis dysmenorrhœica*), described and pictured by Matzenauer and Polland, are often distinctly streaked, as are also some examples of "hysterical" gangrene of the skin. Rarely, one sees an example of vitiligo or leukoderma, arranged in bands or streaks running up and down the extremities, or transversely across the trunk. Recently, a case of multiple myomata of the skin (Doctor Brenner's patient) was exhibited at the New York Academy of Medicine, in which the little tumors occurred in beadlike formation, running along the arm and forearm, in a zosteriform manner. Finally, one might mention the bizarre linear lesions of "creeping eruption": in some instances, straight lines, several inches in length, mark the path of the larva *migrans*, as it burrows its way through the skin.

In addition to the affections designated as linear dermatoses, there are certain eruptions, the lesions of which manifest a remarkable predilection toward a linear configuration, occurring, however, only at the site of scratch marks, or linear abrasions of the epidermis, or other insults to the superficial integument. In other words, a scratch mark often determines the location of a crop of lesions, in a pa-

tient whose skin usually already manifests the characteristic elementary efflorescences of the eruption. Of these dermatoses, the most commonly met with are: *Lichen planus*, *psoriasis*, and *verrucae planæ linearis*. Now and then, one sees ordinary warts occurring at the site of a scratch mark, and more rarely, the little papules of *molluscum contagiosum*. The occurrence of *lichen planus* at the site of scratch marks or other injuries to the skin is not uncommon; in *psoriasis* and in juvenile or flat warts, the phenomenon is less often encountered. This peculiarity has been pointed to, by some authors, as an argument favoring the parasitic origin of these diseases. However, nothing of a definite character has as yet been demonstrated, to prove their origin to be of parasitic nature.

The linear nevi may be unilateral, bilateral, symmetrical or irregularly distributed over the body surface. They may be pigmented or freckle like, warty, scaly, papillomatous, filiform; soft or hard; they may so closely simulate *lichen planus*, or even



FIG. 3. *Nevus verrucosus linearis*. Note the lines on the arm.

a dry, scaly eczema, as to make them indistinguishable without the aid of the microscope. Rarely, they appear in the form of comedones and inflammatory papules or follicular abscesses. The writer

has found all forms exceedingly difficult to eradicate. Röntgen rays, carbon dioxide, trichloroacetic acid, acid nitrate of mercury and other caustic agents were employed with but scant success. The verrucous and scaly types are the most recalcitrant.



FIG. 4.—Lichen planus zosteriformis and linearis. The elementary lesion was a typical flat, shiny, angular papule.

In one patient (Fig. 3) the lesions temporarily improved under the administration of sodium cacodylate injections, the scaly element vanishing for a time, but leaving a reddened base; upon the cessation of the injections, the lesions returned to their original state.

Lichen planus linearis may occur as a streak of

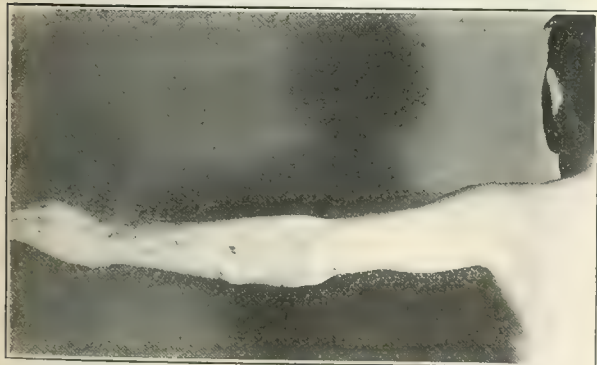


FIG. 5.—Lichen planus zosteriformis, the lesions consisting of typical flat, shiny, angular papules, both isolated and coalescent.

lichen planus papules, running along the arm or leg, in a zosteriform or zoniform manner. The writer has never been able to satisfy himself with regard to the supposed relationship of the eruption's loca-

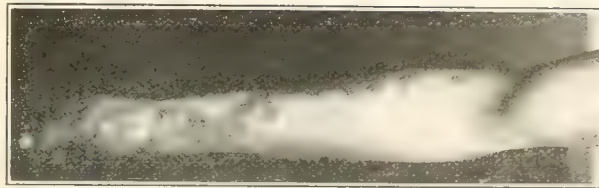


FIG. 6.—Psoriasis linearis. There were characteristic psoriasis patches on other portions of the body.

tion to the underlying nerve strands. Sometimes these striate eruptions appear alone, at other times they form a part of a more generalized outbreak of lichen planus. The lesions are slow to disappear,

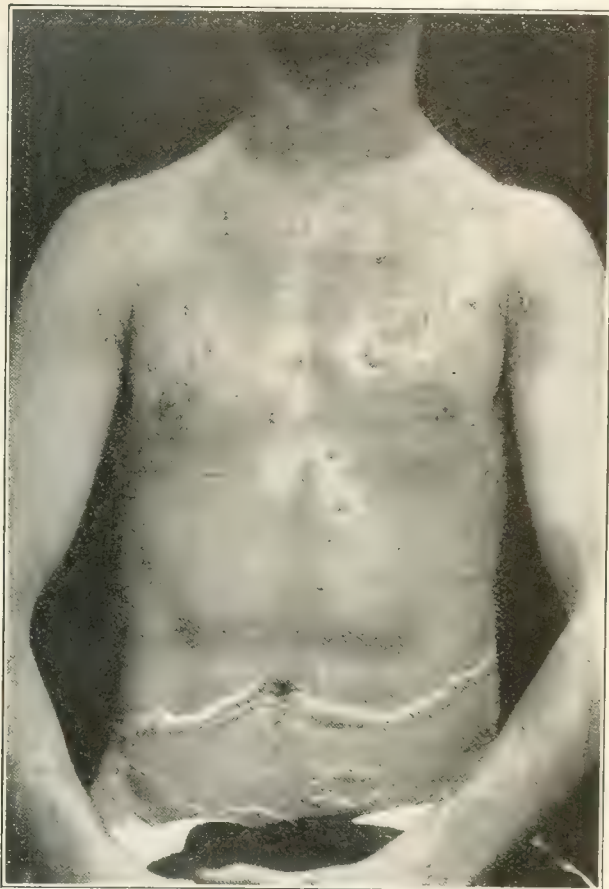


FIG. 7.—Psoriasis linearis forming a belt across the abdomen.

but respond to the usual treatment with mercury and arsenic, aided by local treatment with röntgen rays.

Psoriasis linearis is pictured in Fig. 6. In this

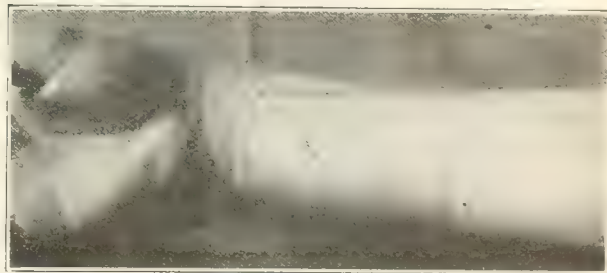


FIG. 8.—Lichen planus occurring in the path of a scratch

patient the lesion closely simulated a verrucous linear nevus; but the band was of only a year's duration, and there were typical patches of psoriasis on the same arm and on other portions of the body. Furthermore, a biopsy proved the correctness of the

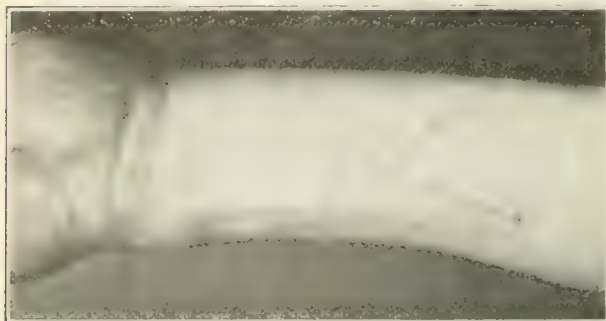


FIG. 6. Lichen planus at the sites of scratches. Other lesions of lichen planus were scattered over different parts of the body.

diagnosis. This linear type of psoriasis is not to be confounded with the garland like lesions of psoriasis figurata, usually formed of the edges of large plaques and circinate lesions, the peripheries of which have coalesced to form bands. Linear psoriasis responds most readily to x ray treatment.

Scleroderma occurring in the form of bands or streaks is a not uncommon phenomenon. The

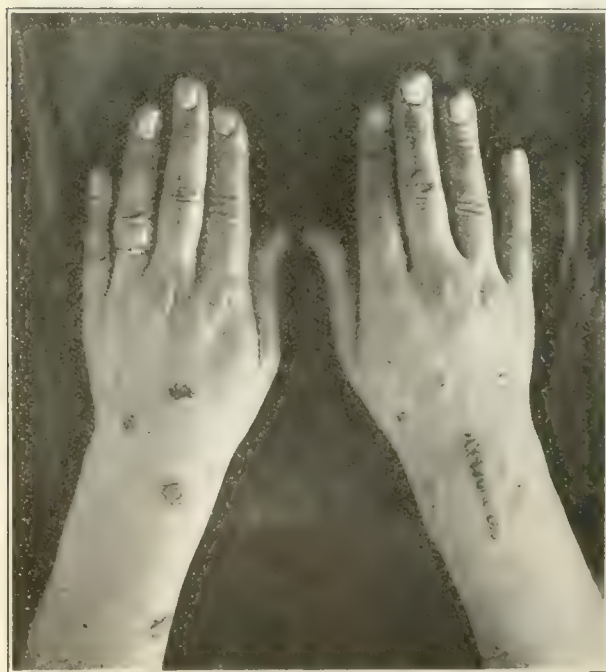


FIG. 7. Psoriasis at the site of a scratch, assuming a linear disposition.

writer has observed perhaps a half dozen instances of a narrow band of scleroderma extending from the eyebrow or the glabella, straight up the forehead, to be lost in the scalp. On the arms and legs, bandlike lesions also are not very rare. Great strides have recently been made in the treatment of this affection, thanks to the skilled employment of thyroid and pituitary extracts.

SUMMARY.

The linear dermatoses may be grouped under the following heads: 1. Primary linear dermatoses, arising *de novo*, and including: nevus linearis, lichen planus linearis, lichen ruber moniliformis, psoriasis linearis, scleroderma "en bandes." 2. Secondary linear dermatoses, arising at the site of scratch marks or other preexisting linear lesions, including: lichen planus, psoriasis, verrucæ planæ juveniles (sometimes also verrucæ vulgares and molluscum contagiosum). Other eruptions presenting striate lesions are not practically classified among the linear dermatoses; among these are: herpes zoster, vitiligo, dermatitis artificialis, menstrual and hysterical dermatoses, linea albicantes, striæ atrophicæ et distensæ, creeping eruption.

The writer begs to extend his thanks to Professor Fordyce, in whose service at the Vanderbilt Clinic, most of the patients whose photographs are appended, were observed; and to Assistant Professor MacKee, to whom he is indebted for the use of the photographs.

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24 WEST FIFTY-NINTH STREET.

AN IMPROVED BONE SURGERY EQUIPMENT.

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Bone surgery, in recent years, owes much of its advance to the improvements that have been made in the instruments used to perform the work. Our progress depends in large measure on our ability to cut and manipulate the bone with the same accuracy and control that we have now over the soft

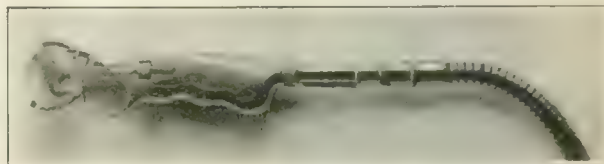


FIG. 8. Bone cutting saw with flexible blade, showing shank and saw.

tissues. The hand, saw, chisel, and trephine, are now useful only in the incidental work. Power driven instruments make the actual cutting of the bone a minor question, and permit the surgeon to devote his skill more to the delicate and accurate execution of the operative procedure. Of our modern equipment, the circular saw mounted on the projecting shaft of an electric motor is the most generally used. Its ability to do injury through lack of fine control, its unwieldy mechanics, repelling many surgeons, and its limited range of usefulness are recognized.

The equipment here presented has been developed after years of careful study of the deficiencies to be overcome and the finer requirements of better bone

surgery. It is presented with the confidence born of actual demonstration that it will meet the requirements of the surgeon whether the operation be upon the bones of the head, the trunk or the extremities. The aluminum enclosed motor is car-

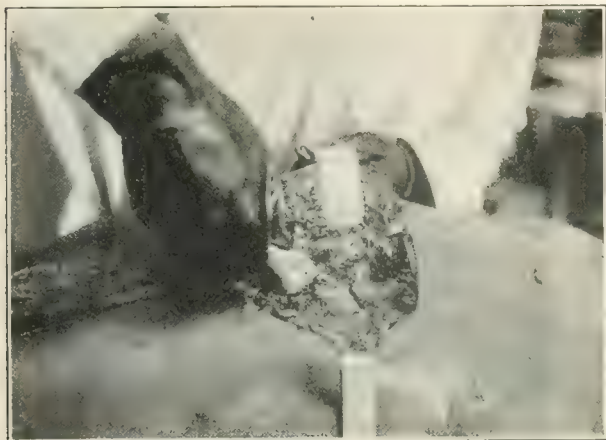


FIG. 2 Cutting the lamina of the vertebra to expose the cord.

ried in a sterilizable sack suspended from the shoulder of an assistant. It can be hung on an adjustable tripod. The motor is low speed and so eliminates heating and the devitalizing of the bone. The all metal flexible cable is sterilizable and of abundant strength to drive the saw without hesitation through any type of bone. The assistant rests the cable in the palm of his hand and maintains it in a slight curve with relation to the operator. This form of construction permits the operator to concern himself only with the cutting instrument, which he holds in one hand absolutely sensitive to his will.

The illustration of the saw instrument, Fig. 1, shows its general features. It will be noted that the saw is so shielded that it is impossible for the operator to cut himself. He will not injure an as-

sistant any more readily than he would with a scalpel. The saw rotates as the hands of a clock. This throws all material away from the operator. With a too hasty attack a circular saw is liable to jump. The usual, reverse clock rotation, directs this jump forward where it can do considerable injury. Any kick that might occur in using my saw is backward and out into the region of safety. The driving shaft enters at the rear of the handle, and permits the operator to make either a vertical or a bevel cut in a superficial bone, or one lying deeply, as the femur in an obese person. There is no vibration and the operator has an absolute consciousness of control. Whether it be whittling a point on a bone pin, trimming a plate or cutting a gutter in a bone there is the confidence of being able to cut just as you plan. The gauge at the side of the instrument is immediately adjustable by turning the threaded nut, to control the depth of cut desired. The inside guard conforming to the arc of the saw has a dissecting head and is used chiefly in cranial surgery, to separate and protect the dura from injury. In rib resection and elsewhere to protect underlying soft tissues, its use will suggest itself. The universal tool handle, Fig. 3, has a chuck that will take any shaft up to one quarter inch. It will take the burr, drill, saw, tap, hollow, end or side

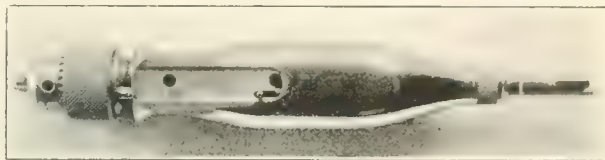


FIG. 3--Showing the flattened surface and also the lock to fasten the chuck to use as a hand instrument.

mill, practically all the tools that might be used in reconstructive bone surgery. The handle is heavy, thereby taking up vibration and with good control the particular cutting desired is accomplished. It

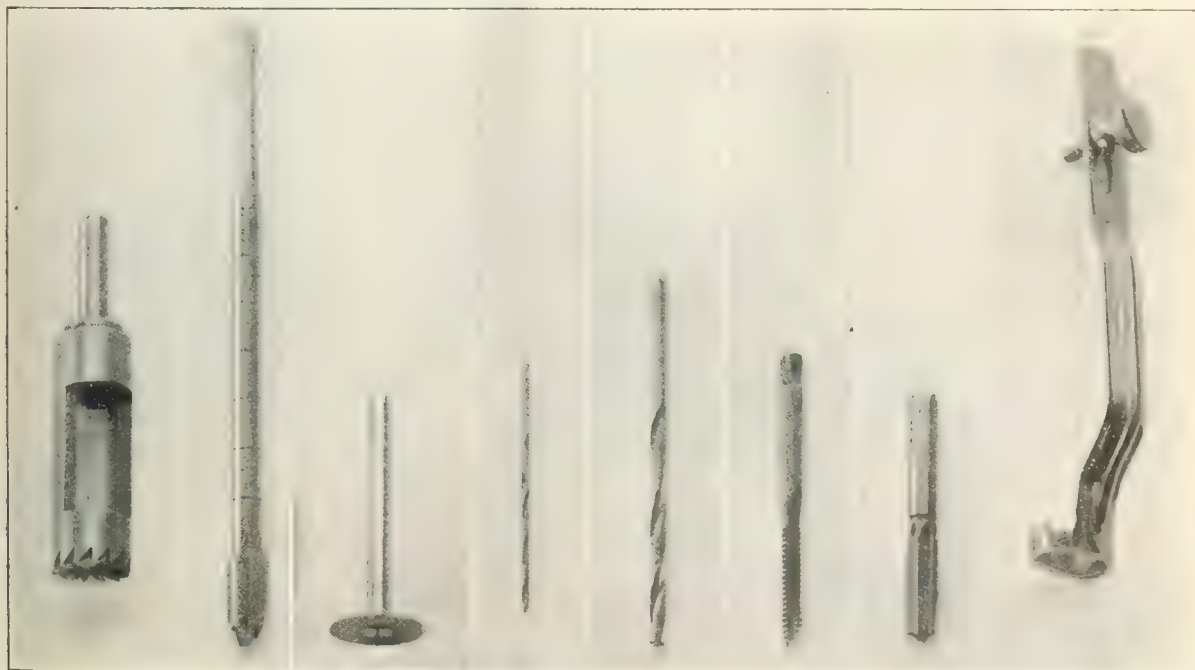


FIG. 1 Attachments for the trephine.

will be noticed that one side of this handle is flattened. This permits holding the instrument rigidly on a flat surface as a table, to cut the cylindrical bone pins used in bone plating.

In some cases where a Lane plating is desired, I



FIG. 1. Showing the position of the trephine in making the preliminary openings. The bone is shown here cut. A later stage of the operation.

have devised a modification. With the gauge Fig. 4 and a side and end cutting mill I cut a level floored trough only partially through the compact bone. The walls of the gutter are beveled as is also the bone plate used instead of the metal Lane plate. Threaded bone pins are used. The plate is but partially inlaid and the pin need be only long enough to penetrate the coated compact layers of bone. This saves bone pin. The bone pin or screw, possibly more accurate, need be but one and a half inches long for all four holes. The screw is turned into one hole, cut flush with a fine saw and so repeated in the remaining holes. There is firm coaptation with no pressure atrophy as in a forced in pin.

In the slide graft operation, the sides are beveled



FIG. 2. Cutting a section from the alveolar crest for a bone graft.

also. Here with a very fine drill, a trifle larger than the gut used, both graft and gutter are drilled in a fashion that the graft is tied down rigidly to the gutter wall. Another gauge, not illustrated, is both a gauge and guard for drills and burrs, gauging the depth of penetration and surrounding the

shaft of the tool preventing soft tissue from being caught on the rotating shaft.

It is manifestly impossible to give in detail all the possibilities and features of the equipment. An inspection of the accompanying photographs will give an insight into the wide range of its usefulness. It should be recognized that power driven instruments are not to be taken up and used immediately, relying on one's "surgical instinct" to give perfect results. Preliminary experimental work should be done to master the "wrinkles" of the particular instrument used. A reasonable study will show it to be wonderfully simple, safe, and efficient.

2130 NORTH NINETEENTH STREET.

THE REMOVAL OF FOREIGN BODIES FROM THE LUNG.*

By JOHN W. MURPHY, M. D.,

Cincinnati, Ohio.

In using the bronchoscope for the removal of foreign bodies difficulties are often encountered. The process is likened to that of a surgical procedure and every case will present new difficulties and complications.

Usually a bronchoscope is employed in conjunction with the x ray, the foreign body being first approximately localized and then the final search and recovery made by the use of the bronchoscope. Some operators prefer to employ the method without the application of an anesthetic. Again it is advisable to narcotize the patient. Often the operation will be complicated by hemorrhage and accumulations of mucus, and from the nature of the foreign body it will be difficult to grasp and remove it. There are times when the foreign body is extremely friable and care must be taken to avoid crushing it while effecting its removal; it may be movable, gliding about from place to place, and so annoyingly escape from the grasp of the forceps at the moment when we wish to secure it. Occasionally it will be embedded so that considerable force must be employed to dislodge it.

The following cases encountered in my practice will show some of the varieties and obstacles met with in the removal of foreign bodies by the use of the bronchoscope.

CASE I.—Mrs. M., aged thirty-eight, was examined on May 12, 1917. She gave the history of having lost a porcelain tooth while under nitrous oxide anesthesia. The dentist had removed the tooth and it slipped out from his forceps as the patient gave a deep inspiration. It was thought that she had swallowed it. She was allowed to go home with instructions to watch the stools and see if a foreign body were passed. There was no discomfort felt by the patient and the family felt secure thinking the tooth was probably in the stomach. Five days later I was consulted and recommended an x ray examination. The tooth was located in the right lower bronchus by Doctor Cooper. Under ether anesthesia a Jackson bronchoscope was passed into the right bronchus and the foreign body located. It proved to be a porce-

*Read at the meeting of the American Association of Bronchoscopists, Philadelphia, Pa., 1917.

lain crowned tooth with a metal peg; the peg pointing upward. It was so deeply located that the longest bronchoscope we had was four inches too short to reach it. However, it was possible to see and grasp it with the forceps, but the point seemed to be embedded so securely in the mucous membrane that it was thought inadvisable to use force so the hold on the tooth was relinquished. This attack caused a slight amount of hemorrhage which complicated further attempts at extraction. As the patient had by this time been under the anesthetic for almost an hour it was decided to wait until the next day before making another attempt at removal.

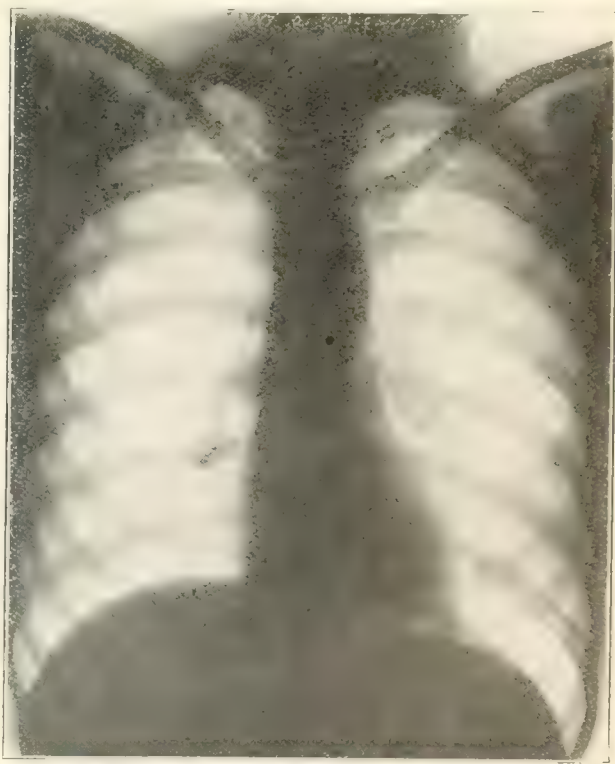
At the second session, with the assistance of Dr. Samuel Iglauer, using local anesthesia, we inserted a tube four inches longer than the one we used previously and located the tooth. It was exceedingly difficult to grasp as it had entered a very small bronchus, and it required great dexterity to manipulate it in this small space. Just as we were about to abandon our procedure for the second time, feeling that we had worked on the patient for a sufficiently long time, Iglauer succeeded in grasping and removing the tooth.

In this unusual case we had a foreign body in the right bronchus for five days and giving practically no symptoms. The asthmatoïd breathing spoken of by Doctor Jackson was not present. Physical examination failed to reveal the presence of the foreign body, and only through the history of the case and with the aid of the x ray was it located. The foreign body being so tightly embedded in the bronchus that it was not movable probably accounted for the absence of cough and any other bronchial symptoms. This case also illustrated the difficulty in working for a protracted period through a long bronchoscope using only one eye, as the eye becomes very tired and after some time the field of vision becomes confused and there is some uncertainty as to what is seen. In having Doctor Iglauer assist me I was able to have him relieve me when my eye became fatigued.

CASE II.—D. M. M., aged twenty-four months, referred by Doctor O'Hara, February 26, 1918. The patient while eating parched field corn inhaled a grain of corn into the trachea. She became cyanotic. Examination showed the child to be in fairly good condition. She did not have much difficulty in breathing, but its asthmatoïd character was marked. Any excitement or coughing caused pronounced dyspnea. Without anesthesia the smallest size Jackson bronchoscope was passed into the trachea and the large grain of corn was located in the right bronchus. It was distinctly seen but some difficulty arose when extraction was attempted. The size of the foreign body prevented its being grasped by any of the forceps which could be passed through the small bronchoscope. The Jackson mosquito forceps would not open sufficiently and the situation was puzzling. Some difficulty had been anticipated and a Jackson rotation forceps devised for grasping safety pins was used. These forceps could be passed through the small bronchoscope but they almost completely obstructed the view of the body. The forceps were

marked on the shank with a file so that it would be known when the end of the forceps reached the end of the bronchoscopic tube. The tube was then pushed firmly against the grain of corn and while holding it steadily with the bronchoscope the forceps were passed and as they were opened the tube was withdrawn about half an inch and so it was possible to grasp and extract the grain of corn. As the grain of corn came into the mouth it was lost and dropped back into the pharynx. Fortunately, the nurse observed this, and passed her finger into the mouth securing it, otherwise it might have been swallowed and we would have been at loss to know what had occurred. The child was able to return to its home the following day.

The chief difficulty encountered in this case was the size of the foreign body in relation to the small bronchoscope which we were obliged to use. There was also the difficulty in finding forceps that would pass through the lumen of this small tube and open sufficiently to grasp a foreign body of this character. When possible it is preferable to use forceps with an alligator jaw. These small forceps may be opened at a considerable distance after they have passed through the small tube. Another interesting feature in this case was that several days after the child returned to its home it became very hoarse and had several spasms. She was given a brisk purgative and the following day passed a number of



X-ray photograph showing foreign body in right bronchus.

worms after which all of the unfavorable symptoms promptly disappeared.

CASE III.—Mrs. D., sixty-five years of age, referred by Doctor Phinney, May 19, 1918, gave the history of having swallowed the tin washer of a kettle cover handle, on May 13th, while eating soup.

The family doctor had been treating the case presuming that the foreign body would pass into the stomach. Under scopolamine and local cocaine anesthesia the esophagoscope was passed and the foreign body located just below the clavicle. An x ray had been taken showing the location and character of the foreign body. It was firmly embedded in the esophagus at an angle of about forty degrees completely obstructing the lumen. The food which was ingested was obliged to pass through the centre of the washer. The edge of the foreign body could not be seen as a necrotic area of mucous membrane surrounded the entire circumference. In attempting to pass one blade of the forceps back of the edge of the washer the jaw of the forceps passed through the hole in the washer so that when I extracted it, I found that it had been grasped through the opening in the centre. A weak solution of alcohol and iodine was applied to the necrotic surface.

It is strange that a foreign body of this size and character can be left in the esophagus for a week and no attempt made to remove it. Very little food could pass through the centre of the washer after it had become embedded in the mucous membrane. The injury to the esophagus would also probably leave a cicatrix as the tissue was damaged to a considerable depth. The foreign body had caused little inconvenience aside from the difficulty the patient had in swallowing.

2700 UNION CENTRAL LIFE BUILDING.

PREVENTION OF INFLUENZA BY THE MAINTENANCE OF A UNIFORM ROOM TEMPERATURE.

By S. L. BURTON, M. D.,
Albuquerque, N. M.

Influenza treated in well ventilated rooms, at a uniform temperature of 70° F. will not develop into pneumonia. In a room kept at this temperature the influenza bacilli is clinically destroyed or influenced by the temperature to the extent that it will not infect the nurse or persons who may be exposed to the germs of the patient. I have treated my patients from the commencement of the attack for pneumonia, giving every four hours a capsule containing ammonium carbonate, quinine and strychnine. Alternate with the above syrup of hydriodic acid. To eliminate I administer calomel at the onset of the disease followed with salts every two or three days. I use influenza vaccine in all except children, keeping in mind that I am treating a simple disease which in a large number of cases has the pneumococcus bacillus that will cause pneumonia if the patient is exposed to a cold atmosphere. The patients are given a liquid diet until the temperature subsides, when it is gradually increased to normal. I instruct the patients to go to bed and remain there for some time after the fever subsides, usually four to six days. All are required to remain one week longer in a room at a uniform temperature of 70° F., at which time the patient has made a complete recovery. It is necessary to furnish the nurse

with a weather thermometer to successfully carry out the above treatment.

After having treated 300 cases of influenza as above stated, without a complication of pneumonia, and no deaths, I am convinced that pneumonia is prevented by this treatment; also clinically that the influenza bacillus, is killed or so influenced by the heat, that persons coming in contact with the bacilli will not be infected. This latter has been verified by the cooperation of the school superintendents and managers of public places where people meet, with the result that influenza has almost disappeared in our community. The theory is also substantiated by the fact that epidemics of influenza of the past have subsided in the United States when the temperature of our country reaches summer heat. It is safer to attend school and church, if the buildings are well ventilated and heated at an even temperature of 70° F. than to walk the streets of a city.

A NEW PRINCIPLE FOR TREATMENT OF GONORRHEA.

By F. S. MASON, M. D.,
New York.

Histologically, gonococci do not differ from other independent or intradependent cell units, since they are made up of a cell wall, cytoplasm, nucleus and nucleoli. It would appear, therefore, that if we can introduce within the cytoplasm some chemical reagent, or "sensitizer" and after sensitization apply a second reagent or "developer" which will bring about within the cytoplasm of the gonococcus cell, a precipitate by intramolecular decomposition—we should be able probably, by mechanical means, to so affect the chromosomes, that mitosis or cell reproduction will be interfered with, if not entirely inhibited. With this thought in mind, I sought for a number of sensitizers and developers, which would not be irritating to the urethra, nor affect the surface tension of the cell walls of the gonococcus, in fact, which would not be an astringent, or in any way interfere, with the mucosa already infiltrated and inflamed. I have already some thirteen pairs of sensitizers and developers which have these properties. I first apply, with a syringe, a sensitizer (which is a solution of chemical substance in physiological salt solution) which immediately sensitizes the cytoplasm of the cell. One minute is sufficient to thoroughly sensitize the anterior urethra. This liquid is then allowed to run out and the developer used; this also is allowed to remain about one minute within the urethra. This is repeated two or three times daily. After the first or second application, there may be still some pus, but in most cases the gonococci will have disappeared. I am anxious to have the cooperation of my colleagues in determining which reagents are best for the application of this new principle. I do not think it is necessary to have anything which is toxic, and of course, any reagent like bichloride of mercury or nitrate of silver, which will coagulate the protoplasm of the cell, cannot be used. No doubt, there are many reagents which could be found which will bring about the desired results, namely,

inhibit the proliferation of the gonococci within the male urethra. I have not had a sufficient number of cases to determine which of the sensitizers and developers are most effective, in fact, I find that all act pretty nearly in the same way, and therefore, am led to believe that the effect produced is simply due to the mechanical obstruction, induced by the precipitate within the cytoplasm, due to the precipitation of insoluble substances, resulting from chemical exchange. I do not wish any of the sensitizers or developers which I have used to be considered specific, because my present object is merely to lay down a principle for the treatment of acute gonorrhea hoping my colleagues will be able to suggest reagents even better than those already found. I shall be very glad to furnish formulæ for the solutions which I am using to any one interested. As to the type of sensitizers and developers which I have found effective, and have used most extensively, a solution of 1:1000 tolulene diamine in physiological salt solution is good as a sensitizer and, physiological salt solution of 1:1000 bichromate of potash with 1:1000 picric acid as a developer.

RECENT GLEANINGS RELATIVE TO THE PROPHYLAXIS AND TREATMENT OF INFLUENZA.

BY LOUIS T. DE M. SAJOUS, B. S., M. D.,
Philadelphia.

(Continued from page 332.)

An interesting feature of the experiments of Doust and Lyon, 1918, with gauze face masks was the evidence they secured that droplets projected in speaking or coughing might directly carry bacterial infection to a considerable distance across a room. During ordinary or loud speech, droplets laden with germs were found to be projected at times four feet or even more. Talking for five minutes carried the bacteria as far as talking for thirty minutes, though the more prolonged the talking, the greater the number of bacteria reaching a given point within the maximum distance. During hard spells of coughing, culture plates exposed at a distance of ten feet received the bacteria *Bacillus prodigiosus*—the organism experimented with—being recovered from them in numbers sufficient to suggest the possibility of even further projection. It appeared to be a fact, from these results, that the danger zone about a coughing patient has a radius of at least ten feet. As for the best type of mask to be used for prophylactic purposes, the experiments plainly showed the advantages of using a three layer mask of buttercloth, or at least, of avoiding the use of any but fine meshed varieties of gauze, if this more fragile type of tissue is utilized.

What of the face mask in the prophylaxis of specifically influenzal infection? Successful results from gauze protection in the case of exposure to the pneumococcus or *Bacillus prodigiosus*—as in the experimental studies already referred to—does not necessarily imply that equally favorable results will be obtained from the same thickness of gauze or buttercloth in influenzal infection. Vincent and Lochon, 1918, have performed experiments bearing,

perhaps, more directly upon the question of mask protection against influenza. Petri dishes were covered with one or more layers of sterile gauze having a mesh of ten to the centimetre, or about twenty-five to the inch, and patients suffering from the pulmonary form of influenza were made to cough toward the Petri dishes from distances ranging from ten centimetres to one metre. In the tests conducted at a distance of twenty-five centimetres, or about ten inches, the control dish after incubation showed 312 colonies; that protected by one layer of gauze, 100 colonies; two layers, twenty-six colonies; three layers, ten colonies; four layers, three colonies, and five layers, one colony. Efficient protection, according to these tests, thus requires the use of not less than five or six layers of medium sized mesh gauze.

In spite of these various experiments suggesting the probability that face masks will effectually prevent the transmission of influenza, a considerable proportion of the reports on the actual results obtained by the use of masks have been relatively unfavorable. Apart from instances reported by individual observers and bearing on but small numbers of cases, there is the instance of San Francisco where the people were required by a special ordinance to wear masks during the epidemic, without any appreciable reduction in the death rate from the disease as compared to other cities. In accounting for this the fact must be considered that often—both in San Francisco and elsewhere—the masks used were of insufficient thickness, and sometimes were taken off precisely when most needed, e. g., in the presence of ill relatives or fellow workers. Again, some observers, including Vincent and Lochon, have laid stress on the fact that a mere covering for the nose and mouth is quite insufficient because the ocular and conjunctival surfaces, which so frequently exhibit the earliest manifestations of influenza, are left unprotected. The causative organisms may thus readily pass into the lacrymal sac, through the nasal duct, and infect the nasal mucosa. Further, unless the mask be so made and shaped that its entire margin will remain continuously in contact with the skin, the inspiration of air in breathing cannot but result in the unimpeded entrance of germ laden currents through open spaces between the margin of the mask and the face. The Petri dish experiment is inaccurate for the gauze is fastened in close contact with the margins of the dish, and there is no ingoing air current to favor entrance of the germs. The obvious futility of a poison gas mask neither close-fitting nor covering the eyes need but be mentioned to suggest a similar futility in the case of antiinfection gauze mask having the same defects. On the other hand, the thorough reliability of a properly made gas mask need but be referred to to illustrate the similar reliability which is to be expected from an antiinfection mask properly constructed and adapted. If the mask can be made such as completely to bar the entrance of germs to the orifices of the face, then such germs could encounter the tissues only where they are covered with skin, and protection from infection must necessarily prove successful.

(To be continued).

Editorial Notes and Comments

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THE PSYCHOLOGY OF ASSASSINATION.

Practical life, individual or national, is familiar enough with the sharp contrasts, the swift reversals in human behavior which rudely upset calculation and disturb the progress of events. A sincerely practical psychology might sum these all up in two great principles, love and hate, the two aspects really of the same thing, the day and the night sides of human striving. These at bottom are united in one great essential need and desire, the craving for potency. Whether men know it or not they will, they must have power. The pathway of evolution from the primordial ooze to the present generation of historical ferment has witnessed it. It has borne testimony to the constructive power of love and the interference of the false, misdirected striving of hate.

Love has created, modified, bent itself about for the necessary compromise that in the end there might be more room for the original desire as it attained a more social form. It has had the patience of creation, of adaptability, of concession. Hatred has continually cut across this to attain by swift, sure means, as it seemed, some compensation for defeated or thwarted sense of power.

Power is the indisputable right of every individual. It is his indispensable expression of himself and of the fact that he is one in the progress of events. More than by bread he must live by it. So also with any useful grouping of individuals as in a nation. But what happens? Men and nations

grow envious, they grow fearful of greater power. They covet and distrust some form of power which differs from that they have. With varying degrees of capability and efficiency they lose the patience and the adaptability which would make for co-operation, a true "League of Power," and set themselves instead to striving against one another. The constructive working of love is lost sight of. Disappointment, sense of futility, impotence on the one hand; greed, overbalancing potency, still not unassociated with envy and distrust on the other, drive individuals and nations to the short cut of hate. Destruction of another's resources and strength is a more quick and direct way to gratify the immediate and selfish craving for establishment of one's own power, so the consideration, patience, adaptiveness of love are left behind and "aristocratic" power, that of the few, that already feels and realizes itself but is never satisfied, becomes autocratic. It builds only as its own ends are served and therefore builds falsely and arouses antagonisms which will turn upon it sooner or later. Then arise the weakness and futility and sense of impotence which have writhed beneath this autocracy, and anarchy is born.

This clothes itself in the name of democracy and cajoles earnest seekers for justice and right and opportunity into its ranks, or at least to sympathetic tolerance. It, too, is no less hate than its predecessor. It may even in the strength of its rage of downtrodden impotence prove far more destructive. Like the baffled, angry child, which it more than resembles, its first weapons are those of destruction and annihilation and these it uses even to death. Love and the constructive work of society for which love must stand, it has not so much forgotten as it has never known. Lacking the education and training which in their best sense are the learning of patience, of a larger vision which knows the slow moving of events and the danger of selfseeking, impatient interference with them, it seeks to set up only another autocracy for the one it overthrows.

The sin of power is not that it is in the hands of the few. Whether the autocracy be of the aristocracy or of democracy, it is the method which it uses which will establish or condemn it, prove it serviceable or the enemy of civilization and advance. It is the method of the narrow visioned and angry child, to think to attain by striking down. He is not trained to analyze honestly the impulses that leap out from his unconscious and control them in a larger, more effectual field of consideration of interhuman as well as international relations. As with a child, the secondary all too

ready impulse to strike out for defense or attack the moment the primary impulse meets a check, blinds and confuses the force of reasoning. It rather enlists to itself all such plausibilities and justifications which themselves only arise from strong feeling lashing blindly for its right. Such is the greater working of human feeling, so much older and greater in its volume than man's late acquired powers of reasoning, that it easily and naturally happens that the worse appears the better reason.

Thus with an apparent righteous sanction and a sincerity of purpose which these feelings create and sustain, the assassin starts forth determinedly upon his errands of annihilation and destruction.

The aristocrat in his attainment and maintenance of power may have been more coldly calculating, and through generations of success tended more and more to abuse this power until he has turned his biological right into the ruthless might which hates rather than constructively loves his fellow men. Democracy, however, may only displace such usurpation of rights by an equal or even more violent destructiveness, a swift sure removal of any hated and feared representative of such aristocratic power, or of any group from which it may differ only in its form of opportunity. This exercise of destructive defense and offense belongs in either instance to the ape man who still stalks but a little way below the upper crust of human society. It fears other groups, other nations, others who justly and usefully or unjustly and futilely hold high positions and stand for power attained.

Power we have said is man's birthright. It is his birthright, however, only in the germ and it is his duty, as his necessity, to attain it by lifelong struggle and effort. But he only defeats himself, whatever his position or opportunity, when he makes this an unthinking ape struggle against his fellows, based on envy, fear, greed. He can never really attain it by hate, the methods of which are to destroy. Only love, the greater aspect of his inner force, constrained to consider, to think, to concede, to move with patience, will in the end attain the ends for which alone power and the craving for power may exist. These are the social aims of which the assassin may prate, but to which his haste has hopelessly blinded him. The end is also that which lies beneath all social gain and gives it strength and durability, the actual satisfying of the individual's will to power in a creative effort which constructs, and which through its patience has granted and preserved to itself the opportunities for such creation in a stable society. Feeling and impulse of individual desire have room but they have entered the control of thought.

TUBERCULOSIS OF THE CERVIX UTERI.

The functional symptoms of tuberculosis of the cervix frequently offer nothing characteristic, but a number of writers have attributed great importance to amenorrhea as a symptom. There is here, unquestionably, much exaggeration, because this menstrual symptom is common among females who are unquestionably free from any infection of the bacillus of tuberculosis. But a more important symptom is leucorrhea, and this should direct the physician's attention to the possibility of tuberculous infection, when no other etiological factor can be discovered for metritis. The pain is usually slight, the menses irregular, and there is little discharge, just as in early cancer or metritis. Analogies frequently exist between certain types of cervical metritis, cauliflower cancer, and tuberculosis. Tuberculosis of the cervix has been looked upon as so uncommon that when a diagnosis is to be made, often the two former affections alone are suspected. There is less bleeding in ordinary cervical metritis than in cancer, and there is also less induration. The hard granulations of epithelioma appear in strange contrast to the soft, polypus vegetations of tuberculosis. Cancerous tissue is hard but very friable and tears easily, while the contrary is true of tuberculosis. Microscopically, cancer can be distinctly distinguished from tuberculosis of the cervix, although it should be recalled that occasionally giant cells, simulating epidermal globes, may be encountered in epithelioma. As to tuberculous lesions, their only sure sign is the presence of tubercle bacilli in the tissues, which, on account of their rarity, are not always easily apparent. In the vegetative form of tuberculosis of the cervix a small number of bacilli may be found, while the presence of giant cells or nodules of embryonal perivascular infiltration may, of themselves, be sufficient to make the diagnosis a matter of certainty. However, guineapig inoculation is still the surest diagnostic means at our disposal and should never be neglected when the slightest uncertainty exists in the mind of the clinician. The prognosis of tuberculosis of the cervix should be guarded and depends above all upon the extent of the local lesions and whether or not other organs are involved in the process. A distinctly limited tuberculosis of the cervix is of relatively favorable augury so long as complete extirpation of the diseased structures is possible, and many cures have been wrought. However, generally speaking, a definite cure must only be spoken of with prudence, because as yet we cannot be certain that every small foci of disease has been de-

stroyed. The earlier the diagnosis is made, the better the outlook for the patient. Taking all things into consideration, tuberculosis of the cervix uteri, even when localized, is serious, but not of necessity fatal. As in tuberculosis of other organs, the process in the cervix may retrocede and be recovered from by a slow process of sclerosis, resulting in at least a very durable recovery, if not cure. Here the question of a favorable or unfavorable soil should be considered just as in tuberculous lesions elsewhere in the body.

REEDUCATION OF THE SIGHTLESS.

The terror of being blinded was always the greatest fear in the mind of the soldier going into action. Indeed, many said they would prefer death to blindness. In treating those who have lost their sight, this attitude of mind is the most difficult thing to overcome. A thorough comprehension of the psychology of the sightless is essential to their successful treatment. It is not a matter of wonder, therefore, to learn that some of the very best work of reconstruction in this field has been done through the agency of a man who himself has lost his sight. Sir Arthur Pearson, the founder and director of St. Dunstan's Hostel for Blind Soldiers in London, in an address delivered on February 4th at the Century Theatre, said that the greatest difficulty he had experienced in restoring blinded men to usefulness was not with the men themselves, but with their mothers, sisters, and wives whose attitude of pity and desire to aid tended to rob the blinded man of initiative and self-respect.

The men at St. Dunstan's are not treated as blind men ordinarily are. They are made to realize the remarkable opportunity presented to them through special training of becoming independent wage earners, capable of helping themselves in almost all phases of life. One patient who had lost his sight, one arm, and all but the little finger of one hand, had learned to read the raised Braille type for the blind and to use a typewriting machine with one finger at about half the speed of a normal person. Forty-two of the graduates of St. Dunstan's are now receiving normal wages in London offices which, in many cases, were higher than that they had received before being injured. The sightless do excellent carpenter work and many other things which would appear to be impossible for the blind. Sir Arthur practises the lesson of cheer which he preaches, for when he is on the platform speaking, no one would suspect for a moment that he did not have full control of all his faculties. He neither acts nor speaks like a

blind man. In fact, he uses the word see constantly, for he says that he can see as well without his eyes as can those who have their eyes, but that he used his other senses to "see."

It is in the careful study of the psychology of the sightless and in a proper utilization of the results of that study that the best results are to be expected. Fortunately but few American soldiers, less than fifty, were totally blinded in the war. But the work done in fitting the blind for the battle of life and in training these men for an occupation which will make them self-sustaining has a wide field of usefulness in civil life, for it is estimated that not less than 200 civilians lose their sight from accidents annually. They too will profit by the lesson being taught in the army regarding the best method of restoring the blind to usefulness.

THE CARREL-DAKIN TREATMENT.

In an excellent article by Doctor Cunningham, which appears in this week's issue of the NEW YORK MEDICAL JOURNAL, the Carrel-Dakin method of treatment is discussed, and, although the author admits he has never employed the procedure, he gives many essential details, usually omitted, which are necessary if the method is to be successfully applied. There are, however, a few salient points which are not very clear. No mention is made of the contraindication for the closure of wounds when they contain streptococci. This is a question which is of the greatest importance and should be emphasized. When the laboratory report shows that the wound contains these organisms the process of sterilization is continued until they disappear. The quantitative measure is secondary and not a safe guide, for it has been found that infection occurs in the vast majority of cases when wounds containing these organisms are closed. Mention is made of the method employed in the Blake Hospital in Paris, where quinine and acetic acid have been substituted for the Dakin solution. In this hospital a great many other solutions have been used experimentally and controlled by microscopic tests. Normal saline solutions and a solution of sodium bicarbonate have also been employed, the original object in using these solutions being to establish a qualitative curve in addition to the quantitative curve established by Carrel, this curve to be determined by the nature of the organisms in the wound. It was found that when the *Bacillus pyocyaneus* was present it disappeared from the wound in from twenty-four to forty-eight hours when the acetic acid solution

was used. The quinine was found to be the most successful agent for combating the gas bacilli. In this hospital the Dakin solution was not discarded, but employed in the cases best adapted for its use. The object of the experiments was to discover the antiseptic best fitted to destroy the predominant organisms in the wounds and at the same time take advantage of Carrel's mechanical device for the application of the solutions. In certain cases the fluid would be changed from time to time as the flora of the wound would vary.

Finally, no mention is made of the technic for the application of the dressings in the Carrel method of treatment. This in the minds of many is as essential as the proper placing of the tubes into the ramifications of the wound. The first principle to be observed is that the hands, even if covered with sterile gloves, should not come in contact with the dressings which are to be applied to the wound or to the skin surface immediately contiguous to the wound. Forceps are used for cleansing the wound surface as well as for the removal and application of the dressings. Too much reliance has been placed upon the apparent sterility of the hands in doing this type of hospital work. In following out this procedure the dressings can be applied without the use of rubber gloves, which insures greater asepsis as more care is usually taken.

THE PRICE OF SLEEP.

The warworn young soldiers returning for recuperation are fighting, often failing to fight, a new foe set afoot by an equally warworn doctor who gets no opportunity of seeing the disastrous effects on the neurasthenic and neurotic of drugs used long after their uses are contraindicated.

This is with regard to the ordering of drugs to induce sleep, insomnia being the chief thing complained of. The soldier will tell you that he "feels as if his eyes were wide open all night," or "When I shut my eyes dazlingly bright pictures come" or dreams are told of dead men's livid faces, or of falling down into velvety darkness. So the drug, ordered to bridge over a crisis, is still kept by the bedside, its mere presence suggesting inability to sleep, and is resorted to after a very feeble resistance. The foundation of drug addiction is thus laid with many, the hypodermic syringe and the narcotic tablet form part of the *vade mecum* of hundreds who, by way of excuse, say "The doctor ordered it, and he ought to know." With the dimming of truth perception which the drug habit brings, the soldier will hide from the new doctor how much he takes, only admitting to sometimes taking "stuff to make me sleep." It is well for the local practitioners who see these boys after their return to be cognizant of and by kindly reasoning help to check a disastrous habit.

GENERAL GORGAS MADE A MEMBER OF THE LEGION OF HONOR.

The French Government has conferred membership to the Legion of Honor on Major General William C. Gorgas, formerly Surgeon General of the United States Army, for the distinguished services rendered by him. We publish a photograph



Secretary of War Baker bestowing the insignia of the Legion of Honor upon Major General William C. Gorgas on behalf of the French Government.

showing the Secretary of War, Newton D. Baker, presenting the insignia of the order to General Gorgas on behalf of the French Government. General Gorgas, retired for age in October, 1918, has had a distinguished career in the United States Service. His father, Josiah Gorgas, was a general

in the Confederate States Army. General Gorgas was born in Mobile, Ala., on October 3, 1854. He received the degree of bachelor of arts from the University of the South in 1875 and the degree of doctor of medicine from Bellevue Hospital Medical College in 1879. He holds numerous honorary degrees including those of doctor of science and doctor of law. He was appointed a surgeon in the United States Army on June 16, 1880, made captain on June 16, 1885, and major in 1898. As chief sanitary officer of Havana, 1898 to 1902, he eliminated yellow fever and was promoted to the rank of colonel direct, by a special act of Congress on March 9, 1903. He became chief sanitary officer of the Panama Canal in 1904, and was made a member of the Isthmian Canal Commission in 1907. He was made surgeon general of the United States Army March 4, 1915, with the rank of brigadier general. He was promoted to the rank of major general and was placed on the retired list for age on October 3, 1918. While still on active service, he went to France and made a personal inspection of the medical departments on the Western Front.

Obituary.

MARY E. WALKER, M. D.,

of Oswego, N. Y.

The death of Dr. Mary E. Walker at the age of eighty-seven directs attention anew to a career which in many respects was unique. She was the first and we believe the only woman to be commissioned as a surgeon in the United States Army and was the first woman, who, as a prisoner of war, was exchanged for a man of equal rank. She was also the first woman to receive the Congressional medal of honor for bravery and was granted special permission by Congress to wear male attire. Doctor Walker was born in Oswego, N. Y., on November 26, 1832; her father, was a physician and a teacher. At the age of twenty-three she was graduated from the Syracuse Medical College and engaged in the practice of medicine in Columbus, Ohio. Later she moved to Rome, N. Y., where she assumed male attire. At the outbreak of the Civil War, she volunteered as an assistant surgeon and was given the rank of first lieutenant. Shortly after the termination of the war, Doctor Walker visited Great Britain and delivered a series of lectures on woman's rights which were powerful factors in arousing interest in that subject, though she never sympathized with the extreme methods later followed by British suffragists. Her assumption of male attire caused a great deal of adverse comment and gave her a great deal of notoriety. For many years, she conducted a sanatorium on her estate near Oswego for the prevention and treatment of tuberculosis. She was injured by a fall on the Capitol steps in Washington two years ago and spent some time in the United States General Hospital at Fort Ontario under treatment. Early in life, Doctor Walker was married to a Doctor Miller but was soon set free legally, the marriage proving an unhappy one.

JOHN A. BODINE, M. D.,

of New York.

Dr. John A. Bodine died suddenly at the New York Athletic Club on Monday, February 24th, in his fifty-fourth year. Doctor Bodine had been suffering from heart disease as a result of blood poisoning from the effects of a wound received while performing an operation. He was born in Kentucky in 1865, both his father and his grandfather having been noted surgeons. He was educated at Notre Dame University and graduated from the Louisville Medical College in 1893, when he came to New York and engaged in the practice of medicine. Doctor Bodine devoted himself particularly to surgery, in which he attained considerable prominence, becoming professor of surgery in the Polyclinic Medical School and Hospital and consulting surgeon to St. John's Hospital, Long Island City. He was a frequent contributor to the periodical press, many of his contributions having been published in the columns of the NEW YORK MEDICAL JOURNAL. He did much to develop the technic of local anesthesia and was a successful lecturer, having a very effective delivery and a complete mastery of his subject. He was a fellow of the American College of Surgeons and a member of the American Medical Association, the New York State Medical Society, the New York County Medical Society, the Academy of Medicine, the New York Athletic Club and the Knollwood Club. He is survived by his wife and a daughter, Mrs. Frederick A. Babcock, of Schenectady.

JAMES TYSON, M. D.,

of Philadelphia.

Dr. James Tyson, prominent physician, author, and the oldest professor in point of service at the University of Pennsylvania, died in Philadelphia at the age of seventy-seven, on Friday, February 21, 1919. He was graduated from Haverford College in 1860 and from the medical department of the university in 1863. In 1874 he was appointed lecturer on pathological anatomy and in 1899 he was appointed to the chair of medicine. During his service he was dean of the medical faculty and a member of the board of managers of the university. He was a prolific writer and his works embraced many scientific and medical subjects. During the Civil War Doctor Tyson was acting assistant surgeon in the hospital service.

News Items.

Antitobacco Campaign.—A campaign against the tobacco habit is being conducted by the medical students of the University of Pennsylvania. The leaders of the movement say that the use of tobacco has greatly increased during the war.

Death of Prominent Red Cross Worker.—Princess Oyama, widow of Field Marshal Prince Oyama, Commander of the Manchurian Army during the Russo-Japanese War, died of influenza, on Friday, February 21st. The princess was an active worker of the Japanese Red Cross and an ardent supporter of the American Red Cross here.

New Anesthetic.—Dr. Royal S. Copeland and experts from the Department of Health are making elaborate tests of a new local anesthetic, the discovery of Dr. David I. Macht, head of the pharmacological department of Johns Hopkins University. The new anesthetic, said to be forty times less toxic than cocaine, is a byproduct of alcohol, known as benzyl alcohol, or phenemethyl-O.

Johns Hopkins Receives Gift.—Secretary of War Baker and Dr. George E. Vincent, president of the Rockefeller Foundation, were guests at the commemoration day exercises of Johns Hopkins University when Dr. William H. Welch announced that \$400,000 had been unanimously given for the erection of a building at the Johns Hopkins Hospital to serve as a woman's clinic.

The Irish Death Rate.—The death rate in Ireland is as high at present as it was fifty years ago. The Registrar General for Ireland states that 70,000 people die every year in Ireland, including 10,000 who die from tuberculosis. The enforcement of the Public Health Acts are not compulsory as they are in other countries. Eminent medical authorities insist that these laws should be more strictly administered.

Coffins Rented in Moscow.—Unofficial advices to the State Department state that practically all stores of Moscow have been municipalized as a rule without compensation to owners. Eggs are quoted at eleven roubles, and matches at four roubles per box. Individual coffins are reported to be no longer used, but are being rented out. The mortality rate is very high, with typhus, grippe, and erysipelas being especially prevalent and overcrowding the hospitals.

Dr. Frederick Peterson Receives the Degree of LL. D.—On Saturday, February 22d, the University of Pennsylvania conferred the honorary degree of doctor of laws upon Dr. Frederick Peterson, of New York. Provost Smith, in bestowing the degree said: "Frederick Peterson, eminent psychiatrist and author of profound works upon the most mysterious mental diseases, learned in medical jurisprudence and in toxicology, poet of distinction to whom the literary world is also indebted for hidden gems from the Swedish and Chinese literature, I confer upon you the degree of doctor of laws."

American Red Cross Officer First in Triest.—Captain Roy P. McConnell entered Triest twenty-four hours ahead of the victorious Italian Army. He was accompanied by Lieutenant J. Rogers of the Red Cross and five Italian soldiers with an automobile loaded with foodstuffs and other supplies. At the prison camp, Captain McConnell organized a relief station. Supplies were sent by boat from Venice and the Red Cross fed about 40,000 people a day. In evacuated villages, old men and women and children were found whom the Austrian soldiers had not driven out. The retreating Austrians had taken all of the supplies, including clothing. Cats were devoured by the hungry soldiers who had purchased them from the civilians for fifty centimes each. The cats and dogs had been eaten long before. Captain McConnell has received a special service decoration from the Italian Government.

Personal.—Dr. Michael Osnato, Captain, Medical Corps, U. S. Army, returned to New York on February 15th, and has resumed his consultation practice at 270 West Eighty-ninth Street. Captain Osnato served as neuropsychiatrist to the American Expeditionary Force in Italy.

Philadelphia Genitourinary Society.—At the December meeting of this society, the following officers were elected to serve for the ensuing year: President, Dr. B. A. Thomas; vice-president, Dr. A. H. Lippincott; secretary and treasurer, Dr. W. H. McKinney; chairman of the executive committee, Dr. C. S. Hirsch.

Grippe Epidemic Costs Insurance Company Nearly Twenty Million Dollars.—The epidemic of influenza cost the Metropolitan Life Insurance Company over \$18,000,000 in claims last year, but the company has issued a statement stating that they have done the largest business in their history during the past year. Small industrial policies amounting to over \$400,000,000 were placed which are held for the most part by wage earners.

Typhus Scourge in Moscow.—Advices to the State Department at Washington, D. C., from Helsingfors state that twenty French citizens, twelve British, seven Belgians, five Italians, and one American comprise a party of war relief workers returning from Moscow to Stockholm. They report that there are a thousand new cases of typhus in Moscow weekly, that hospitals are unable to take care of the patients, many of whom have to lie in the halls without beds, and the personnel of the hospital largely incapacitated because of illness.

American Women's Hospitals Honor Doctor Purnell.—A dinner will be given in honor of Dr. Caroline M. Purnell, of Philadelphia, Saturday evening, March 8th, at the Hotel McAlpin, New York, by the American Women's Hospitals. Doctor Purnell has been in France for the past five months representing this organization, which, besides its own hospitals in France at Luzancy and La Ferté Milon, has about one hundred of its members engaged in Red Cross work in France, Italy, Serbia and Palestine. It has also supplied woman physicians for the American Relief Committee in the Far East, six members having sailed recently to take charge of hospitals in Turkey and Asia Minor. Dr. Ethel D. Brown, Hotel Irving, New York, is chairman of the dinner committee.

Joint Influenza Committee.—A joint influenza committee has just been created to study the epidemic and to make comparable, so far as possible, the influenza data gathered by the government departments. The members of this committee, as designated by Surgeon General Ireland, of the army, Surgeon General Braisted, of the navy, Surgeon General Blue, of the Public Health Service, and the director of the census, are: Dr. William H. Davis, chairman, and Mr. C. S. Sloane, representing the Bureau of the Census; Dr. Wade H. Frost and Mr. Edgar Sydenstricker, of the Public Health Service; Colonel D. C. Howard, Colonel F. F. Russell, and Lieutenant Colonel A. G. Love, U. S. Army; Lieutenant Commander J. R. Phelps and Surgeon Carroll Fox, U. S. Navy.

Philadelphia Medical Societies.—During the coming week the following medical societies will meet in Philadelphia:

MONDAY, *March 3d.*—Blockley Medical Society; Clinical Association.

WEDNESDAY, *March 5th.*—College of Physicians; Laryngological Society.

THURSDAY, *March 6th.*—Obstetrical Society.

FRIDAY, *March 7th.*—County Medical Society (Kensington Branch); Physicians' Motor Club (directors).

Physicians Condemn Prohibition.—At a meeting of the New York County Medical Society, held at the Academy of Medicine, February 24th, the ratification of prohibition was condemned by the vote of an overwhelming majority. Dr. John P. Davis, author of the antiprohibition resolution, Dr. William S. Gottheil, and many others urged that the medical profession be permitted an opinion on the subject. It was stated that the ratification of prohibition meant that the writing of prescriptions would be controlled by the Anti-Saloon League.

Shortage of Physicians Among Rural Communities.—Many of the rural communities in New York State have been without physicians because of death, permanent military appointments or other causes. As a result of a number of letters received from these communities, the State Department of Health has undertaken to put the authorities of these districts in touch with physicians who are seeking rural locations. Replies have been received from ninety-six positions in twenty different States and the names have been forwarded to twenty-four communities.

New York Neurological Society.—A stated meeting of the society will be held on Tuesday, March 4th, at the New York Academy of Medicine, under the presidency of Dr. Walter Timme. Dr. Frederic J. Farnell, of Providence, R. I., will report a case of bilateral intraventricular hemorrhage showing mental and physical signs preceding and accompanying the hemorrhage. Dr. Edward J. Kempf, of St. Elizabeth's Hospital, Washington, D. C., will read, by invitation, a paper on the Tonus of Autonomic Segments as Causes of Abnormal Behavior. Dr. B. Onuf will read a paper on the Manic Depressive Temperament and Its Relation to Music and Fine Arts.

Ohio State Medical Association.—The seventy-second annual meeting of this association will be held in Columbus, on Tuesday, Wednesday, and Thursday, May 6th, 7th, and 8th, under the presidency of Dr. E. O. Smith, of Cincinnati. The forthcoming convention is expected to be the largest in point of attendance and interest in the history of the Ohio State association. A number of committees are already at work in planning the programme. Among the interesting features of the meeting will be the scientific exhibits of the State Department of Health, the Ohio Board of Administration, the Ohio School for the Blind, and the National Society for the Control of Cancer. Space for the commercial exhibits will be allotted, beginning the first of March. Dr. George V. Sheridan, of Columbus, is executive secretary of the association and will be glad to furnish full information regarding the meeting.

Meetings of Medical Societies to Be Held in New York.—The following medical societies will meet in New York during the coming week:

MONDAY, *March 3d.*—Brooklyn Hospital Club; Clinical Society of the New York Polyclinic Medical School and Hospital.

TUESDAY, *March 4th.*—New York Academy of Medicine (Section in Dermatology and Syphilis); Medical Society of Harlem Hospital; New York Neurological Society; Society of Alumni of Lebanon Hospital.

WEDNESDAY, *March 5th.*—New York Academy of Medicine (Section in Historical Medicine); Bronx Medical Association; Harlem Medical Association; Psychiatric Society of New York; Society of Alumni of Bellevue Hospital; Brooklyn Hospital Club; Brooklyn Society for Neurology.

THURSDAY, *March 6th.*—New York Academy of Medicine (stated meeting); Brooklyn Surgical Society.

FRIDAY, *March 7th.*—New York Academy of Medicine (Section in Surgery); New York Microscopical Society; Practitioners' Society of New York; Alumni Association of Roosevelt Hospital; Gynecological Society, Brooklyn.

American Board for Ophthalmic Examination.—This board will hold its next examination, the fifth, at the Wills Eye Hospital, Philadelphia, Friday and Saturday, June 6 and 7, 1919. The board is composed of representatives of the American Ophthalmological Society, the Section in Ophthalmology of the American Medical Association, and the Academy of Ophthalmology and Otolaryngology. By arrangement with the American College of Surgeons, the board has become the ophthalmic credentials committee of the college, and conducts the examinations of the ophthalmic candidates for fellowship in the college. For a certificate of this board, the examination in ophthalmology consists of case records, written examinations, and clinical laboratory and oral examinations, or so much thereof as may be judged necessary. For full information address the secretary, Dr. William H. Wilder, 122 South Michigan Avenue, Chicago.

Civil Service Examinations.—Among the positions for which the Civil Service Commission of the city of New York will hold examinations on March 29th, are the following:

Consultant in venereal diseases, Department of Health; salary, \$3,000 a year. Examination open to men only; preferred ages, thirty-five to fifty-five years. Applicants must have been graduated from a recognized medical school and have special training and experience in the diagnosis and treatment of venereal diseases.

Assistant bacteriologist, Quarantine Laboratory, Department of the Health, Officer of the Port of New York; salary, \$1,200 a year. Examination open to men only and candidates must have completed a systematic course in bacteriology and have had not less than eight months' practical experience in laboratory work, including work in the bacteriology of cholera and plague.

Assistant physician, regular or homeopathic, in State hospitals; salary, \$1,200 a year, increasing \$100 a year to a maximum of \$1,600, with maintenance. The examination is open to both men and women who are licensed medical practitioners in New York State; unmarried men preferred.

For further particulars, and the proper application forms, address the State Civil Service Commission, Albany, N. Y.

Miscellany from Home and Foreign Journals

Recognition and Management of Labor Injuries.—A. J. Skeel (*American Journal of Obstetrics*, January, 1919) reduces vaginal manipulations to an irreducible minimum in postpartum investigation of the birth canal. After delivery of the placenta the patient is placed in the lithotomy position, the labia carefully cleansed, and gas analgesia resumed. The anus is covered with rubber dam or sterile towels held by adhesive plaster. Fresh gloves are put on and the cervix inspected with the aid of a drop light or good head light and a special, broad retractor. An assistant presses on the fundus, bringing the anterior lip of the cervix to the vulva, and cervix holders of the old sponge holder type are used to grasp the cervix. Occasionally deep tears of the cervix bleed, but more often not. Inspection of the inner surface of the cervix sometimes reveals lacerations of the uterine mucosa, and even tears extending into the muscular wall. One type of injury of the upper end of the vagina is that due to extension downward of deep cervical lacerations involving the broad ligament base. This type is difficult to repair. The other type of injury occurs by extension upward from the middle or lower portion of the vagina, and is a clean split, usually obliquely longitudinal and readily repaired. In repairing the cervix the author used No. 2 chromic interrupted sutures, the last suture placed about one third to one half inch from the lower edge. Subpubic tears are almost as common as perineal tears and are usually due to lifting of the head toward the pubes in the attempt to avoid perineal injuries. The author advocates primary repair of the cervix and perineum, which reduces the risk of later subinvolution and uterine displacement. He has learned not to fear buried sutures in the perineum after labor; their routine use for second degree lacerations permits accurate coaptation and restoration of the parts. Perineal lacerations are more surely repaired than is subpubic damage due to forcing the head against the pubic arch; slow delivery and skill in directing the small diameters of the head through the vulvar ring should be sought.

Uterine Myomata Complicated by Pregnancy.—C. Mannheimer (*Hygiea*, November 15, 1918) comes to the conclusion that only strict indications justify operation for uterine myomata complicating pregnancy for the following reasons: Not only is the pregnancy frequently interrupted but the bleeding at the base of the tumor is often so obstinate that it necessitates removal of the uterus, and thirdly the scar in the uterine wall becomes a *locus minoris resistentia* predisposing to rupture of the uterus intrapartum. Absolute indications for the removal of uterine myomata during pregnancy he considers: 1. Torsion or incarceration of the tumor with accompanying peritonitis, 2. Compression symptoms such as inaction of the uterus in the pelvis with pain, dyspnea, severe obstipation and dysuria. Two cases are narrated which emphasize the wisdom of conservative operating:

The first myoma was the size of a child's head and complicated a three months' pregnancy, the uterus being retroflexed and incarcerated. Operation was undertaken after the onset of pain, tenderness, and fever; the tumor was enucleated and the uterus emptied from above. After an uneventful recovery the patient again became pregnant, with the result of a normal labor at term. The second myoma was the size of an orange in a thirty-five year old primipara gravid four months, who fell ill with abdominal pain and fever. The removal of the tumor was accomplished in spite of troublesome bleeding, the pregnancy continuing up to the time of reporting three months after operation. Dr. L. Lindqvist in discussion quoting from his experience of 221 operations for myomata of which some were in pregnant women, believes that as a rule these operations are contraindicated during pregnancy. He narrates a recent case of his own, a colossal myoma removed from a three months' gravid woman, the uterus being evacuated. Besides the large tumor weighing three kg., three others in the uterine wall were removed, their sizes being that of a plum, a hen's egg, and a goose egg respectively. Recovery took place and the patient having entered upon a second pregnancy is now near term.

Physiological Considerations of Hematemesis. W. A. Bastedo (*American Journal of the Medical Sciences*, January, 1919) gives the following directions: Have the patient very quiet, lying down with head low, with a light ice bag over the stomach and with plenty of fresh air. Avoid unnecessary manipulation. Give a hypodermic of morphine sulphate, 0.015 gram, with strychnine sulphate 0.002 to 0.003 gram. Immediately after vomiting give by mouth a solution of thromboplastin, kephalin, coagulen, or epinephrine. In a case not of the portal congestion type, if the stomach remains distended and the bleeding seems to persist, lavage with tepid water, and follow this by passing in a solution of epinephrine, thromboplastin, kephalin or coagulen through the tube. In portal cases avoid lavage. Prepare early for transfusion, and as soon as there are indications transfuse with careful watchfulness. If there is severe exsanguination, bandage legs and arms, raise the foot of the bed, bandage and put weights on the abdomen, keep up body warmth, and furnish fluid intravenously, subcutaneously, and by rectum. If transfusion cannot be done give intravenously Locke's or Ringer's solution containing five per cent. of acacia. Have a surgeon at hand to share the responsibility, but do not operate. To prevent recurrence inject subcutaneously every six to twelve hours for one or two days ten to fifty cc. of human, rabbit, or horse serum, or a solution of coagulose or euglobulin, or a single dose of 100 to 500 cc. of human serum; or inject intramuscularly a solution of coagulen, thromboplastin, or kephalin. If recurrence happens resort to surgery if necessary, preceding the operation by transfusion after the bleeding has stopped, or has become persistently small in amount.

Pulmonary Spirochetosis.—J. A. Thomson (*British Medical Journal*, December 28, 1918) found considerable numbers of spirochetes in the sputum of one patient in a malaria hospital and was prompted thereby to search all sputa of patients who complained of cough. A total of seventy-nine patients were examined for both spirochetes and tubercle bacilli in the sputum and thirty-nine showed the former while only two contained tubercle bacilli. Special precautions were taken to exclude mouth contamination. The organism had tapering extremities and a gently undulating outline without definite spirals. It stained easily with the usual stains. The patients in which it was found complained of cough of long duration; all were debilitated; and many suggested tuberculosis. The sputum was generally clear, jellylike, and not aerated; in some it was purulent or mucopurulent; and in three it contained blood, one being a case with free hemoptysis. The physical signs in the chest were quite indefinite and the temperature was generally irregular, seldom rising more than a degree above normal. The patients were generally subject to tachycardia, with or without slight exertion; they were short of breath; frequently showed systolic cardiac bruits; were of poor physique; had a low vasomotor tone; and showed marked nervous debility with tremors and listlessness. It seemed possible that the spirochetosis was the cause of this chronic condition. All of the patients in whom the spirochetes were found had been invalided home from Salonika on account of malaria.

Treatment of Postinfluenzal Empyema.—L. Bérard and C. Duret (*Bulletin de l'Académie de médecine*, December 17, 1918) assert that any postinfluenzal pleurisy that is cytologically and bacteriologically a purulent process indicates pleurotomy, whether the causal organism is the pneumococcus, the streptococcus, or some other germ. The incision should be made, as usual, in the eighth or ninth interspace, in front of the posterior axillary line, but is to serve only for the evacuation of the pus and the admission of a finger to determine the lowest point of the corresponding pleura. Experience has convinced the authors that this lowest point is not, as usually stated, situated posteriorly, but anteriorly, in the region of the anterior costodiaphragmatic cul de sac. It is here, then, that drainage should be instituted, either through a second incision six to eight centimetres long, or by prolongation of the first incision to the eighth or ninth rib, which should thereupon be resected in the anterior axillary line. Incision of the pleura should next be effected under control of the intrapleural finger, which is made to press out the parietal pleura of the costodiaphragmatic sinus. Pus and membranous debris issue through the incision, but the evacuation of membrane should always be completed at the close of the operation by means of a wad of cotton mounted on long forceps. One or two large drains are placed in the anterior incision to insure elimination of pus as well as of injected antiseptic fluids. The postoperative treatment consists in intermittent irrigation through one to three Carrel tubes introduced in the first incision. The irrigation is begun twenty-four hours after the

operation and practised every three hours with some antiseptic fluid, such as Dakin's solution, saline solution and ether, phenol, or borax, starch iodide, etc., injected without much pressure and in small amount. As a result the temperature descends within twenty-four to forty-eight hours, unless severe lung involvement coexists. The irrigation is stopped after eight or ten days, or may be continued on the following days as a simple pleural lavage with the syringe. The patient is gotten out of bed as soon as the temperature has approached normal, and is requested to walk regularly in his room. Under these conditions, the lungs respire more deeply, and perfect drainage is insured. Out of twenty cases thus treated the authors lost only two, through concomitant lung involvement. The remaining patients recovered within fifteen to thirty days. All these recoveries were obtained without emaciation or chest deformity. The patients even gained weight during the course of treatment.

Blood Changes in Malaria and Their Treatment.—F. Barbary, Bizouard, and Ciers (*Bulletin de l'Académie de médecine*, December 17, 1918), in studies of the blood at the time of the malarial paroxysm, observed a distinct but transient diminution of the number of red cells. The highest count obtained under such conditions was 4,774,000, and the lowest, 2,600,000. Anisocytosis and occasional deformed erythrocytes were noted. The blood platelets were always manifestly reduced, like the red cells, but remained somewhat above normal—300,000—throughout the intervals between paroxysms. The hemoglobin value was always reduced, sometimes as low as fifty, and regularly below sixty. This accounts for the persistent waxy, anemic appearance in these cases, in spite of the rapid restoration of the number of red cells during the intervals. In view of this condition the authors advocate the therapeutic use, along with quinine, of an agent capable of actively aiding in blood regeneration, viz., colloidal iron in the form of electromartiol. In obstinate cases with recurrences or grave forms with evidences of organic deterioration they administer regularly every two days, respectively of the paroxysms, an intravenous injection of 125 grams of normal saline solution containing 0.5 to 0.6 gram of soluble neutral quinine hydrochloride—without urethane—and a two mil ampoule of colloidal iron. Freshly distilled water is used in the preparation of the saline solution and the latter then immediately sterilized and put up in ampoules. Before use the contents of an ampoule of the quinine salt and of one of colloidal iron are introduced into the salt solution ampoule with a syringe. Therapeutic results from such treatment were very satisfactory, the acute malarial manifestations sometimes yielding completely after one or two injections; the latter were, however, then kept up as though the disturbance was still present, if necessary with lengthened intervals between injections. The symptomatic malarial anemia was progressively overcome by the treatment, the number of red cells undergoing a steady increase, asthenia and cardiac disturbances passing off, and the appetite and bodily vigor rapidly returning.

Comparative Effects of Intravenous Injection of Various Saline Solutions in Hemorrhage.—C. Richet, P. Brodin, and F. Saint-Girons (*Presse médicale*, November 14, 1918) report experiments in dogs in which the therapeutic effects of various saline and sugar solutions, Locke's solution, gummy solutions, and calcium chloride solution were compared. The average blood loss causing death in a series of animals was such as would leave in the body a residuum of 21.2 per cent. of the red blood cells and 26.3 per cent. of the original blood volume. In studying the effects of the various solutions the authors drew from each animal about one tenth of its total blood mass every fifteen minutes and replaced it with an injection of double the quantity of one of the solutions. It was found possible, in dogs possessing only twenty-one per cent. of their original number of red cells, to prolong their life and even continue the bleedings until but five or even three per cent. of the original number of red cells remained. The solution regularly giving the best results was a mixed salt and sugar solution containing 0.7 per cent. of sodium chloride and 0.5 per cent. of lactose or glucose. Locke's solution always proved toxic, apparently by reason of its content of sodium bicarbonate, since when this ingredient was removed the toxicity likewise disappeared. Concentrated—seven per cent.—gummy solutions act well in keeping up the blood volume and in restoring blood pressure, but are toxic in large amounts; when less concentrated, they act like the sugar and saline solution and present no advantage over it. In 0.02 per cent. solution, calcium chloride may act favorably on blood coagulation, but in 0.2 per cent. solution it is distinctly toxic. Additional experiments showed that while the heart and nerve centres can still live after a ninety-five per cent. blood loss, permanent survival never follows hemorrhages exceeding seventy or seventy-five per cent. After temporary improvement by the intravenous injection, the animal dies in from a few to twenty-four hours, after exhibiting progressive enfeeblement, profuse diarrhea, and rectal tenesmus. Under these conditions blood transfusion alone proved capable of affording prolonged survival.

Liberation of the Internal Secretion of the Thyroid Gland into the Blood.—J. M. Rogoff (*Journal of Pharmacology and Experimental Therapeutics*, October, 1918) made an attempt to detect in the blood coming from the thyroid glands of three dogs a physiologically active secretion by feeding the dried blood to tadpoles. One dog, whose thyroid glands were rich in colloid and had a good iodine content, yielded evidence of an active secretion into the blood collected from the glands during massage and during stimulation of the cervical sympathetic nerve. This result supplied no evidence of the existence of secretory nerves to the thyroid, for it was not possible to know the rate of liberation of the secretion and an increased concentration of the secretion in the thyroid blood alone cannot be taken as evidence of increased liberation. Two dogs with hyperplastic thyroid glands containing no detectable iodine yielded negative results.

The Treatment of Ulcus Ventriculi.—I. W. Held and M. H. Gross (*American Journal of the Medical Sciences*, January, 1919) deal not only with the treatment and diet of the developed cases of this nature but also with their etiology and prophylaxis. Prophylaxis is held to begin when the patient presents himself with gastric symptoms indicative of hypersecretion or hyperacidity, and in some cases predominating motility disturbances, as when these symptoms are allowed to persist ulcer of the stomach may develop. After investigating the etiology the prophylactic measures vary with the status of the individual, whether he is sthenic or asthenic. If sthenic he should have two substantial meals at home, morning and evening, with a lunch of crackers and milk, or tea with milk, or zoolak and zweiback. The breakfast should consist of orange juice or grapefruit, or baked apples and cream, or stewed peaches and cream, eggs in any form except hard boiled, cereals, bread and butter, weak coffee, cocoa, tea or milk. Dinner may include grapefruit, oysters, vegetable, noodle or barley soup, not spiced, fish plainly cooked or fried in butter, lamb, steak, well done, roast beef, chicken, veal, cooked ham, or white meat of turkey, fresh green vegetables cooked, salads, potatoes, stewed fruit, light puddings, cream cheese and Vichy water. The patient should not eat spicy substances, duck, goose, canned goods, coarse vegetables, excess of sweets, or ice cold drinks and must be told to eat slowly and at regular intervals, take a short rest after the evening meal, and to smoke moderately. His week-ends should be given up to complete relaxation. For the asthenic patient the preventive treatment varies with the general condition. The dietetic regime may be thus laid out: Breakfast, cereals cooked in milk in a double boiler, prepared thick and taken with butter; one or two eggs, soft boiled or scrambled; toast with butter; 150 grams of cocoa or milk or tea with milk. At ten a. m., a cup of warm milk. Noon, chopped or minced meats, chicken, pigeons, veal, lamb, boiled or fried in butter; fresh green vegetables cooked and in puree form, spinach, carrots, asparagus tips, cauliflower, green peas, string beans, turnips; light pudding, apple sauce and toast. At four p. m., a cup of warm milk. Seven p. m., same as breakfast, including a baked apple and cream cheese. Before retiring another cup of warm milk. When the patients are much run down a modified Weir Mitchell rest cure should be insisted upon. For the modifications reference must be made to the original. General hygienic measures, like appropriate hydrotherapeutics and moderate exercise, constitute an important part of the treatment, the suggestions cover a page. From the standpoint of prognosis it is pointed out that a sthenic individual who has once shown gastric symptoms must be cautioned against indiscretions in diet for the rest of his life, while with the asthenic individual, if the treatment has resulted in considerable gain in weight and a toning up of the system in general and the gastrointestinal tract in particular, the benefit may persist through the rest of his life with no more dietetic or hygienic restrictions than the average healthy person needs. The treatment of the ulcer is dealt with more fully than prophylaxis.

Nature of Surgical Shock.—A. Osorio De Almeida and Miguel Osorio De Almida (*Journal A. M. A.*, November 23, 1918), working in Rio de Janeiro, failed entirely to produce shock by the methods described by Henderson for the production of acapnia, although they were always able to produce the most intense degrees of acapnia. Investigation of the causes of this failure showed that they lay in the atmospheric conditions and that the high temperatures and humidity common to the climate made the production of shock impossible unless these two factors were artificially altered. When the temperature and humidity of the air were reduced to points corresponding to those prevalent where Henderson worked, shock was readily and rapidly produced, coincident with a rapid and marked reduction in the internal temperature of the experimental animals. They conclude, therefore, that the cause of shock in Henderson's experiments was not acapnia, but a reduction in internal body temperature.

Triangle Splint in Compound Fractures of Humerus.—Philip Turner (*British Medical Journal*, December 28, 1918) points out that while the Thomas arm splint has many advantages in the treatment of compound fractures of the humerus, it has certain material disadvantages, namely, prolonged confinement of the patient to bed; prolonged fixation of the elbow in extension; and tendency to internal rotation of the lower fragment. These can largely be overcome by the use of the triangle splint, the precise technic of its manufacture and application being described in detail and illustrated by drawings. This splint has the following advantages: It is simple and easy to make and requires nothing other than the ordinary splint boarding, and accessories which can be made by a nurse in a few minutes; the elbow is fixed to a right angle; free movements are allowed in the wrist and fingers, and slight pronation and supination are possible; the patient need not be confined to bed, but can walk about and can thus better his general condition by exercise in the open air; and, finally, transport is easy. One drawback to the use of the splint is the fact that it cannot be applied where there is a wound in the axilla or on the inner aspect of the arm or the side of the chest.

Rubber Gloves in Surgical Operations.—Robert T. Morris (*Annals of Surgery*, January, 1919) discusses the use of rubber gloves in various operative procedures. He states that at one time he stood openly against the use of rubber gloves, for at that period the only ones obtainable were thick and ill fitting and he saw a great deal of unskillful work done by clever surgeons at the time of their introduction. The basic principles involved are that the hands cannot be made completely sterile while rubber gloves can be completely and easily sterilized. A larger incision is required when rubber gloves are used and it is a question whether the bacteria introduced by the surgeon's hands are more harmful than the ones which fall into the wound from the air in the larger incision. Fresh blood serum exerts an inhibitory influence on the bacteria which may be carried into the wound in either case. At the time Doctor Morris took his stand

against the use of the rubber gloves the infections in his cases were less frequent than in the cases of the surgeons working with gloves. The sense of touch is greatly diminished when gloves are used. However, he goes on to say that rubber gloves should be employed in all routine work in almost all departments of surgery, stating that their use should be obligatory in practically all work belonging to general surgery and obstetrics. In certain parts of the body, like the anal and oral regions, their use should be made optional, for these are the protected areas as they are so constantly exposed to bacterial invasion that guards have been established by the body mechanism against the entrance of infection. These areas cannot be thoroughly sterilized, and as a rule primary union occurs in these regions. The perineal region is included in this area, and in these instances the surgeon can work more rapidly and depend more readily upon his tactile sense. In perforating ulcer of the stomach or in typhoid perforations the surgeon working without gloves can insert drains and perform the entire operation with great rapidity and in this way often save the life of the patient. The removal of stones in the common bile duct or in the pancreatic duct often requires great tactile sense in order to avoid extensive surgical procedures. In many cases of appendicitis with adhesions or certain cases of pelvic infection extensive surgery may be avoided when the surgeon employs his sense of touch. The only reason in these cases for the use of gloves is to safeguard the surgeon against infection. On account of the resistance of the pleura to infection the chest wall may at times be opened, the lung allowed to collapse, and a foreign body or enlarged gland located with the ungloved hand. In some of the tissues which are not especially protected against invasion the surgeon can work so much more rapidly when he depends upon his sense of touch that there will be fewer bacteria carried into the wound than would fall into it through the larger incision and in the longer period required for the operation when gloves are used, as for example an operation for a loose kidney. A group of cases in which rubber gloves lessen the efficiency of the surgeon are in eye, ear, nose, and throat work. The use of rubber gloves for routine is one of the most important advances that has been made in surgery. A few situations allow the surgeon to work better without gloves. In cases where the surgeon does not use gloves for a given operation it would be well for him to make a note in the records and give the reason for the omission.

A Source of Error in X Rays of the Skull.—Sherwood Moore (*Annals of Surgery*, January, 1919) discusses the source of error which is often encountered in the production of x ray plates of the skull. He discusses an article of E. G. C. Williams, of Danville, Ill., "A Radiolucent Shadow Occurring as a Constant Factor in Cases of Severe Intermittent Headache," which appeared in the *Annals of Surgery*, November, 1918, in which the reproduction of four x ray plates showing a semilunar shadow similar to the shadows shown in the plates taken at the Washington University Medical School. He attributes this distortion to the installa-

tion of a new plate holder, as these shadows were not observed when the plates were taken without the use of a plate holder or when taken with the old holder. These shadows give rise to considerable confusion and in some cases have led to the erroneous diagnosis of intracranial hemorrhage, and in one case the shadow was attributed to the presence of air in the skull. In order to avoid these confusing errors the author advocates the use of a cassette in an unchanging position when the stereoscopic method is employed and two plates are required, for he attributes the fault in the plates which were made by Williams, to be due to the plate holder which was employed. The use of metals in a plate holder will cause these external shadows to appear. Moore also names the following factors as causative agents in the production of this complex phenomenon: The direct rays from the x ray tube modified after their passage through the skull; the scattered and characteristic radiations arising from the head; the scattered and characteristic radiations and coefficient of absorption of the same by the iron base of the plate holder; these same properties in the air at the point where the plate is not supported by the iron base; and, finally, the varying distances in the different planes of the head traversed by the rays. He closes the article with the two questions: Can the shadow be due to extraneous causes? Is there a pathological explanation for its occurrence?

Influenzopneumococcal and Influenzostreptococcal Septicemia.—Adolphe Abrahams, Norman Hallows and Herbert French (*Lancet*, January 4, 1919) previously described a form of purulent bronchitis with an influenzal and pneumococcal bacteriology which occurred in multiple, small epidemics in France and England. Since the outbreak of the influenza pandemic they believe that the purulent bronchitis is merely one of the several forms of the same disease. From an extensive study of the recent epidemics, as well as of the former small outbreaks, they state that in many cases of influenza a septicemia or toxemia is developed due to invasion by pneumococci or streptococci, these being the severe cases and having a very high mortality. The essential feature of all of these cases, as well as of those of purulent bronchitis, is an infection by the *Bacillus influenzae* which is followed in many cases by a secondary infection with some other organism or organisms. The presence of an abundant purulent sputum is merely an incident and has been conspicuously wanting in the recent pandemic. The secondary infecting organism is a pneumococcus, the *Streptococcus pyogenes longus*, or a diplostreptococcus. The virulence of the secondary invader seems to be exalted by the initial influenzal infection. The septicemic type is characterized by variable lung symptoms, ranging from slight bronchitis to lobar and bronchopneumonia; a very characteristic heliotrope lividity; polypnea or dyspnea; and very rarely orthopnea. Other so called complications of influenza, as well as the foregoing phenomena, are evidences of the septicemia. The mortality in the septicemia cases is as high as ninety per cent. in the early stages of an epidemic, dropping to fifty per cent. as the

epidemic wanes. The primary infection occurs in the upper respiratory tract and involves the nasal accessory sinuses, in which a septic sinusitis develops. From this and other foci the toxemia develops. The frequency with which the diplostreptococci are isolated in pure culture from the heart's blood and the internal organs after death indicates that they play an important rôle in the fatal cases. The treatment of both the mild, uncomplicated cases of influenza, as well as that of the severe septicemic forms has proved practically without avail. No form of treatment is of value in aborting an attack or in preventing its development into the severe septicemic form. Quinine has been heralded as a prophylactic, but the occurrence of eight cases in men who had been taking it regularly for a month quite disproves such a belief. Venesection, saline infusions, alkaline treatment, the administration of antipneumococcal serum, all proved to be without influence in the septicemic cases. Stimulants given regularly and frequently seemed equally unavailing in preventing death. Some slight degree of relief may be obtained in a small proportion of cases by the prolonged administration of oxygen by the Haldane apparatus, but few patients will tolerate the discomfort inherent in this method of giving oxygen and no real advantage seems to follow its employment.

A New Treatment for Influenza.—Armand Gautier (*Bulletin de l'Académie de médecine*, December 3, 1918), mindful of a powerful stimulating action of quinine and arsenic previously observed by him clinically in low blood pressure and cardiac impairment in infections, instituted subcutaneous injections twice daily of the following solution in a severely depressed and desperate case of influenza: Sterile 0.8 per cent. saline solution, 400 mls.; quinine hydrochloride, 0.5 gram, and sodium dimethylarsenate, 0.05 gram. Immediately after the second injection the patient's strength began rapidly to return, the temperature descended from 40° to 38.5°, and the pulse improved. On the succeeding day, after another injection, the temperature fell to 37.8° and the blood pressure rose from the previous minimum of sixty millimetres of mercury to 140. Within two days of the beginning of the treatment the patient was sitting up in bed and diverting himself with dominoes. Of thirty-eight patients treated by the customary means four succumbed. Gautier's solution was simultaneously used in fifty-two cases already complicated with pneumonia. Eliminating ten deaths among patients already moribund upon admission, as well as four deaths in patients who had already been ill ten to seventeen days when the treatment was applied, there remained thirty-eight patients, all of whom recovered in spite of the pneumonic condition originally present. The injections often caused disappearance of cyanosis and dyspnea, even though the objective signs of pneumonia sometimes persisted. In the twenty-four most obstinate instances the injections were continued for five or six days—as long as the temperature showed a tendency to rise. In another series of thirty-five serious cases in children, administration of the Gautier treatment was followed by uniform recovery.

Treatment of Influenza by Injection of Corrosive Sublimate.—G. Ferrarini (*La Riforma Medica*, November 9, 1918) finds that intravenous injections of bichloride of mercury in doses up to one centigram and in solutions even as concentrated as one per cent. cause no inconvenience and have no contraindications. The effect is to lower temperature, better the pulse, relieve cyanosis and restlessness, and produce an apparent crisis. Even in pneumonia a noteworthy improvement is seen.

Nasal Diphtheria in Epidemic Influenza.—E. Marten Payne (*British Medical Journal*, January 4, 1919) cites eight illustrative cases and refers to many more in which patients diagnosed as having influenza were found to have abundant growths of diphtheria bacilli in their nasal cavities. He emphasizes the fact that nasal diphtheria is a condition seldom thought of by the general practitioner, but one which is not at all uncommon and which is a source of grave danger to both the patient and to the community in general.

Treatment of Influenza.—H. Lychou (*Svenska Läkarsällskapets Förhandlingar*, November 30, 1918) uses with excellent results the following: Salicylquinine 0.20, phenacetin 0.15, camphor 0.02 which he prescribes in capsules t. i. d. While the remedy lowers the temperature somewhat without causing perspiration, it acts primarily upon the neuralgic pains incident to influenza, and in so far as it meets with this therapeutic indication—namely the relief of the general ache and discomfort, rather than the forcible reduction of the temperature—he has found it dependable in his experience of nineteen years not only with the perennial influenzas that are with us more or less but also with the *morbus hispanicus* of the present day.

Influenza and Its Complications.—Robert Muir and G. Haswell Wilson (*British Medical Journal*, January 4, 1919) made their observations upon both British and American troops, most of the latter having been received ill from their transports. No essential differences were observed in the disease among the two groups, except that pneumonia was more frequent among the Americans. The symptoms were essentially those of severe influenza with a preponderance of pulmonary affections, from which the mortality was very high. The disease was associated with the Bacillus influenzae, that organism having been recognized in all but a very small proportion of cases. In many cases the influenza bacillus greatly outnumbered all other organisms in the sputum. Postmortem the bacillus was cultivated from the bronchial mucosa, pneumonic patches and abscesses. It was never, however, obtained in cultures of the blood. Twenty-six postmortem examinations were made and pneumonic lesions were present in all, seventeen showing bronchopneumonia, four a combination of bronchopneumonia with lobar pneumonia, and five lobar pneumonia alone. Both lungs were affected in four of the five pure lobar pneumonic cases. Blood cultures or cultures from the lung lesions were made in thirty fatal cases and the cause of death was the pneumococcus in thirteen, streptococcus in six, staphylococcic septicemia in four, meningococci

and tetragenous septicemia in one each, combined pneumococcic and staphylococcic septicemia in one, and it was due to the intensity of the influenza infection in four. The outstanding feature in the morbid anatomy was the bronchopneumonia and along with it there was a striking tendency to the plugging of many air vesicles with dense fibrin which tended to the production of a certain amount of interstitial pneumonia. During convalescence many patients suffered for a considerable time with cyanosis and dyspnea and showed enormous numbers of influenza bacilli in their sputa. The disease appeared to be a descending infection of the respiratory tract with Bacillus influenzae and such associated organisms as the pneumococci and streptococci, but it seemed evident that the Bacillus influenzae was the most important causal agent, though the others might have been most important as the causes of death. The associated organisms played a very important rôle in the production of the various complications, usually being the essential causative agents of these.

Auricular Fibrillation and Alternation of the Pulse.—Paul D. White (*American Journal of the Medical Sciences*, January, 1919) studied three groups of 100 patients each, showing 1, pulsus alternans; 2, auricular fibrillation, and 3, normal rhythm, with relation to prognosis. Three years after beginning to collect the cases, and two years after the most recent one, seventy-four per cent. of the patients with pulsus alternans, forty-eight per cent. of those with auricular fibrillation, and forty-seven per cent. of those with normal rhythm had died. The higher grades of alternation of the pulse seem to have an especially high mortality, nearly 100 per cent. within three years. The cases with auricular fibrillation complicated by aberrant ventricular complexes likewise seem to be very fatal, 100 per cent. in this series, those with ectopic ventricular contractions complicating the fibrillation have a mortality almost as high as the total of alternation, while uncomplicated auricular fibrillation has a surprisingly low mortality percentage.

Unusual Physical Endurance with Valvular Heart Disease.—Robert D. Rudolf (*British Medical Journal*, January 4, 1919) records the case of an infantry officer twenty-five years of age who came under observation for palpitation, shortness of breath, and depression as the result of gassing two months previously. He was found to be in good physical condition, but examination of his heart revealed hypertrophy, marked aortic and mitral insufficiency, and probable aortic and mitral stenosis which evidently dated from an attack of rheumatic fever when he was thirteen years old. His pulse was regular, moderate in rate, and of water hammer type. In spite of this severe cardiac valvular disease he had always been usually athletic all of his life up to the time of his gassing, having been a leader in football, cricket, short distance running, broad jumping, and the champion athlete of his whole army corps. It is evident that in this case the heart had a greater reserve power, in spite of the valvular handicaps, than the average heart.

Blood Counts in Experimental Poliomyelitis in the Monkey.—Taylor (*Journal of Experimental Medicine*, January, 1919) studied the type of change in the white cell count of the blood in monkeys in the following stages of experimental poliomyelitis: the incubation period, the acute stage, the stage of prostration, and of recovery, and compared it with that of normal monkeys and with that of animals which were inoculated with the virus of poliomyelitis, but did not succumb to the disease. The counts made during the course of typical acute experimental poliomyelitis varied from the normal. After injection with the virus, the lymphocytes are diminished at first, but between the fourth and sixth day of the incubation period are actually increased. During the first three days after the onset the lymphocytes are markedly decreased, and there is a rise in polymorphonuclear neutrophilic leucocytes. During prostration the lymphocytes remain low, the total polymorphonuclear neutrophilic leucocyte count returns to normal, but there remains a relative increase. During recovery, the cell count and relation again become normal.

Obstinate Forms of War Dyspepsia.—Charles Nordman (*Paris médical*, November 30, 1918), from nineteen months' experience with dyspeptic patients in a military hospital concludes that whenever a patient fails to respond rapidly to rest, diet, and the remaining customary measures, an organic irritative focus somewhere in the body must be sought. The pathogenetic rôle of the neurosis which is usually superimposed on organic lesions is not to be denied, but often an actual, detectable organic disease lurks behind the appearances of a gastroneurosis or common dyspepsia. While most dyspeptics exaggerate their discomforts, true malingerers are rather rare; where deceit is resorted to, it usually consists in the regular ingestion of purgative salts to keep up a diarrheal disturbance. Again, many war dyspeptics are merely individuals suffering from colitis with dyspepsia and secondary vomiting. Some are merely unrecognized amebic cases, in which the dysentery has come on slowly. Examination of the stools may have been negative; but upon repeated study of fresh material after administration of small doses of sodium sulphate or of iodized enemas, ameba may eventually be detected. A considerable number of the dyspeptics are cases of tuberculosis. Such a patient loses weight, becomes anemic and suffers from slow digestion. Chemical and x ray studies of the stomach may be negative, and the patient improves temporarily when placed at rest and on a diet. A few months later, pulmonary tuberculosis is manifest and often irremediable. Regular temperature estimations and the noting of abnormal pulse frequency and irregularity and of a low blood pressure have often led the writer to the diagnosis of incipient tuberculosis among men previously considered simple dyspeptics. Finally, in some atypical cases of gastric ulcer with the lesion in the mid-gastric region and the pain and vomiting closely following upon ingestion of food or occurring irregularly, persistent failure of rest and strict dieting to relieve the pain should suggest ulcer, in which event operative treatment is nearly always indicated.

Ventricular Puncture for Early Diagnosis of Posterior Basilar Meningitis.—Abraham Zingher (*American Journal of the Medical Sciences*, January, 1919) claims that a prompt ventricular puncture is indicated in cases that show progressive meningeal symptoms and give a dry tap on lumbar puncture. In some patients the lumbar puncture may show a few drops of purulent spinal fluid, but a sufficient amount cannot be withdrawn, even by aspiration, with a syringe, and little or no antimeningitis serum can be injected. Even less pronounced meningeal symptoms, such as slight but definite bulging of the anterior fontanelle, tremors of the extremities and fever, should lead to a ventricular puncture in cases that have given repeated dry taps in the hands of an experienced operator. Such early ventricular punctures he believes to be of vital importance in the successful treatment of cases of posterior basilar meningitis. In adults the persistence of the clinical symptoms, associated with a persistently cloudy spinal fluid, which has become sterile after two or three injections of antimeningitis serum, indicate in many cases the necessity for a ventricular puncture. In these patients the lumbar puncture may show a sufficient amount of spinal fluid, but the outlet from the ventricles is closed off and the serum injected into the spinal canal does not reach these infected regions. Ventricular punctures should be repeated daily or every other day; twenty to fifty cc. of fluid withdrawn and fifteen to thirty cc. of serum injected by gravity. The serum should be of body temperature and less in quantity than the fluid withdrawn. The interval of time between the punctures, and the total number, depends upon the rapidity of the reaccumulation of the fluid. A lumbar puncture should be made when the patient is discharged to determine the reestablishment of the communication between the ventricles and the subdural space of the cord, and cases should be followed up for a period of years.

Early Diagnosis of Cerebrospinal Meningitis from Stained Blood Film.—W. W. King (*Journal A. M. A.*, December 21, 1918) records the experience of finding large numbers of typical meningococci in blood smears taken from a rapidly fatal case of cerebrospinal meningitis. The organisms were intracellular and extracellular with reference to the leucocytes and responded to the typical staining reactions, being gram negative. Attention has previously been called to the occasional cultural demonstration of the presence of meningococci in the blood, but their discovery in stained blood films has never been suggested as a possible method of diagnosis. The frequent failure to secure positive blood cultures of this organism may be accounted for by the fact that it may have been ingested by the phagocytes, or as being due to the bactericidal or inhibitory action of the antibodies contained in the blood. Further investigations are needed to determine whether the blood smear method is of any diagnostic value, but should it prove so it would be very helpful where there are objections to the performance of a diagnostic lumbar puncture. It might also be found to give positive results at an earlier period in the course of the infection than does the spinal fluid.

Studies on Lymphoid Activity.—James B. Murphy and Ernest Sturm (*Journal of Experimental Medicine*, January, 1919) state that after an initial fall in the lymphocyte count there is a marked rise, as high as 200 to 300 per cent. above the normal count, in rats, mice, and guineapigs which have been subjected to short periods of dry heat. The circulating lymphocytes were in a stage of amitotic division after heating. The authors believe that there is a sufficient stimulation of the lymphoid centres to account for the increase.

Erythema Due to Morphine.—Satre (*Presse médicale*, November 11, 1918) reports the case of a man of forty-one years differing from sciatica as a result of contusions of the sciatic nerve, in whom an injection of morphine and atropine was followed in two hours by intense itching, with universal erythema and a rise of the temperature to 37.9° C. That the disturbance was actually due to the morphine was shown a few weeks later, when the same symptoms followed the administration of twenty drops of a one per cent. morphine solution. The urine was normal throughout in this case.

Incidence of Typhoid Carriers in an Asylum. Charles Krumwiede, Jr., and Elbert M. Somers (*Journal A. M. A.*, December 28, 1918) record the results of their investigation of a state insane asylum for the presence of typhoid carriers. The institution had a few cases of typhoid fever in 1907 and two chronic carriers were then found. In 1912 a few cases appeared again and from them another chronic carrier developed. A third outbreak of a few cases developed in 1915 and this investigation was begun early in 1916. A total ward population of 516 female patients was surveyed and five chronic typhoid carriers were found in addition to those previously discovered, giving a carrier rate of 15.5 per thousand. This is a higher rate than is common among institutions, although high rates are frequent among them. If the rate were applied to the State of New York it would mean the existence of 45,000 carriers over twenty-five years of age, among the females alone. The results show the advisability of prophylactic typhoid vaccination of all institutional inmates.

Experimental Surgery of Large Arteries.—Frederick C. Herrick (*Journal A. M. A.*, December 28, 1918) records eleven of his experiments to determine the effects of the introduction of extravascular tissue into large bloodvessels. He concludes that large strips of muscle or fascia can be placed within the lumen of the aorta or other large vessel without causing permanent clot or thrombosis, in some cases there being no clot at all although the strips may occupy three fourths of the lumen of the vessel. The contraction of the vessel walls about the inserts and of the latter against the slits made in the vessels entirely controls hemorrhage in more than half the cases. One or two simple sutures complete the control in the other cases. Such inserts may be used to reduce the volume of a large artery, to reduce the orifice of a sacculated aneurysm, or to diminish the size of a fusiform aneurysm. Embolism does not follow such use of muscle or fascia, for when a clot does form it is firm and of a blunt icicle shape.

Therapeutic Aspects of Diseases of the Hematopoietic System.—F. J. Rohner (*Journal of the Iowa State Medical Society*, December, 1918) concludes an extensive article by saying that splenectomy is of no permanent value in pernicious anemia, although of decided value in hemolytic icterus and splenic anemias. It is an irrational procedure in splenomyelogenous leukemia which involves the bone marrow as well as the spleen. Transfusion is a life saving measure in hemorrhage and of decided value in many secondary anemias, but of only temporary and disappointing benefit in pernicious anemia. X ray, radium and benzol are valuable additions to the therapy of the leukemias, and, while not curative considerably prolong life in such cases.

Specificity of Salicylate in Rheumatic Fever.—Paul J. Hanzlik, R. W. Scott, and P. C. Gauchat. (*Journal of Laboratory and Clinical Medicine*, December, 1918) do not believe that salicylates have any thoroughly demonstrated specific action in rheumatic fever. They are no more than a symptomatic remedy which may be used safely in large doses. Salicylate possesses a combination of antipyretic and analgesic qualities which render it more suitable for the treatment of rheumatic fever than the various combinations of opiates and antipyretics which may be used. The above conclusions were based on a study of nine patients who were first treated without salicylates and if no relief was obtained within a reasonable time, salicylate up to the point of toxicity was administered.

Nature of the Skin Pigmentation in Picric Intoxication.—Prosper Merklen (*Paris médical*, November 23, 1918) refers to two widely held, but opposite, views concerning the origin of the skin coloration after ingestion of picric acid, first, that picric jaundice is merely a discoloration of the skin by the acid and its derivatives, and secondly that it is a true icterus, as indicated by the finding of bile pigments in the blood and urine or merely of urobilin in the urine. Each of these conceptions is partly correct. At the start of the intoxication, the discoloration is due to the picric derivatives alone, and the term picric jaundice is not applicable at that period. This constitutes the simplest and commonest form of the intoxication, manifested in the absence of any retention and elimination of bile pigments. Used continuously and in rather large amounts, however, picric acid acts as a poison to the liver, eventually inducing cholemia, choluria, urobilinuria, and cholaluria, in which case an actual picric jaundice is present. The transition between the two periods is not clinically distinguishable except by examination of the urine. As a matter of fact, hepatic disturbance develops in only a minority of cases, Ikedomia, for example, observing but ten per cent. of instances of cholemia and choluria and a like percentage of instances of urobilinuria among forty cases of picric intoxication. Thus, as a rule, the skin discoloration is actually due to the direct staining property of the acid, which Malmejac and Lioust have, indeed, demonstrated histologically in various skin layers. It is a mistake, however, to hold that the finding of pigments in the urine excludes picric intoxication in a given case.

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Sixty-eighth Annual Session, Held in Philadelphia, September 23, 24, 25 and 26, 1918.

The President, Dr. WALTER F. DONALDSON, in the Chair.

Medical Activities in Pennsylvania.—Dr. FREDERIC L. VAN SICKLE, of Olyphant, directed attention to the fact that for the first time in the history of the Medical Society of the State of Pennsylvania the society had been bereaved by the loss of a president during his active service, the late lamented and worthy president, Dr. Samuel G. Dixon, whose demise had been so untimely in the work of the society. He left an imprint upon medical and civic affairs of the Commonwealth of Pennsylvania far greater than was possible to the average man. The hope was expressed that the work established by him might be uninterruptedly continued. In the present situation the first duty of the medical profession was pointed out to be organization in the two classes requested by the Government—the Medical Reserve Corps and the Volunteer Medical Service Corps. Highly desirable in the society's work would be the creation of a commission to carry on a correlation of work with the War Department. Social insurance was referred to as requiring the aid of every thoughtful worker in this connection. Suggestions regarding amendments or alterations for the benefit of the profession should be submitted, and fee bills in their relation to the treatment of injuries should be unified or a composite bill drawn. The question of annual or semi-annual examination of the industrial worker to keep him fit called for attention. A greater business acumen also should obtain in the medical profession which, unfortunately, deserved the criticism that it kept books badly. The work of the Bureau of Medical Education and Licensure, and that of the American Medical Association through the Council on Medical Education were mentioned as of high value to organized medicine. To adopt the plan recommended by President Bevan relating to the supply of medical men would seem a wise measure to be taken by the medical colleges of the State. There should be adopted also a better scheme than the one now operative by which to safeguard the interest of the profession in its relation to legislative measures.

Interpretation of the Manifestations of Shock. Dr. C. C. GUTHRIE, of Pittsburgh, said that in the study of shock in the laboratory the first endeavor had been to discover the causative mechanism with the view of establishing scientific interpretations of the phenomena and with the ultimate purpose of developing rational methods of prevention and treatment. Since studies had been limited to experiment with laboratory animals, mainly dogs, investigation was handicapped by the uncertainty of the conditions induced being identical with those in man and by the difficulty of diagnosis. While the studies in the search for causative mechanism

had been for the most part negative, evidence pointed rather to the central nervous system as the probable seat of primary change, particularly to the bulbar mechanism presiding over circulation and respiration. Results obtained in pronounced shock showed that both reflex vasomotor and respiratory responses might be greatly decreased. Decrease in reflex augmentation of arterial blood pressure occurred, both actual and in proportion to blood pressure. That the result in some instances was not due to stimulation fatigue was demonstrated. That it was not due to fatigue of a single path due to repeated stimulation, or to possibly localized central fatigue was also shown. Before drawing conclusions from such observation it was necessary, the author said, to know whether or not reflex vasomotor augmentation is a true index of the state of activity and capacity of the vasomotor mechanism. He was inclined to believe that shock of sudden onset in normal individuals preponderatingly was of inhibitory character, which was in agreement with a view expressed by Meltzer. It was recommended that the term shock be reserved for the condition exemplified by the acute clinical state and that the term collapse be employed to designate the moribund state following shock or any other condition. Experimental evidence supported the probability that the primary derangement in shock was of nervous character. In collapse, indirect and general considerations strongly indicated profound nervous derangement. The conditions in shock and collapse were said to differ fundamentally and treatment indications differed accordingly. In shock associated with severe hemorrhage, restoration of blood volume was indicated. For this purpose transfusion seemed best, but beneficial action might be obtained by intravenous injections of artificial solutions. The addition of a colloidal substance to such solutions caused their longer retention. For this purpose diluted acacia seemed preferable to other substances hitherto employed. Preventive measures and prompt treatment were said to be strongly indicated. While preventive measures were worthy of the most serious consideration they had been omitted from the discussion because of the lack of adequate first hand observations. Discussion of theories was omitted for the reason that at the present time they were legion and no one had overwhelming support.

Surgical Shock in Face Mutilations and Coincident Injuries.—Dr. JOHN B. ROBERTS, of Philadelphia, said that the term shock was used to cover many symptoms following injury—anemia, fat embolism, rapid absorption of septic fluids, and rapid abstraction of heat from abdominal organs. The complete recovery seen at times indicated, he said, that the basic lesion was susceptible of repair, wherever situated. Porter's conclusions, relative to fat embolism, enforced inhalation of carbon dioxide were apparently largely founded on examination of cases a good many hours after injury. Lowering of the alkali reserve in the blood after anesthesia

and operative attacks, and the beneficial effect of intravenous use of alkaline solutions had seemed to indicate a possible relation between shock and acidosis. Henderson and Haggard, it was stated, saw a suggestive cause of surgical shock in a connection between the excessive respiration due to pain and the carbon dioxide capacity or alkali reserve of the blood. For prevention of shock, Doctor Roberts observed, there must be avoidance of fall of blood pressure, prevention of pain, and control in severity of traumatism. Ether, the most satisfactory of the usually inhaled anesthetics, it had been said, reduced blood pressure and was toxic to nerve tissue and glandular organs. Nitrous oxide with ether following or in association with nerve blocking was said to be at times available. Geoffrey Marshall, it was said, used nitrous oxide gas with oxygen to lessen shock in amputation. In his opinion shock evades exact definition. Doctor Roberts regarded Marshall's experience, however, more that of an anesthetist than of an operating surgeon. Porter had found that a diastolic blood pressure of forty-five to fifty mm. continued for a considerable time in a laboratory animal was followed by death by transfer of blood to the portal veins unless the animal were saved by surgical treatment. Treatment, therefore, required that the blood pressure of the wounded in war or civilian practice be raised above the critical point. Elevation of the feet and intravenous injection of saline solution would raise diastolic blood pressure to seventy or eighty mm., and such procedure was to be employed in addition to elevation of legs and trunk. Adrenalin might be employed in addition if the pressure fell again. Too much saline solution might increase hemorrhage in oozing wounds, unless hemostasis or operation and hemostasis had been successfully employed. Transfusion of blood was then acceptable, but hemostasis must also be looked after. External heat Doctor Roberts regarded as of the highest importance. Pressure was to be made upon the wound and not by tourniquet above the wound. In Doctor Roberts's opinion, Geoffrey Marshall's objection to morphine was probably founded upon anesthetic observations rather than upon the study of clinical surgery as an operating surgeon. Reference was made to the fact that C. L. Gibson, of New York, strongly advised the use of morphine to prevent shock, stating that its generous use made the journey of the wounded man to the next station comfortable; also that it had been found to be of great value previous to operations with a marked effect in diminishing shock. Doctor Roberts believed that the preliminary hypodermic use of morphia and atropia would probably convince operators that Geoffrey Marshall's objection to ether in amputation cases was probably not well founded. Surgical shock, he said, had nothing to do with "shell shock." Surgeons must remember that saline solution was not well absorbed in shock cases; it might take some time to get the beneficial effect of gravity and intravenous medication. Frequent blood pressure observations combined with temperature observations would determine the indications for cessation or diminution of activity in treatment.

Dr. S. J. MELTZER, of New York, in discussion of the papers of Doctor Guthrie and Doctor Roberts, considered first the theory of acapnia, which assumed that shock was due to a diminution of carbon dioxide in the blood of patients in shock. This assumption suggested at the same time the treatment, consisting in letting the patient breathe some carbondioxide, or respire through a long tube—rebreathing, as it is called for short. The theory of acapnia as the cause of shock, Doctor Meltzer said, was about ten years old and was brought forward by Dr. Yandell Henderson. If the statements were generally confirmed that the carbon dioxide of the blood was decreased in shock, the fact of the reduction of carbon dioxide could not prove the correctness of the acapnia theory. The reduction of carbon dioxide might merely be a consequence of shock and not the cause of it. A successful treatment of a disease by a method devised upon a certain assumption of the nature of the cause of the disease did not prove that the assumption was necessarily correct. Geoffrey Marshall, an expert anesthetist, was of the opinion that rebreathing was rather a dangerous procedure and surely ought not to be used in shock patients. Acapnia and rebreathing, the author said, died hard, but that so far as the science of physiology was concerned, were surely dying. Discussing another phase in the physiology of shock, Doctor Meltzer said that low blood pressure was a predominant symptom of shock. For at least six decades physiologists firmly believed that low blood pressure was accompanied by a relaxation of the peripheral blood vessels which leads to the accumulation of the greater part of the body's blood in the vessels of the abdominal viscera. In recent years the assumption, he said, had gained the ascendancy that in shock the peripheral blood vessels were contracted. Surgeons had stated that they had never found the vessels of the abdominal viscera to be engorged in shock. In England and in France Doctor Cannon had had occasion to study shock experimentally as well as clinically. He had become converted to the theory that the most essential factor in the production of shock was acidosis and had begun to advocate the treatment of shock by the administration of bicarbonate of soda. Recently, however, the theory of acidosis as the primary cause of shock had lost ground. Bayliss himself had given up the idea that acidosis was of primary importance in shock and he as well as others had lost faith in the value of the alkaline treatment of shock. Regarding the theory that shock was produced by pulmonary fat embolism, which theory had received much popular attention, Doctor Meltzer observed that the article of Professor Porter in the *Atlantic Monthly* read indeed like a most attractive novel; the sentences were crisp and the style and manner of presentation most attractive. In science, however, and in practice of medicine, more interest was felt in the truth and the practical value of the facts than in the beauty of their presentation. There was much in Doctor Porter's statements which might be readily accepted. No doubt there were cases in which fractures of the long bones, or injuries to fat tissues led to pulmonary fat embolism, to a dan-

gerous and even rapidly fatal fall of blood pressure. These facts were said, however, to be in no way new. Doctor Porter himself had admitted that shock brought about by injuries to the abdomen might be due to "change in the hydrostatic conditions of the circulation" in the abdomen, and not to fat embolism. Fat embolism, a grave condition, presented a number of definite clinical symptoms outside of the presence of low blood pressure. There were in the first place symptoms pointing directly to the lungs as the seat of trouble. The patient might be suffering from air hunger, dyspnea; pulmonary edema and even hemoptysis were frequently present. Upon auscultation the presence of râles might be discovered. There were also indications of the presence of fat in the circulation in abnormal quantities. The urine contained fat globuli; fat might be readily detected in a drop of blood; even the sputum might reveal the presence of fat. Many clinical signs indicated that the similar to shock condition of the patient was due to pulmonary fat embolism. Doctor Porter, the author observed, had not mentioned in his article that he availed himself of these signs. Doctor Porter recommended the inhalation of carbon dioxide for the treatment of shock and claimed that he has helped many such cases by this treatment. He administered carbon dioxide, not for the purpose of meeting the possible exigencies of acapnia, but for the purpose of producing deep inspirations, which, according to his views would help "drive the blood from the engorged abdominal veins into the chest where it shall fill the half empty heart and permit the faithful organ to fill the capillaries." Wiggers was referred to as saying that if the circulation from the right ventricle were impeded by capillary emboli in the lungs, the introduction of larger quantities of blood in the right ventricle might lead to the dilatation of that ventricle and to death. According to Wiggers, shock was distinguishable from pulmonary fat embolism by the difference of the pressure in the right ventricle and the pulmonary artery; in pulmonary fat embolism the pressure was rather high, while in shock it was low. Therefore, while in shock it was advisable to drive the blood from the veins of the abdominal cavity into the right ventricle, this procedure was to be avoided in cases of pulmonary fat embolism.

War and the Child.—Dr. SAMUEL MCC. HAMILL called attention to the child as a highly important part of the problem of the war and referred to the President of the United States having pointed out that the conservation of the lines of the children was an essential war measure. In addition to the decreased birth rate incident to 5,000,000 men being on the firing line, there was a decrease in population due to cutting off immigration, from which source there had been an increase in 1913 and 1914 of 1,197,892 and 1,218,408 respectively. It had become necessary for government health agencies to maintain the health of children as never before. In England the response was immediate and the infant mortality in 1916 had attained the lowest point known in the history of that country. Pennsylvania had been the first state to include child welfare as a factor in its war program

and had established a Division of Child Welfare in its Committee of Public Safety. There had been no countrywide provision for the welfare of the children of the nation until the Woman's Committee of the Council of National Defense established a Division of Child Welfare. This committee had entered into cooperation with the Children's Bureau to act as the agent of the bureau in the organization and direction of child welfare in the various states through the medium of the state divisions of the woman's committee. To meet with a full measure of success Doctor Hamill claimed that child welfare work must have the active support of the medical profession. The fight for the children against ignorance, poverty, crime, and intemperance was said to be essentially the doctor's fight.

The Reeducation of the Injured Soldier.—Major R. TAIT MCKENZIE stated that the conditions which must be treated in the wounded soldier were: Injury to peripheral nerves; scar tissue; postoperative conditions; functional neuroses; conditions variously grouped under the name shell shock; the soldier's heart, which is but a symptom of overstrain and debilities. The majority of men filling our war hospitals and convalescent homes must depend for most of their present treatment and for their future efficiency, upon the masseuse, the practitioner of electrotherapy and hydrotherapy, the physical instructor, and the teacher of vocational training. The course usually followed begins with preparation by heat, either wet or dry, or produced by electricity, on through the stimulation of nutrition by massage and passive movement then to simple exercise taken voluntarily and eventually to skilled movements by gymnastics, games, and handicrafts, and graduating into industrial training. The necessary equipment consists of the galvanic or continuous current, the faradic or alternating current. The high frequency current used in diathermy is useful in producing hyperemia in deficient circulation and as a preparation for massage or movement. Radiant heat, and hydrotherapy play an important rôle in treatment of the wounded man. A description of the treatment for the various disabilities is given with an enumeration of appliances used in their correction.

The Cardiovascular Problem in the Aviation Recruit.—Dr. JAMES I. JOHNSTON, of Pittsburgh, said that those who had examined candidates for the Aviation Corps were impressed by the quality of the recruit physically and by his splendid spirit in the choice of service. The greatest apprehension among candidates for all service was fear of refusal. This was particularly true of the aviators. From between eight and nine hundred men examined about fifty per cent. were passed as physically fit, while only thirty per cent. were finally accepted and sent to the United States School of Military Aeronautics. The occupations of many of these men were that of college students, traveling salesmen for large corporations, recently athletic college men, and instructors from schools and colleges. In the cardiovascular group numbering about one hundred the analysis was confined entirely to the domain of physical diagnosis. Although

these men had already been passed on by an examiner there was the occasional appearance of organic cardiac disease or a thyroid cardia in fine balance. We have learned to agree with McKenzie that murmurs in themselves have little significance. The largest number of murmurs observed were due to thyroid toxemia and were in a state of either fine balance or in unbalance. Our experience did not confirm the observation published a few years ago that murmurs at the mitral area, especially from true valvular lesions, could usually be heard in the left subclavian artery. This was of occasional occurrence only. No man with a constantly systolic pressure above 135 was accepted.

New Medical Conditions and Developments Due to War Emergency.—Dr. J. M. ANDERS said that the main object of the paper was to emphasize the increasing importance to the medical profession of America, as hostilities progress, of the new medical developments resulting from the present great struggle. Vincent's angina has shown a greatly increased incidence under military conditions. The writer observed a case complicated with diphtheria in a sailor suffering from pneumonia. Vaccines have proven useful; the immoderate use of tobacco is to be avoided. In connection with the pneumonias, Colonel William H. Welch states that the enhanced virulence of the streptococcus is the most important problem in dealing with infections of soldiers in the present war. The mortality rate in empyema due to the *Streptococcus hemolyticus* is not less than seventy-five per cent., while in the form due to the *pneumococcus* recovery is the rule. The most approved treatment is aspiration repeated as necessary and intrapleural disinfection with Dakin's solution. Prophylactic vaccination against pneumonia with hemolytic streptococcus and *Pneumococci* Type I and Type II was advised. In the various forms of disordered heart action in soldiers, as Hume points out, the patient must not be permitted to entertain the notion that he has a diseased heart. In the higher incidence of tuberculosis in certain foreign countries the cause in the majority of cases apparently is endogenous, while a considerable proportion may be attributed to primary exogenous infection. According to the noted phthisiologist, Sergeant, the most trustworthy physical signs of a lesion of the parenchyma of the lungs as "dullness, hemoptysis, increased fremitus, 'clicks,' and a veil or shadow at the apices, fixed, not modified by cough with strid and fly spots on the plate." In my view the examiner of recruits should rely quite as much upon a history, presence or absence of fever, the pulse, detection of bacilli in the urine and of antibodies in the blood, as upon the physical signs and x ray findings. Also tuberculous lesions should be searched for in all other organs of the body than the lungs. The tests to be applied to keep the latent cases of tuberculosis out of military service cannot in my opinion be too stringent. In epidemic cerebrospinal meningitis treatment is summarized in early diagnosis and prompt serum injection. The treatment of trench nephritis does not differ from that in acute glomerular nephritis in civil life. Concerning trench fever

the etiological organism is in the plasma of the blood but is not yet definitely discovered. While the prognosis is good anemia and disordered action of the heart are apt to follow the more severe forms. Treatment is wholly symptomatic. An assured diagnosis demands the exclusion of relapsing fever; this is possible only by microscopic examination of the blood, which shows an absence of the *Spirochetæ recurrentis*. War edema occurs mainly among prisoners of all nationalities who are fed on German rations. Treatment consists of rest in bed and a diet of sufficient protein and at least one hundred grams of fat daily. Of the so called Spanish influenza unanimity of opinion upon the bacteriology does not at present exist. While the general opinion is that we are experiencing a pandemic of influenza such as prevailed in 1889-90 this view is to be accepted with caution and reserve.

Dr. THOMAS McCRAE said that Doctor Anders's paper drew attention to the presence in the army of problems other than surgical. The cases of disturbed heart action I fancy are the bane of every medical man in the army. Infection here I think plays a very small part. This is true also of internal gland secretion. The overwhelming factor is the nervous element. I would emphasize that there is nothing concerned with the disordered heart action as seen in the army that one does not see in civil life. Doctor Anders suggests the possibility of aggravation by the strain of war; many of the men never get to war. One very big problem is the part played by tobacco. I think it is the consensus of opinion that while tobacco may not have been the original cause of the condition it plays a large part in aggravating it when once present, and it is a very difficult problem to handle in the army. When the quantity of tobacco used by a man amounted to forty cigarettes a day it must be realized that he is taking a drug which poisons him. The question of the proper allowance of tobacco to men with disturbed heart action should be considered. In war nephritis the persistence of the hematuria deserves particular attention. Regarding the question of a certain number of men being sent back from the French front line with a diagnosis of tuberculosis when only a certain proportion had the disease, I think there is no reflection upon the diagnostic ability of the French surgeons. It is to be remembered that all these men had lost weight, the majority had acute bronchitis with bloody sputum; signs were probably present throughout the lungs. To say whether or not they had acute tuberculosis passes the ability of any man at the front or in the base hospital until he has time to observe them.

The Fixed Full Time Staff in the Small Hospital.—Dr. HAROLD L. FOSS, of Danville, told of the advantages of the permanent, salaried staff, particularly in its application to the rural hospital. Salary versus the fee plan is considered, as are also organization of departments, concentration of authority and responsibility. Attention is given to the relationship of such an organization to the general practitioner, the matter of fees and the handling of benevolence. He showed how such a plan was being worked out at the Geisinger Memorial Hospital.

Blood Changes in Rats on Cancer Inhibiting and Cancer Stimulating Diets.—Dr. ELLEN P. CORSON-WHITE presented a brief study of some blood changes in rats on various diets. The effect of these diets on the blood and on 1, growth and nutrition of rats; 2, takes, growth energy, and metastases of the experimental tumor; 3, length of life of animal after inoculation. The investigation showed that all diets which gave in normal animals an approximately normal growth curve, grew large tumors with high percentage of takes, all diets which depressed the growth curve, retarded or prevented tumor growth. A study of blood of rats on these diets showed no change in numerical count of red and white cells, but a decrease in number of lymphocytes in all diets stimulating cancer growth, and an increase in all diets which retarded tumor growth. From the work it would appear that cholesterol is a factor which, while of little or no nutritive value, favors tumor growth when conditions favorable to its initiation are present.

Results of Coordination of Laboratory and Clinical Researches in Pneumonia.—Dr. S. SOLIS-COHEN, of Philadelphia, gave a report of results of coordinated research by Kolmer, Heist, Steinfeld, Weiss and himself, showing the chemotherapeutic activity of cinchona derivatives against pneumococcus in vitro and in vivo, the inferiority of optochin to ordinary quinine compounds in human pneumonia; pneumonia poison in the human lung; the inhibiting effect of quinine on this and pneumotoxins; the Lacy-Heist method of studying immunological power of whole circulating blood. Immunity of certain individuals and birds against pneumonia. Bacterins (vaccination) and quinine mouth washes as preventives.

Dr. DAVID RIESMAN, of Philadelphia, believed that in no disease was the close cooperation of laboratory workers and clinicians more opportune than in pneumonia, the most serious infectious disease encountered in this climate. Its problem was to be attacked more from the point of prevention than had obtained hitherto. That a healthy carrier might spread the disease was a discovery of the utmost importance.

(To be continued.)

Letters to the Editors.

VENEREAL DISEASES IN CANADIAN FORCES.

OTTAWA, February 6, 1919.

To the Editors:

In reference to an article on Syphilis and Matri-mony, by Edward Pisko, M. D., appearing in the number of your JOURNAL which was published on December 14, 1918, in which the writer makes a quotation from *The Hospital World*, your attention is invited to the attached copy of a letter to the editor of *The Hospital World*, Toronto.

Yours very truly,

F. G. FOTHERINGHAM, Major General.
Director General of Medical Service.

OTTAWA, February 6, 1919.

The Editor, *The Hospital World*, 145 College Street, Toronto, Ont.

Sir:—I wish to invite your attention to the March number of your *Journal*, vol. xiii (xxiv), No. 3, and to the leading editorial in that number on Venereal Diseases.

This editorial contains most misleading and libelous statistics in reference to venereal disease in the Canadian forces. One sentence in particular—"Several of the Canadian camps visited, showed ninety per cent. of returning soldiers infected with syphilis"—contains a statement which is nothing more than a figment of the imagination of the person who made it, and is so obviously untrue and so grossly unfair that it is not understood how the editor of a reputable medical journal could wish to make such a statement his own and publish it as a leading editorial.

In Canadian military camps, venereal disease has been practically nonexistent since the beginning of the war, as all soldiers so infected have always been immediately admitted to special venereal disease hospitals, and those who did not report their condition were invariably detected at the weekly inspections carried out since August, 1914.

"Returning soldiers" referred to in your editorial were not concentrated in camps of any kind prior to the cessation of hostilities. Apart from the very small number returned on compassionate grounds and for duty at home, soldiers did not return from the front for any reason other than medical unfitness, and then only under hospital conditions.

Your editorial does not specify any class of camp and the location of the camps referred to is not stated but, even supposing the word "camps" was intended to mean special venereal disease hospitals (where 100 per cent. of patients would be suffering from venereal disease in some form), the percentage of syphilitics, as compared with total patients, would not exceed 12.5 per cent. in Canada or twenty-five per cent. overseas, in any year of the war.

The proportion of venereal disease to total disease (not including wounds) is:

In Canada	10.6%
Overseas	14.4%
In all areas combined	13.1%

The incidence of venereal disease among Canadian troops is as follows:

In Canada	0.7% per annum
Overseas	2.6% per annum

Before the Military Service Act came into force recruits who were suffering from venereal disease were not enlisted, but, of the draftees brought up under this act, venereal disease *per se* was not considered a sufficient cause for rejection, and draftees so infected were enlisted and admitted to hospitals for treatment without pay. It has been found among draftees brought up for compulsory service that, of those who acquired venereal disease, 43.7 per cent. were infected previous to enlistment compared with 56.2 per cent. who became infected subsequently.

In one military district in Canada, 11,178 men were medically examined at one and the same time: of these, 1,400 were draftees awaiting enlistment.

and 3.5 per cent. were found to be suffering from acute venereal disease; the other 9,778 were troops in training, and only 0.3 per cent. showed evidence of venereal disease. In other words, the incidence of venereal disease is more than ten times as great among male civilians of military age as among soldiers. Statistics for civilians on this subject are very few and meagre but you will agree that such statistical information as is available is most flattering, not only to the moral character of the members of the Canadian Expeditionary Force, but also to the success of the efforts made to protect them from these diseases.

Your statement, that two thirds of one Canadian division were infected with syphilis before that division had been in England six months, is impossibly erroneous. The total number of cases of syphilis among all Canadian troops, in all areas, during the whole war does not amount to one half of one division.

Will you be good enough to retract officially the statements in your editorial referred to in this letter and give the same publicity to the retraction as was given to the original editorial.

[Signed.] F. G. FOTHERINGHAM,
Director General of Medical Service.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Traité de Physiologie. Par J. P. MORAT, Professeur à l'Université de Lyon; Correspondent de l'Institut et Maurice Doyon, Professeur adjoint à la Faculté de médecine de Lyon. Fonctions de Relation par J. P. Morat. Fonctions de Reproduction par M. Doyon. 221 figures noires et en couleurs. Paris: Masson et Cie, Editeurs, 1918. Pp. 800. (Prix, 25 francs.)

In this, the fifth volume, the authors have completed their extensive work on physiology. The forepart of the book, which is written by Morat, is devoted to the special senses. Under this general heading have been included language and locomotion. The classification of the general senses has been derived from the relationship of animal life to surroundings. In handling these topics the complete sensory motor cycle has been taken into consideration and followed in all its bearings on other physical action of the body, instead of following the style of former textbooks which described only the action of the various receptor organs. The two acts which the author points out as being the most characteristic among the group of special senses in their relationship to the exterior world are those of phonation and locomotion. Throughout the book the evolution of the physiological acts have been considered by describing those of the lower animals first, gradually leading up to man. In the second part of the volume the functions of reproduction are described by Doyon. The book contains over 200 excellent illustrations. The completion of this volume has been delayed by the war, but that the authors have taken advantage of this and made many additions which would not have appeared

had the work been completed at the scheduled time. Now that the final book of the series has been published, the five volumes make a splendid reference text which completely covers the field of physiology.

Ambulance de "L'Océan" La Panne. Travaux publiés sous la direction du Dr. A. DEPAGE. Secrétaires de la rédaction, Dr. A.-P. DUSTIN et Dr. G. DEBAISIEUX. Illustrated. Paris: Masson et Cie, Editeurs, 1918. Pp. 576. (Prix, 18 francs.)

This is the second volume which describes the work done at the Belgian Hospital at La Panne, under the direction of Doctor Depage. The present volume is written as a series of articles on the medical and surgical operations conducted at the hospital. Special attention has been given to the experimental research department of the hospital and to the laboratory cooperation with the various departments which enabled them to derive the benefits and apply their findings in a practical way. There are many extremely useful papers in this valuable book. It is interesting to note that the difficulties to which the hospital was subjected on account of its proximity to the front did not hinder the staff from carrying on scientific research and making application of their findings with minute care.

Births, Marriages, and Deaths.

Married.

DITMAN-CUMNOCK.—In Lowell, Mass., on Saturday, February 22d, Dr. Norman E. Ditman, of New York, and Miss Grace E. Cumnock.

SAFHIR-MEIROWITZ.—In New York, N. Y., on Thursday, February 21st, Dr. Joseph F. Saphir and Miss Elsa Meirowitz.

Died.

BOWMAN.—In Escondido, Cal., on Friday, February 7th, Dr. Carlos E. Bowman, of Alden, N. Y., aged sixty-three years.

CHAMBERLAIN.—In Boston, Mass., on Friday, February 14th, Dr. Myron Levi Chamberlain, aged seventy-six years.

GOODALE.—In Boston, Mass., on Friday, February 21st, Dr. Alfred M. Goodale, aged thirty years.

HARRISON.—In Silver Creek, N. Y., on Tuesday, February 4th, Dr. Willis B. Harrison, aged twenty-eight years.

HERBST.—In Reading, Pa., on Monday, February 17th, Dr. Edwin M. Herbst, aged sixty-two years.

HOUGHTON.—In Clinton, Mass., on Wednesday, February 12th, Dr. Warren N. Houghton, aged eighty-seven years.

IVINS.—At Bayshore, Long Island, on Saturday, February 22d, Dr. A. Lowry Ivins, aged thirty-two years.

KNIGHT.—In England, on Friday, November 1st, Dr. Frank H. Knight, Captain, Medical Reserve Corps, U. S. Army, of Brooklyn, N. Y., aged forty-three years.

MACCORMICK.—In Boston, Mass., on Sunday, February 16th, Dr. John Allan MacCormick, aged forty-five years.

MAXSON.—In Oakland, Cal., on Tuesday, February 4th, Dr. Willis H. Maxson, aged sixty-three years.

MITTENDORF.—In Crugers, N. Y., on Saturday, February 15th, Dr. William F. Mittendorf, aged seventy-four years.

OBERLY.—In Avon, Conn., on Saturday, February 15th, Dr. Aaron S. Oberly, Medical Director, U. S. Navy, retired, aged eighty-one years.

PAINTER.—In Ridley Park, Pa., on Friday, February 14th, Dr. William P. Painter, aged seventy-eight years.

TYSON.—In Philadelphia, on Friday, February 21st, Dr. James Tyson, aged seventy-seven years.

WALKER.—In Bunker Hill, N. Y., on Friday, February 21st, Dr. Mary E. Walker, aged eighty-seven years.

WEST.—In Willows, Cal., on Saturday, February 8th, Dr. John M. West, aged eighty-two years.

YOUNG.—In Lawrence, Mass., on Sunday, January 26th, Dr. Nicholas E. Young, aged fifty-five years.

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WHOLE No. 2101.

Original Communications

THE ROLE OF FOCAL INFECTIONS IN THE PSYCHOSES.*

HENRY A. COTTON, M. D.,
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Recent investigations in medicine have demonstrated the very important fact that the human organism must be regarded in its entirety, no matter what the symptoms of which the patient complains and for which the physician is consulted. Treatment based on the symptomatology alone in a given case may be successful in the simple maladies, but in the majority of cases the cause of these symptoms may be very remote from the region affected. The recognition of this principle, that a pathological condition of one organ or region may affect some remote region, has proved of value in determining the etiology of some of the most obscure disease processes and has revolutionized the therapy in such disease. By a peculiar perversity the seat or origin of the infection in the organ at fault may give rise to no symptoms, and its existence may be unknown to the patient and revealed to the physician only by a complete examination of every part of the body and the employment of laboratory methods to aid in its detection. Through the agency of the clinical pathology laboratory we have been able to reveal the presence of focal infections, and by eliminating them clear up these diseases with heretofore unknown etiology. The doctrine of focal infection has met with considerable opposition in spite of the fact that a great deal of work has been done by various investigators. Probably this opposition is due to the fact that the earlier work left much to be desired, and unsuccessful use of the principle discouraged others from accepting it. Nevertheless, the pioneer work of T. W. Hastings deserves special mention, and his insistence on the value of the complement fixation tests in determining the presence of the viridans group of the streptococcus is largely responsible for the investigations which have resulted in our conviction that focal infection had a very important role in the etiology of the psychoses. His paper (1) shows the difficulties of attempting to establish a new principle, and he is to be commended for his persistency in spite of many discouraging

experiences. His subsequent work places these reactions on a firmer basis, although as far as we are aware (except for the test for the gonococcus) the fixation tests for the streptococcus have been used in very few laboratories. His work in demonstrating the relation of infected teeth to acute and chronic articular rheumatism deserves to be placed in the first rank in experimental medicine. Billings and others have substantiated his findings and the relation is generally accepted, although there are still some who doubt it. The only criticism of the work is that of all such pioneer work—the principle was not extended to take in other sources of infection, that is, tonsils, gastrointestinal tract and genitourinary tract. It is now recognized that while the original source of infection may be the infected teeth, these organisms may and do reach other organs, such as the stomach, intestinal tract, gallbladder, kidneys, etc., and if not eliminated from these secondary foci the removal of the infected teeth will be of no avail. This is especially true of the intestinal tract.

The recognition of the principle of masked infection has also been the means of demonstrating the close relation of the various specialties and their interdependence. Thus, the internist when consulted calls in the aid of other men in special lines, even though the patient does not complain of any special disorder associated with the symptoms for which the internist is consulted. Probably psychiatry has suffered from an arbitrary isolation in this respect, and we have been guilty of looking only at the mental disease as such and have not taken the broader view that some condition other than the mental picture might exist in our patients. But we have been ready to utilize methods in general medicine as soon as they were definitely established, as was the case in the use of the Wassermann reaction. In fact, Wassermann's coworker was Plaut from the psychiatric clinic at Munich, although his name is never associated with the work except in the publication of the joint researches.

ORAL INFECTION.

The necessity of cooperation between the various specialties could not be better illustrated than in dentistry and medicine. Not until recently has there been any cooperation between these branches, and even at present, in spite of the brilliant work of Hans Thoma, of the Harvard Dental School, and

*Read at the meeting of the New York Psychiatric Society, April 3, 1918.

others of their own profession, many dentists refuse to admit any relation between dental infection and other diseases. They resent the physician interfering with their work, and in spite of the evidence to the contrary, they continue to put in the patient's mouth expensive bridge work and to cap teeth with gold crowns without making use of the simple expedient of radiographing the tooth to see if the root is infected. Thoma and others have emphasized the fact that no tooth should be crowned without first ascertaining what is at the apex of the root, and have called attention to the danger of this practice in laying the foundation for serious trouble later on. Another habit of the majority of dentists which should be soundly censured is that examining a patient's mouth and without a röntgenogram of the teeth tell the patient that the teeth are "all right." In my own experience this practice has often been the result of the patient's death later on.

It is a laudable ambition on the part of dentists to save teeth, but only when it has been demonstrated that the tooth is not already infected and liable to become much worse when capped and thereby furnish an ideal culture medium for the growth of bacteria. Hardly a patient of the better class is admitted to the hospital at Trenton who has not had expensive gold crown and bridge work, and our first act is to tear it all out, for by experience we know that it is infected. In a paper read before a joint meeting of the Mercer County Dental Society and the County Medical Society (2), I called attention to the danger of capping devitalized teeth and the value of the röntgen ray in determining apical abscesses, but my advice was not heeded. The amount of disease, suffering and even death which is caused yearly by failing to accept this simple principle is appalling, and it is time for the dentists to realize this fact.

Of course, we see patients who have neglected their teeth and have many decayed teeth and old roots. They have not consulted a dentist and we cannot blame the dentist for this state of affairs. But strange to say, decayed teeth do not seem to be so much to blame for diseased conditions as capped teeth. Perhaps it is because in decayed teeth there is an outlet for the bacteria and, aside from the danger of swallowing them, the bacteria are not so apt to cause trouble. When devitalized teeth are either capped, pivoted, crowned or filled, with a preexisting infection at the apex of the root, the outlet is closed up and the bacteria continue to proliferate under the ideal conditions furnished by the dentist; they seek an outlet through the porous bone tissue and there gain access to the lymphatic system and migrate to other distant organs. The streptococcus types occasionally invade the blood stream.

The great stumbling block to the patient and the dentist, and to some extent the physician, is the fact that very extensive involvement of the roots of teeth can exist and be the cause of serious trouble without causing any pain to the patient. They argue that because they have no pain in the teeth or a tooth that that tooth cannot be diseased. Never was error more fatal, and in the cases where

this fact is not recognized, the result may be fatal to the patient. The infection of these organisms is different from the acute infections so commonly seen. They are nonpus producing, cause no pain, swelling, nor fever, and cause the patient no discomfort. Hence it is difficult to convince the patient that the tooth should be extracted. Treating such infections successfully can be done only by an expert dentist who realizes the dangers and controls his work with frequent röntgen ray examinations. Thoma contends that it is impossible to treat successfully these infections by any means, such as ionization or local application, and I am inclined to agree with him. If the patient's condition is serious, no time should be lost and the tooth should be extracted at once.

Great difficulty is found in a proper interpretation and reading of the röntgenogram. It will frequently give only the slightest evidence of the diseased condition and only when the bone is involved. The abscess is always much worse than it appears to be in the picture, and we extract when there is only slight evidence which could easily be overlooked. If the gums are not perfectly healthy looking, that is, pink and firm, but are purplish, swollen, with a red line adjacent to the tooth, or swollen so that they almost cover the crown of the tooth as in the molars, the teeth should be extracted. Often when the röntgen ray shows little if any disease at the root, there may be granulomata surrounding the tooth just below the gum or between the roots of molars, and this new tissue, which seems to be of a connective tissue type, when cultured is found to be filled with bacteria. So we have made it a practice, after many unpleasant experiences caused by being too conservative, to extract every tooth that is at all doubtful. The error will always be on the side of conservatism, and we have never extracted teeth which we felt should have been left in the mouth, and after showing them to the patient they have readily agreed with us.

Another serious error of the majority of dentists is the opinion that vital teeth cannot become infected and therefore should not be extracted. Many patients who might have recovered are lost by adhering to this doctrine. A case which illustrates this point may be cited to advantage.

In the spring of 1917, a young boy, aged twenty, a patient of Dr. William A. Clark, was admitted to Mercer Hospital suffering from polyarthritis of severe type and complicated with valvular heart lesion. He was anemic, emaciated, and in an extremely nervous condition. An examination of the teeth by the röntgen ray showed several apical abscesses and these teeth were extracted. He did not improve and soon left the hospital and the treatment was considered by us a failure. Soon after leaving the hospital he sent for me and when I saw him I was convinced that something radical should be done if his life was to be saved. An examination of the molars showed a condition that I had not seen before. The teeth were milky white but vital and had no fillings or evidence of decay. The gum was swollen and almost covered the crown of the molars. The patient remonstrated with me when I suggested that these teeth should be extracted, as

the extraction of the other teeth had not benefited him. I could not tell him that extracting these eight molars would benefit him, but I told him that nothing else would save him. Finally his family prevailed on him to have them out. We extracted four at a time and the result was remarkable. He began to improve slowly and his pulse subsided from 120 to normal in a few days. His convalescence was rapid and in the summer he was accepted in the United States Navy as a physically fit individual.

RADICAL TREATMENT NECESSARY.

If we wish to eradicate focal infections, we must bear in mind that only by persistence, often against the wishes of the patient and often against the advice of the dentist, can we expect our efforts to be successful. Failures in these cases at once cast discredit on the theory when the true explanation lies in the fact that we have not been radical enough. I have purposely gone into details regarding the elimination of oral infection, for I have learned by bitter experience that it is necessary for the physician to learn the facts and not be too dependent on the dentist for the treatment of these conditions. I am indebted to my good friend, Dr. A. W. Currie, whose teaching in the early part of my work has meant a great deal to me. To Dr. F. S. Bird and Dr. F. W. Bird, of Trenton, I also am indebted for their cooperation and willingness to study these hard problems from a new point of view. We have worked out many of these problems together, learned by our mutual mistakes, until we think that few patients will escape with infected teeth if they will heed our advice.

We would emphasize the fact that most of the focal infections due to streptococcus have their origin in the teeth, and from this source, in the course of years, the organisms reach remote organs or other structures. Some of these infections are of long duration and may have existed in childhood. The progress is slow and insidious, and the dangerous feature is that the existence of the infection is unknown to the individual and was formerly not recognized by the physician. That the infection is transferable by direct contact cannot be doubted and parents may innocently infect their children. I have several cases which show the same infection in both.

One is constantly reminded of the prevalence of infected teeth, and bad teeth are seen on every side. A study of the parent's teeth may reveal some interesting facts and change our ideas of heredity, as has been the case in tuberculosis. I have seen very few cases in which I could positively eliminate the teeth as the original source of infection. The fact that a patient has lost all of the teeth is rather an argument for the infection having its seat originally in the teeth, which was of such a type that the teeth were eventually destroyed, and the infection lodged in some other section, usually the tonsils or intestinal tract. We must bear in mind that no matter where the infection is situated the absorption of the toxins continues, and can be eliminated only when the infection is found and eradicated.

Before giving the detail of our examinations as practised at present, it might be of interest to cite the history of one case which seemed to point to

focal infection as a possible cause of the mental condition.

CASE A.—A married woman, aged forty-five, was seen in consultation in March, 1913. She had had four children and the last child was born dead about four years before. Since then she had had periodical attacks of rheumatism, asthma, and some obscure intestinal attacks called "chronic appendicitis." On March 1, 1913, she had an attack of acute articular rheumatism with fever and much pain. Under the use of salicylates the attack subsided, and one week later there occurred a severe type of delirium and this was the condition when I saw her. I must confess that it was the first case I had seen in which a psychosis followed rheumatism and I was somewhat puzzled, although since then several writers have described similar cases. The arthritis apparently disappeared when the psychosis developed. She became worse and two weeks later she was admitted to the State Hospital in a delirious condition. She talked irrelevantly, incoherently, and was extremely exhausted. A diagnosis of "toxic delirium" was made and rheumatism was put down as the cause. She improved somewhat mentally, but lost forty-one pounds in weight. The next year she improved under careful feeding and gained thirty-six pounds (120 pounds) and her delirium subsided. She never became normal, but was apathetic, preoccupied and indifferent to her surroundings. She never showed any spontaneity except when visited by her husband or family. At these times she was interested in the family and would talk about matters concerning them, but as soon as the family were gone she would relapse into the same apathetic and inert condition. She was not demented nor was she depressed, although at times she would cry without any apparent cause. She always recognized her family, but was disoriented as to time, place and persons mainly from lack of interest. She called the physician by the name of some relative and it was always the same name. When corrected she took it good naturedly and a few minutes later made the same mistake. She was a puzzle to every one and no one seemed able to classify her condition. When we determined to apply some of the newer laboratory methods, her case was the first one to be investigated. The fixation test for the *Streptococcus viridans* was positive and the condition of her teeth was investigated. All of her upper teeth were missing except two; and many of the teeth in the lower jaw were badly decayed, and when extracted abscesses were found on the roots and the *Streptococcus viridans* was found on culture. Her condition did not improve after extracting her teeth and we made the error of not investigating further for other sources of infection.

The subsequent history is of interest. She was given succinimide of mercury for a long period but without results. Her condition did not change until February 23, 1917, when suddenly there developed a streptococcus meningitis and streptococcus bacteremia and she died on February 24. The necropsy revealed a purulent meningitis with streptococcus in the exudate and in the blood.

Many explanations could be offered in this case,

but it was evident that she continued to harbor *Streptococcus viridans*, and for some reason the infection became virulent, as is often the case with this organism. From the history it would appear that her mental condition was due to the toxic effects of the streptococcus, at least that is the interpretation of the case from our standpoint. The case is interesting from the fact that it was the first case in which we could verify the action of the streptococcus both serologically and by postmortem examination. Had the fixation test proved negative when first taken, in all probability our researches would have ended there and this paper would never have been written.

METHODS OF EXAMINATION.

The clinical laboratory methods used by us are those that are in use in most of the progressive general hospital laboratories. We have had a good bacteriological department in our laboratory for the last ten years, and we do all the typhoid fever and diphtheria work necessary, as well as make sanitary examinations of our food and water supply. This work is under the direction of a well trained bacteriologist, Mr. J. S. Williams, and from our experience with him for the last ten years I have no hesitancy in stating that his work can be depended upon. We make routine examinations of the urine, blood, feces, and spinal fluid. Besides the usual examination of the urine, a culture is made from a sterile specimen if indicated. The feces examination consists of the usual chemical tests for the digestive functions and a bacteriological examination for abnormal and pathological bacteria. The difficulty of determining intestinal infection from an examination of the feces was apparent in our early cases, but in spite of this we were able to decide, through the help of Mr. Connellan, of the Higgins Laboratory, that certain of our patients undoubtedly had intestinal infection of a chronic type.

The examination of the blood is of the utmost importance. A numerical and differential count is made in every case admitted, and besides this the fixation tests are done. The Wassermann test of the blood is performed, and also the fixation tests for the bacteria responsible for focal infections, such as *Streptococcus viridans*, and *Streptococcus hemolyticus*, *Bacillus tuberculosis*, and the Connellan-King gram negative diplococcus (designated in this paper as the Connellan-King diplococcus), and in some cases the gonococcus, although we have not been able to convict this organism of any part in the etiology of the psychoses. Cultures are made from the root cavities of extracted teeth, and, if indicated, from the tonsils and throat, also from cervical and vaginal discharges. The usual tests of the spinal fluid, cell count, globulin content, gold solution, and Wassermann reaction are made, beside the fixation tests of the spinal fluid for the other bacteria mentioned in the preceding. We have also made cultures from spinal fluid, but with only partial results.

For two years, under the direction of Dr. Corson-White, we used the Abderhalden test for the disturbances of the glands of internal secretion. Our results have been published, and as we found that our results were uniform only in dementia praecox

and epilepsy and negative in the other psychoses, we have discontinued its use as a routine examination. We were somewhat disappointed in the fact that the manic depressive group did not show positive findings with the Abderhalden test, as we expected that it would reveal some disorders of the ductless glands.

The patients are all examined mentally and physically in the usual way. Every patient is examined by the dentist as soon as possible. In fact, this has been our custom for the last three years. Every suspicious tooth is extracted and cultures are taken. When there is any doubt as to extracting the teeth, the teeth are radiographed. But in the majority of cases the appearance of the teeth and gums, as described under oral infection, will determine whether or not the teeth should be extracted. Infected and enlarged tonsils are removed, the tissue studied bacteriologically, and later sections are made and studied. The temperature and pulse are especially noted, as often the presence of a rapid pulse with temperature less than 100 F. may indicate or at least suggest the presence of infection and toxemia.

TYPES OF INFECTION.

The type of infection which has been designated "focal infection" differs essentially from the usual acute infections. The organisms concerned do not produce pus, consequently there is no pain, swelling or evidence of inflammation in the region affected, and no discomfort to the patient. This type of infection might be called chronic infection to distinguish it from the acute variety. The organisms causing this type of infection are nonpus producing, but very toxic, and resemble the Klebs-Loeffler bacillus in this particular, but are not so virulent. They are very slow growing in the tissues, and often take years to cause any serious trouble.

The principal organisms concerned in chronic infection belong to the short chain streptococcus group. Some of them are of the viridans type and others, which do not show the cultural growth of the viridans, at the same time have all the other characteristics. The gram negative diplococcus first described by J. J. King (3, 4), and designated by him as the Connellan-King diplococcus, is the organism found most frequently in our cases. The identity of this organism is still somewhat in doubt, but we are inclined to place it in the streptococcus group. Morphologically it resembles the *Micrococcus catarrhalis*, as both are gram negative diplococci, but the *catarrhalis* is a much larger organism. After repeated subcultures on agar, the Connellan-King diplococcus shows a tendency to form short chains and to become gram positive. Also the blood of patients with this infection will give a positive complement fixation reaction to the nonhemolytic streptococcus antigen. Dr. J. F. Anderson, of the Squibbs Laboratory, has recently identified the Connellan-King diplococcus as a type of the non-hemolytic streptococcus. Cultures of the same organism examined by the State Board of Health Laboratory have proved to belong to the nonhemolytic streptococcus group. While this reaction is not constant it occurs quite often. Occasionally we find the *Staphylococcus aureus*, either alone or in

combination with the Connellan-King diplococcus, concerned in these chronic infections. Case 3 was apparently a pure staphylococcus infection. The role of the colon bacillus in producing chronic intestinal infections has recently been emphasized by G. Reese Satterlee (5), who states that under certain conditions this organism may become pathological, migrating to other organs, especially the duodenum, and cause serious trouble. We have frequently found the colon bacillus either alone or with the Connellan-King diplococcus in the stomach and duodenum, and in these cases the toxemia was of a very severe type, and the mental condition was of a severe type and of long duration. The pathogenicity of these organisms has been fairly definitely established, at least from a clinical standpoint, and I personally have had enough experience with the infectious and toxic characteristics of each, in patients other than those suffering from mental disorders, to be convinced that they play a very important role as causative factors in a number of systemic conditions.

The great difficulty in establishing the relation of these organisms to remote pathological conditions is to be found in the fact that their presence is to a large extent masked, and their detection difficult by the ordinary methods of examination. If we regard the psychoses as purely psychogenic in nature and origin and do not consider the physical condition of the patient of any importance, these infections will be readily overlooked. The complement fixation tests for the streptococcus group as established by Hastings has been the principal method, in fact, at first the only means we had of determining the presence of these organisms in the patients, and the necessity for eliminating such infections. In our more obscure cases, which from the symptoms alone we were unable to classify, this reaction was the only clue to be found that threw any light on the nature of the process. Adopted as a routine examination, we soon found that many of our cases that could be definitely classified also gave a positive reaction to the fixation test, and led us to investigate further this phenomenon. It is true that these fixation tests are not so reliable as the Wassermann reaction, and we frequently get negative reactions when the organisms are present in the body. This has been explained by the fact of the existence of many strains of these organisms and the difficulty in obtaining antigen from enough strains to fix all the types met. Even without the fixation tests we can now determine the presence of these organisms by cultures from the tooth cavities and the tonsils and other sources.

The cases I wish to present for your consideration are eleven in number, and they represent three very distinct types of manic depressive insanity. In the first group I have placed four cases of the severe manic type; all of the patients died in a comparatively short time after the onset of the mental symptoms. While this type is rare it is not unusual and we have had eleven cases come to necropsy in the last ten years. The second group comprises three cases of a mild hypomanic condition in which the patients recovered rapidly under treatment. The third group consists of three cases of profound de-

pression, two of the patients have recovered and the third is improving. I have added another case of an earlier period in which no laboratory investigations were made, but which is nevertheless of interest because of the unusual features presented and because it tends to support our view of the infectious toxic origin of some of these types.

REPORT OF CASES.

CASE I.—History.—The patient was a single woman, aged thirty-six, with a rather unfavorable heredity. Her mother had an acute puerperal attack, depressive agitated in character, from which she recovered, but she also had minor attacks of depression. An older brother died at the age of forty-one in the State Hospital at Trenton ten days after his third admission in much the same condition as the patient. His first attack was at the age of twenty-four and was put down as "acute melancholia." Another brother died after a short illness of "blood poisoning." Patient was the youngest of seven children, healthy, industrious and for fifteen years worked in a watch factory. No constitutional traits were noted and as the case was examined by one who laid great emphasis on this feature we are safe in assuming that they were absent. She was taken ill ten days before admission to the State Hospital with a "grippe cold" and had to stop work. Six days later she suddenly became maniacal, singing, laughing, and talking in an irrelevant manner. At this time she was seen in consultation. Specimens of blood and spinal fluid were taken, also cultures from the throat, which was much inflamed. Four days later she was committed to the State Hospital, April 5, 1916. She had no fever at first, but a very rapid pulse. Her blood was positive to the viridans fixation test and this organism was found in the throat culture.

Examination.—Physically she was well developed—height, five feet two inches; weight, 155 pounds. She was very much excited, so that a thorough examination was impossible. This manic excitement became worse, her temperature rose to 104 degrees, some involvement of the lungs developed, and she died April 17, 1916, twelve days after admission and twenty-two days from the occurrence of the cold. A necropsy was performed and nothing of interest noted with the exception of the lungs. There was no consolidation, the right lower lobe was brownish red in color with a large amount of fluid. A smear made at the time of necropsy showed a streptococcus, short chain type, and a culture gave pure *Streptococcus viridans*.

Aside from the interest in the mental picture we have here a striking example of the virulence of the viridans which caused the death of a perfectly healthy woman in twenty-two days, at the necropsy no other cause being found.

CASE II.—History.—The patient, H. O., was a single woman, aged fifty-seven. No psychopathic heredity could be found and no previous illness or mental disorder. For the past year she had been in very poor physical condition and somewhat nervous. On February 3, 1916, she had an attack of "grippe" and pleurisy from which she recovered in three weeks, and following this attack she mani-

festated religious ideas, became talkative, incoherent, and expansive. She wanted to be married and said she was the mother of Christ.

Course.—She was admitted March 24, 1916, forty-one days after the attack of "grippe," in a very excited state, showing much psychomotor restlessness, flight of ideas, distractibility, in short, a typical maniacal attack. Her physical condition suggested paresis, and that diagnosis was made at first and only changed after death as her excitement prevented a lumbar puncture. She had very bad teeth, and a week after admission a severe infection of her right cheek occurred which apparently originated from her teeth. She died April 3rd, two months after her attack of "grippe." The *Streptococcus longus* was isolated from the infected cheek and the ulcerated stomatitis was also due to this organism. Moreover, the organism was also recovered from the blood stream. The necropsy showed endocarditis and general septicemia. Her whole condition was apparently caused by a streptococcus infection probably originating in an alveolar abscess.

CASE III.—History.—G. M., was a young Italian man, aged twenty-six. He had been in this country six years and after being drafted was serving at Camp Dix. One brother was insane, another brother and six sisters were healthy. During the six years which he had spent in this country he had been healthy, working on the railroad and making a good living. He never had had any previous mental trouble, was not an excessive consumer of alcohol. In disposition he was jolly and lively and had many friends. He was sent to Camp Dix in September, 1917. After being in camp for one month an ischiorectal abscess developed and he was admitted to the field hospital, October 16, 1917. About four days later he became very much excited and I was asked to see him. At that time he exhibited a typical maniacal reaction, sang, laughed, and was inclined to be violent.

Course.—I advised his transfer to the State Hospital and he was admitted October 25, 1917. He continued to be excited and violent and at times was delirious, but all through he showed a distinct maniacal reaction. He was five feet eight inches in height and weighed about 180 pounds. He was very muscular and strong, so that it was very difficult to handle him. He refused food and died November 1, 1917.

Necropsy report.—The necropsy showed pus in the muscles of the chest under the mammary glands on both sides and another collection of pus in the inguinal region. The pleura was of a deep red color, swollen and covered with a yellowish pus. The right lung showed a pneumonic condition involving the whole lung. The intestines showed a rather severe grade of catarrhal enteritis and they were bound with adhesions. No cultures were made, as the body was in a closed room for nineteen hours before necropsy, and the smears made did not show any tubercle bacilli, but in all the abscesses *Staphylococcus aureus* was found and the diagnosis of a tuberculous lesion is somewhat in doubt as the physical condition of the man was not that of a long tuberculous infection, but corresponded to an acute virulent infection as is sometimes seen in staphylococcus cases.

The diagnosis of the first two cases, namely, manic phase of manic depressive insanity, can hardly be questioned; but the third case, while presenting at first symptoms which were undoubtedly manic, soon changed to a manic delirium, and one would be justified in being puzzled by the clinical symptoms.

The following case is a recent one and is of such interest that we feel that we are justified in presenting it. Here the diagnosis is also in question. Whether we call it a delirious mania or manic delirium, either of which would place it in the manic depressive group, the symptoms were distinctly manic at the onset, which was very sudden and rapidly changed to those of a manic delirium with death in seven days from the onset of the acute symptoms, although the patient had been mentally unbalanced for some time before this. We were able to make a complete bacteriological examination in this case and found the Connellan-King diplococcus in pure culture from the lungs, stomach, duodenum, kidneys, and liver, but cultures from the brain cortex, heart blood, gallbladder, and pancreas were sterile. The cause of death can hardly be questioned and the rapidity and virulence of the infection would convince the most skeptical that the Connellan-King diplococcus is a decided pathogenic organism and not the innocuous organism that some bacteriologists claim it to be.

CASE IV.—History.—The patient, C. C., was a single woman, aged forty-three, and a trained nurse by occupation. There is nothing special in the family history. The patient was one of several children. Her early development was normal. Fourteen or fifteen years ago she and her sister left the mother after some disagreement and the mother knew nothing of them since that date. The mother states that the younger sister was dominated by the patient and that she might have married but the patient did not think any man was good enough for her sister. They were inclined to be seclusive, had very few friends, thought no one was good enough for them. They were supersensitive, took offense at slight things. The mother also states that the patient was self-willed, even as a child, and that she could not control her after the age of ten. Patient had been nursing in Trenton for some years, but was considered very peculiar by all who knew her. She and her sister, who was a teacher in the public schools, lived together in an apartment. On March 21, 1918, she sent the following letter to the writer:

"Dear Sir: I am an intimate friend of —, I knew her and her family since childhood. I am a trained nurse and would like to see you in your office. Kindly let me know when convenient to you.
Respectfully, C. C."

A few days prior to this letter, the sister of the patient, a school teacher, had some altercation with the principal of the school, and following this she made charges against the principal, claiming she had been assaulted. Evidence, however, supported the principal, and there was considerable discussion of the matter in the papers. The patient visited the newspaper office and tried to have the matter hushed up. At that time it was noticed that she talked in a peculiar manner, and she was described

as being intoxicated. On Sunday, March 31st, the patient and her sister visited the brother of the principal of the school, with whom they had difficulty, and asked if the matter could be dropped. At that time it was noticed that they were both rather excited, especially the patient. They returned to their apartment and later in the day the sister was found dead, with both wrists cut, and the patient was described as a raving maniac. She made many contrary statements, claiming she had killed her sister, but it was soon evident that she was insane and she was sent to the State Hospital on that date. In view of the letter which she had written ten days before, it would seem probable that she had some idea that she was not mentally right, and made an appointment for consultation. She did not come to see me, however.

Condition on entrance to hospital.—When admitted to the State Hospital, she was very violent, fought the policemen and all who tried to do anything for her. She was put in a hot pack and one fourth grain of morphine given. She slept some, but when awake was maniacal and abusive. The second day after admission her evening temperature suddenly went up to 107.2 F., pulse to 140. Her condition was extremely critical and she had frequent convulsions. Blood was taken for examination and lumbar puncture made. Urine was obtained by a catheter and a high saline enema of glycerin, epsom salts and soapsuds given. She continued in this state several hours and toward morning her temperature was 100. She was at times semistuporous and at one time in a maniacal delirium. She refused to take any nourishment. Temperature ranged from 102 to 103; the pulse was very rapid, from 130 to 140. She frequently stated she had killed her sister, but her statements were unreliable and no one will know the facts of the tragedy.

Physical examination.—This showed a well nourished woman. Skin of good color. No evidence of enlarged glands. Pupils dilated, reaction somewhat sluggish. Patellar reflexes diminished. Abdominal reflexes absent. Very marked psychomotor activity. She slept but little, even with hypnotics. The thoracic organs showed nothing unusual. Lungs negative. Pulse varied from ninety to 150, depending very much on her temperature. Blood pressure: systolic, 140; diastolic, ninety. Examination of spinal fluid was negative; four cells per c.mm. Globulin negative. Wassermann negative in the blood and spinal fluid. Fixation test negative to tubercle bacillus; positive to streptococcus. Urine: specific gravity 1.025, acid reaction, large amount of albumin, indican present, large number of hyalin and granular casts, many leukocytes. Digestive organs: Patient refused to eat or swallow anything since admission, tongue dry, teeth covered with sordes. Throat inflamed. Teeth apparently good, but considerable bridge work and many teeth capped. The patient became more delirious and was tube fed for three days. She became somewhat jaundiced. Temperature reached 105. On April 8th she died at 8:15 a. m.

Necropsy.—This was performed at 10:30 a. m. On section of the body the panniculus was un-

usually thick and a deep lemon yellow color. Position of the abdominal organs not unusual. The pleura contained no fluid. Lungs normal except for a congested area on the lower lobe on both sides. Culture from this area gave pure culture of Connellan-King diplococcus. Pericardium not unusual. Heart small, tissue normally firm. Heart was not removed as it was thought unnecessary to interfere with embalmer. Liver somewhat large, covered with many yellowish spots and on section showed some fatty degeneration. Cultures from liver showed pure culture of Connellan-King diplococcus. Gallbladder distended and containing a few gallstones. Pancreas was pathological in appearance. On the surface pancreatic tissue had been supplanted by connective tissue in many places. It was somewhat shrunken. Cultures from the pancreas were negative. Stomach and intestines: Cultures were taken from the stomach and duodenum before they were opened, every precaution being taken to avoid contamination. These cultures gave pure culture of the same organism, Connellan-King diplococcus. The stomach was empty, walls were injected, rugae were smoothed out. Adherent to the walls was much thick mucus. The duodenum was considerably injected, somewhat thickened and full of thick yellowish fluid. Cultures from the duodenum gave the same organism. The remainder of the intestinal tract was not unusual. Spleen was not unusual. Kidneys were enlarged, on section much bloody fluid exuded; they had the appearance of an acute hemorrhagic nephritis. Bladder somewhat distended, fluid, turbid urine. Ovaries were cystic, uterus not unusual. Brain: The brain was normal in appearance, no granulations in the fourth ventricle. No evidence of atrophy. Pia was clear, thin, and no evidence of meningitis. Cultures taken from pial fluid and cortex were negative. The cause of death put down was general infection by the gram negative diplococcus, which we have identified as Connellan-King. It is interesting to know that the heart blood, pancreas, gallbladder, brain and spinal fluid gave sterile cultures, while the cultures from the stomach, duodenum, liver, kidneys and lungs were positive for this organism.

Comment.—With such a general infection as in this case it is evident that this did not develop from the blood stream, but through the lymphatics. The origin of the infection was undoubtedly in the teeth, with secondary infection of the other regions, which infection suddenly became virulent and caused the patient's death. Examinations of the tissues will be made. Had we made no bacteriological examinations in this case, the cause of death could hardly be explained, although she had acute hemorrhagic nephritis and fatty degeneration of the liver. The bacteriological examination cleared up the cause of death and also gives further evidence of the pathogenicity of the Connellan-King organism.

These four cases presented a typical manic reaction, but in the last two delirium soon followed, and the outcome was fatal because of the virulence of the infection. We might call them cases of toxic infectious psychosis, but that would only beg the question and leave us no nearer the solution of our difficulties. If no necropsy had been performed in

these cases, they would have been put down as manic depressive insanity and the cause of death, exhaustion. I have been guilty of such diagnoses and I think that many will answer to the same charge. But the necropsy here revealed an entirely unexpected complex and I think we are justified in our conclusions that the bacteriological examination settled the cause of death, even if we have not established the fact that the mental picture was due to the infection. At any rate, the facts are as presented and caused us to pause and consider the importance of looking further in other cases without such fatal outcome. We will admit that these cases were atypical only in so far as the outcome was unusual. It is interesting that in seven cases of deaths in manic depressive insanity, from 1908 to 1913, in which no bacteriological examinations were made, no adequate causes of death were found, even in the two in which necropsies were performed, whereas in four recent cases in which cultures were made the cause of death was evident.

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(To be concluded.)

ERADICATION OF TUBERCULOSIS IN LOCALITIES.

By EDMOND SOUCHON, M. D., H. F. A. C. S.,
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The eradication of tuberculosis in a locality rests entirely on the erection and maintenance of a special tuberculosis hospital large enough to take care of the number of new cases of tuberculosis which occur in that vicinity during the year. Curable cases only should be admitted in that hospital. There exist no reliable general statistics on tuberculosis which could be quoted, but it is the belief of those conversant with the subject that there are approximately fifty cases of tuberculosis to every one thousand of the population of a locality and that approximately sixteen of the fifty, or about one third, are curable when treated early. It is also believed that there is annually approximately one new case out of one thousand of population. Experts believe that it takes about six months of proper treatment to cure a case of tuberculosis which is still in the curable stage. Applying these data to a city of one hundred thousand inhabitants we find that there occur approximately 100 new cases of tuberculosis every year.

The tuberculosis hospital should have at least fifty beds and so be able to cure 100 of the curable cases annually. So, the function of the tuberculosis hospital is to prevent an increase in the number of existing cases of tuberculosis. In course of time these existing cases will pass away and eventually the locality will be free from tuberculosis. A larger hospital with a greater number of beds would cure a greater number of curable cases and thus hasten the eradication of the disease. The very small number of beds mentioned above will leave out a large number of curable cases that will become incurable for lack of proper treatment at the proper time. Boards of health should assist in the eradication by proper sanitation in the slum districts of the locality, especially the negro quarters.

TULANE UNIVERSITY.

SOCIAL DISEASES IN THE ARMY.*

By EDWIN S. COOKE, M. D.,
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When the United States entered the world war as a belligerent nation thousands of unsophisticated men and women patriotically engaged in camp work of one kind or another and thereby came in contact with certain moral and social conditions prevalent among the masses but unknown to them. The interest displayed by those well meaning nonprofessional individuals as well as that of many of the medical profession has inspired the following brief account of conditions in one of the camps.

The prevalence of venereal diseases in the National Army has not only been the subject of much speculation among those who are interested in the moral uplift of the nation, but has also caused many anxious moments for the officers, both medical and line, upon whom devolved the care and training of the youths in the service. That conditions were far from ideal must be frankly admitted, as ten per cent. of the inefficients were venereally infected, but that the incidence depended upon the military activities of the nation should be as vigorously denied. If not overseas, at least in the mobilization camps of our own country, this statement requires no qualification. The writer has had no experience with troops overseas and will therefore refrain from expressing an opinion about the expeditionary forces, but having been engaged for fourteen months in the venereal work at the United States Army Base Hospital at Camp Meade, Md., one of the largest cantonments of the army in this country, he feels a reasonable assurance in saying that it is the hitherto unsuspected sufferers from venereal indiscretion who have been in our midst and only recently brought to light by the exigencies of military examinations, who are responsible for aspersions cast upon the army.

An army free from venereal diseases is more than could be expected, but in the Army of the United States as constituted previous to the enactment of the draft law, conditions were very different from those recently experienced. Recruits

*Read before the Philadelphia County Medical Society, January 22, 1919.

for the regular army are obtained by voluntary enlistment, not by draft, and since the existence of venereal infection disqualifies the applicant, only those applied who at least thought they were in condition to successfully pass the medical examination, and according to regulations rejection was ordered for those who had "syphilis in any of its stages, venereal sores (both chancre and chancroid) and gonorrhea, whether acute or chronic, urethral stricture, balanitis, phimosis, undescended testicle, orchitis, hydrocele, incontinence of urine, all diseases of the bladder or kidneys." A rather formidable catalogue of diseases. Recruits accepted into the regular army, therefore, began their military careers supposedly free from the venereal scourge. That after enlistment some were indiscreet and unfortunate is not to be wondered at, that their number was not larger is the miracle and may be attributed to the rigid care exercised over the men who, as is well known, are not only proverbially susceptible to the wiles of women but peculiarly exposed to temptation by camp followers and other adventuresses, more especially during times of peace and inactivity.

With changed condition that arose when soldiers were drafted from all classes of the community, and by process of law obliged to present themselves for examination at certain designated times despite physical conditions, it became the practice of many young men, who desired to shirk their military duty, to make the plea of physical unfitness by reason of active venereal diseases; and succeeding in this others of indolent and vicious nature purposely exposed themselves with women known to be infected in order to acquire disease which might lead to rejection.

The existence of venereal diseases among the first civilians who were examined was, therefore, so frequently discovered as to make it manifestly unjust to the uninfected youth of the country to permit unclean, immoral and designing men to escape a duty legally imposed upon the clean. The bars were accordingly let down, so that unjust discrimination could not be charged; infected and noninfected civilians were accepted upon an equal footing, and the Government assumed the twofold duty of first correcting the physical defects and then making soldiers out of the men.

The safeguarding of soldiers from infection after induction into the service was one of the innumerable social problems that had to be met, and upon it more than is commonly supposed depended the efficiency of the new troops. The first means to this end was in the selection as sites for cantonments of those remote locations by which much apparently unnecessary hardship was entailed upon the soldiers and their friends. Parents who have visited their "boys" in camp know how inaccessible they are located, and the "boys" themselves know it still better than their visitors. They could also speak with a sadness born of experience about the reluctance with which passes to leave camp were issued to them, and the restrictions placed upon the absences even when granted, for it was customary to limit the time to less than twenty-four hours, preferably selected from that portion of the day in

which the temptation of nearby cities was least alluring. As an additional precaution a census of the surrounding country was taken and all undesirable women obliged to depart. Severe as those measures may seem their wisdom was unquestioned by those who understand the venereal problem, for the relaxation of discipline at Thanksgiving and during the Christmas holidays was followed by such a marked increase in acute infections as to leave no doubt as to the value of restraint.

As a result of the care exercised the marked disproportion between infections acquired before and after induction was notable. Roughly speaking, the ratio may be fixed at about ninety-five to five, but in certain organizations the proportion was less than in others, due no doubt, to greater vigilance on the part of officers, and possibly also to the fact that the characters of the men might have been better, or their duties such as make it impossible to obtain even the ordinary leaves of absence enjoyed and abused by others.

In the base hospital detachment over which the writer had direct supervision it was a matter of surprise and gratification at the bimonthly physical inspections to note the almost total absence of infection. This condition in a corps of over seven hundred enlisted men proves that when soldiers are engaged in interesting and exacting work, greatly restricted, frequently instructed, and inspected at brief intervals, they will not expose themselves indiscriminately, or at least will not neglect prophylaxis after promiscuous exposure. Of the infections acquired after induction into the service many were of only brief duration and all were cured more quickly than if they had existed in civilians. The reason for this is obvious and may be expressed in the one word—care. The men were carefully examined and promptly treated by approved methods directed by the surgeon general, upon the recommendation of a council of experts who had carefully formulated them after much study of the venereal problem undertaken at the time of entrance of the United States into the war, for it was foreseen even at that early date that conditions which developed subsequently were imminent.

Examination by dark field illumination was required in every case of an open lesion upon the genitals, and a routine Wassermann blood test upon every soldier admitted into the venereal wards of base hospitals. By these scientific measures uncertainties in diagnosis were greatly reduced, and the existence of latent syphilis was frequently proven in doubtful or even unsuspected cases. The military hospital treatment of syphilis consists of courses of arsphenamine, mercury, and in latent cases or those with tertiary lesions, iodides, and necessarily caused considerable loss of time from active duty, which entailed upon the Government an enormous expenditure of money, not only for the purchase of drugs but also as pay for the incapacitated soldiers, for it is the rule in the army not to deprive men of their pay while under treatment for venereal diseases provided the infection was acquired prior to entrance into military service.

To safeguard the clean men in barracks from contamination by association it is the practice to refer

all recently infected venereal soldiers to the base hospital for treatment in isolation wards, where they remain until free from open lesions or acute urethral discharge as the case may be; after which they are returned to their barracks and to military duty with orders to report at the venereal station as ambulatory patients. This rule protected the clean men and placed infected soldiers under ideal conditions, for all acute urethral cases were rigidly confined to bed when received in the hospital, and given a milk diet for several days. The duration of urethral disease was probably lessened by the rest and diet, which also prevent complications by posterior extension. Apart from rest and dietetic care appropriate treatment was regularly administered. If a similar policy were practicable in civilian life the ravages of gonorrheal infection would be greatly lessened, but unfortunately under existing social conditions this is not possible out of the army.

By reason of the rigid enforcement of sanitation the incidence of ophthalmic infection was reduced to a minimum, and in the writer's experience not a single case of acute gonorrheal ophthalmia arose in any of the wards under his care during his entire fourteen months of service, in which time thousands of gonorrheal soldiers were treated, a record which can be attributed to the frequent admonition of medical officers and attendants, all of whom were ever watchful lest an infected soldier should become lax, transfer the pus to his own eyes or those of others, and thereby subject the officers to reproach and a possible court martial examination upon the charge of negligence. In a general way it may be said that the soldiers themselves were pleased with the attention bestowed upon them while in the hospital; that the treatment was scientific; that the men were made effective soldiers in the shortest possible time, and that their experience enabled them to protect themselves against reinfection.

As contrasted with his civilian brother the military victim of social disease had by far the better of the argument since he was not forced to hide his ailment or to treat himself with quack nostrums, or to prolong the malady by physical activity. Is it not, therefore, to the civilian population rather than the military that attention should be directed in efforts to lessen the social evil?

1831 CHESNUT STREET.

PNEUMONIA IN INFLUENZA

Two Case Reports.

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The observation of some 4,000 cases of epidemic influenza and of some 400 cases of pneumonia associated with it, at the Navy Base Hospital, permits of certain clinical conclusions. The opportunity for study and observation was excellent, as the hospital was abundantly able to care for the number of epidemic cases admitted, and the best of nursing and assistance were available. A minority of the pneumonia cases observed were derived

from influenza cases in this hospital. They were transferred as such, because of their serious condition, from other camps or stations. The mortality from pneumonia among the influenza cases in the hospital was slightly over two per cent.

All deaths charged to epidemic influenza were the result of secondary pneumonia. Upper respiratory infection was extremely mild and rather uncommon. This probably explains the almost complete absence of otitis media in the first half of the epidemic. Only two cases of otitis media were observed by Dr. H. V. Bogue, at the hospital. Other complications were observed but that proportion which would have been expected to develop into empyema and other major localized septic conditions, was probably included in the patients who died. In a small minority of cases there was evidence of cholecystitis, hepatitis, gastric ulcer, nephritis, cystitis, meningismus, carditis, and a few minor conditions.

The proportion of complicating pneumonia was distinctly lowered in those patients who received early and adequate treatment. By early and adequate treatment is meant that immediately upon the appearance of symptoms, the patient is put to bed, purged, bathed, properly fed and given the usual symptomatic remedies. This treatment is carried out in the presence of abundant fresh air, with particular attention to quiet, cleanliness, diet and good nursing. The clinical course, onset, and incidence of pneumonia seem to establish clearly that pneumonia is a secondary independent complicating factor, and nonspecific so far as concerns its relation to the primary influenzal disease. While influenza is probably a specific selflimited disease of marked epidemic properties, its exact causation is uncertain, and the role of the Pfeiffer bacillus in the disease is undetermined. In common with certain

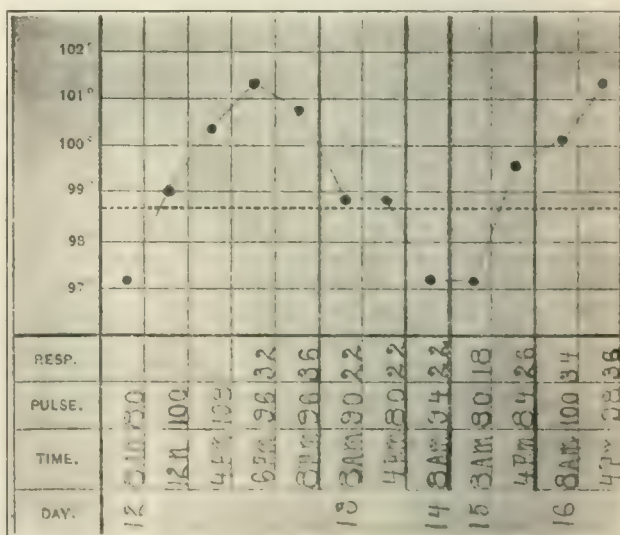


FIG. 1. Onset of pneumonia in Case I.

other acute febrile diseases, such as measles and scarlatina, influenza seems to predispose to streptococcus and other secondary infections. The nature of this predisposition is unknown, but we know that it is associated with leucopenia, extreme prostration, slow pulse and respiration, excessive con-

stitutional reaction, and a localizing predilection for the lungs. A considerable proportion of the influenza patients show a hemorrhagic tendency and the same is true of the pneumonia patients. Ten severe pneumonia cases, however, showed a blood coagulation time which was practically normal.

Assuming, then, that influenza has prepared a

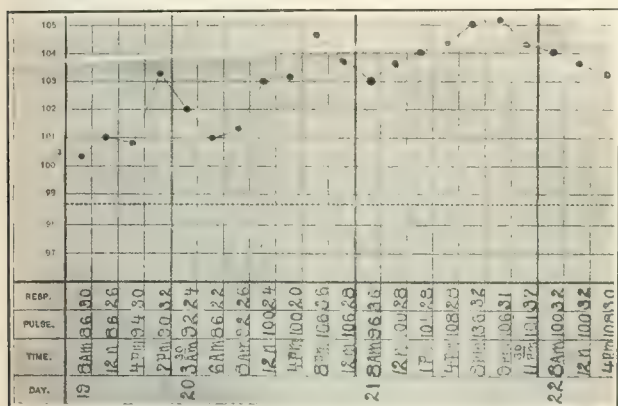


CHART II.—Bronchopneumonia in Case I.

favorable soil, situated in the lungs by choice, it is not remarkable that a complicating secondary pneumonia should occur, and that the virulence of this pneumonia should increase in proportion to the rate of spread of the epidemic. The character of this secondary infection is doubtless determined by the availability or proximity of the three types of bacteria chiefly responsible for influenza pneumonias. In one of the cases reported here, a streptococcus pneumonia supervened on an influenza where the patient had an old streptococcus rheumatism and cardiac infection. In the second case, a bronchopneumonia clinically typical of influenza, there developed a pneumonia clinically characteristic of pneumococcus. The availability of the pneumococcus, is, of course, nearly universal in nasopharynx and throat. The point emphasized is that the type of complicating pneumonia seems to depend on the relative availability of the three types of usual infecting agents, pneumococcus, streptococcus and influenza bacillus.

CASE I.—A. J. J., a seaman, thirty years old, in his third enlistment, invalided since May 7, 1918, with chronic articular rheumatism. Previous to this date he had suffered no serious illness. The rheumatism began with a subacute course and was evidently secondary to a pronounced chronic tonsillar infection. The condition persisted, with recurring exacerbations. In such an exacerbation in July the temperature ranged irregularly around 104° and there was considerable sweating and severe arthritis of great joints. At this time the patient entered the Mare Island Base Hospital. Examination was negative except for a soft systolic mitral murmur, badly infected tonsils and a moderate chronic arthritis of left knee and hip. No other focal infection was discovered after exhaustive search; prostate, teeth and sinuses were normal. The tonsils were removed by Dr. Frank Hughes, on September 3, 1918. No improvement followed so far as the arthritis was concerned. The entire pathol-

ogy now seemed limited to the joints and possibly the heart. Secondary foci had apparently been established in the joints, independent of the original tonsillar infection.

After a period of relative arthritic quiescence an influenzal infection became apparent on October 11, 1918. The temperature was remittent for five days, accompanied by the usual signs and symptoms of epidemic influenza. Then followed three days nearly level at 101°, during which prostration and anorexia increased. Signs of bronchopneumonia then appeared with considerable pain in the chest and temperature running around 104° and 105°. The pneumonic process extended progressively until it assumed a massive or lobar type, involving most of both lungs. Death occurred eight days after the onset of pneumonia and sixteen days after the influenzal onset.

Autopsy by Dr. Henry Snure, pathologist to the Naval Hospital, immediately following death, gave the following information:

Subject appeared somewhat undernourished. On opening the chest the lungs retracted slightly. A small amount of clear straw colored fluid in each pleural cavity. There were no adhesions of the lungs. Lower lobe of the left lung showed red hepatization. Lower two thirds of the upper lung solid. A small amount of air in the apex and the anterior mediastinal border.

Right Lung: The lower lobe was completely consolidated. The middle lobe was solid with the exception of a small area on the posterior side, which was emphysematous. The lower third of the upper lobe was solid. The solid lobes were of a deep reddish purple color, did not pit on pressure or tear easily. The portions still containing air were mot-

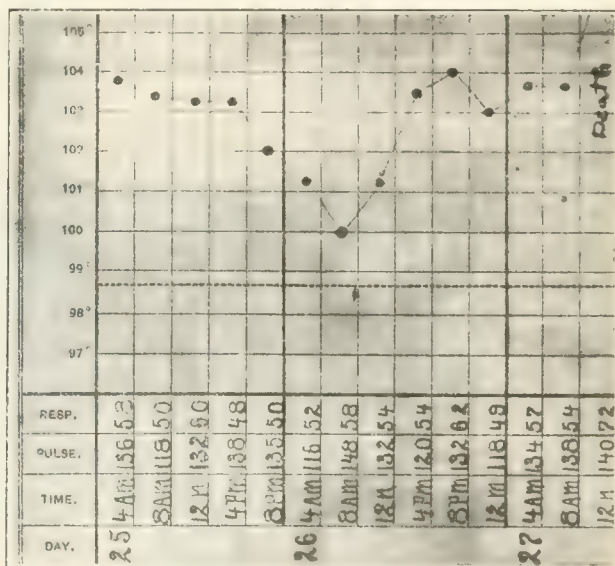


CHART III.—Final Part in Case I.

bled, white, pink, and black, generally of a pink color.

The heart was normal in size, contracted and contained a few small dark clots in the cantus which were not adherent to the wall. Cut section showed no microscopic change, but the muscle tore

easily, showing some degeneration. Valves were all normal, but the ascending aorta showed about ten small atheromatous patches about the size of No. 7 shot. A small amount of clear pericardial fluid was present. No fibrinous haze of the outer wall of the heart. The liver was normal in size, with a few

nutrition and other results of the chronic streptococcus infection predisposed infection with epidemic influenza. Eight days after the onset of influenza a secondary complicating streptococcus bronchopneumonia developed, probably from the preexisting joint, cardiac and renal foci. This pneumonia assumed the typical massive type characteristic of epidemic influenza, and due either to the influenzal predisposition, already noted, or to an influenzal symbiosis, or to both. Death resulted on the eighth day of the pneumonia and the sixteenth day of the influenza.

CASE II.—H. B. D., aged thirty years, a boat-swain, of stocky, athletic build, had suffered from acute tonsillitis several times in the last five years, the last attack being followed by quinsy. On October 13, 1918, he succumbed to influenza, showing a sudden onset with cough, photophobia and conjunctivitis, coryza, headache and general pain. He was admitted to the hospital with a temperature of 103° , pulse 88, respiration 20. Prostration was extreme. He suffered severely for several days from nausea and vomiting, and no medication could be given by mouth. Three days later signs of bronchopneumonia appeared in the left lower lobe. The temperature gradually fell to normal (see Chart IV) after an irregular course. Blood counts during this period did not exceed 8,000, on any day. The urine was normal.

After five days of normal temperature and good convalescence, the patient spent a restless, uncomfortable night and the following morning a lancinating pain began in the lower right lateral costal region. The temperature after twelve hours had risen to 100° . The pain became agonizing, still of a lancinating character, and running into the right upper quadrant of the abdomen. A small pleuritic rub was heard low in the right costal area. The pain was only relieved by three quarters of a grain of morphine. There were no gastrointestinal symptoms, a boardlike rigidity and considerable tympany were present. Bowels were normal up to the day of

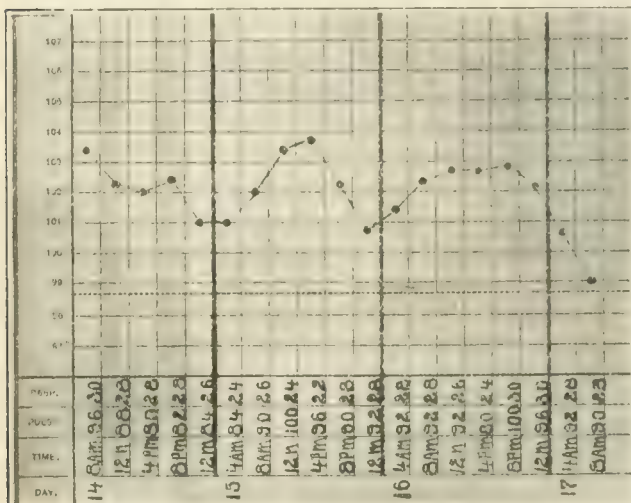
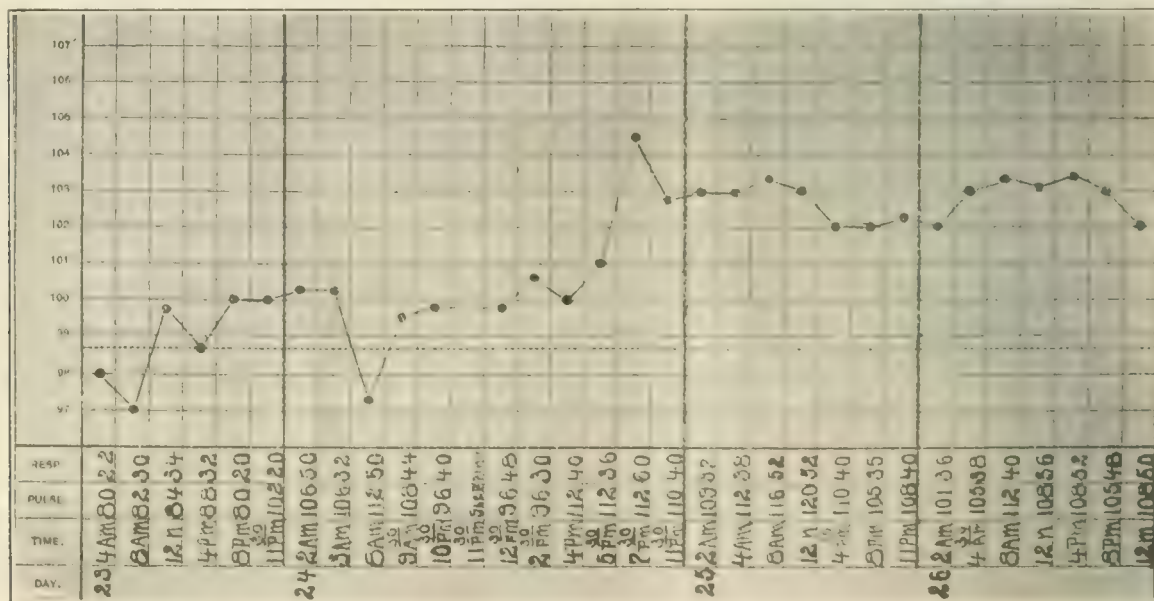


CHART IV.—First pneumonia in Case II.

small injected vessels on the outer surface. On section it appeared normal. Spleen normal in size and on section. The left kidney normal in size and on section. Right kidney enlarged and of a red color. Both kidneys had adherent capsules. Intestinal tract was filled with gas. There was no injection of the blood vessels. Retrocecal adherent appendix, showing an old condition. Direct smears from the lung showed numerous large streptococci present which were bile insoluble and nonhemolytic.

Reviewing the clinical history in the light of the postmortem findings, it appears that here was an original tonsillar streptococcus focus. After removal of this focus, metastatic foci persisted in the heart, right kidney, left knee, and hip. The under-



attack. There was extreme tenderness on pressure over the right ninth costal cartilage. The pain persisted, recurring as soon as the opiate wore off, radiating to the right shoulder, and localizing in the right lower costal region and upper right abdomen. The lower bowel was cleared with enemas and nothing was given by mouth. The leucocyte count the first evening of the pain rose to 25,000, with seventy-six per cent. polynuclears. Early the next morning there were 24,600, with eighty-three per cent. polynuclears. At noon the count stood at 18,200, and the following morning 27,600 with eighty-seven per cent. polynuclears. The temperature did not exceed 100° by mouth until forty-eight hours after the initial symptoms. Urine was normal.

During the first thirty-six hours the diagnosis lay between appendix, gallbladder, and a pneumonia process with diaphragmatic pleurisy. The absence of gastric symptoms and pain or tenderness around the umbilicus and right lower quadrant were against

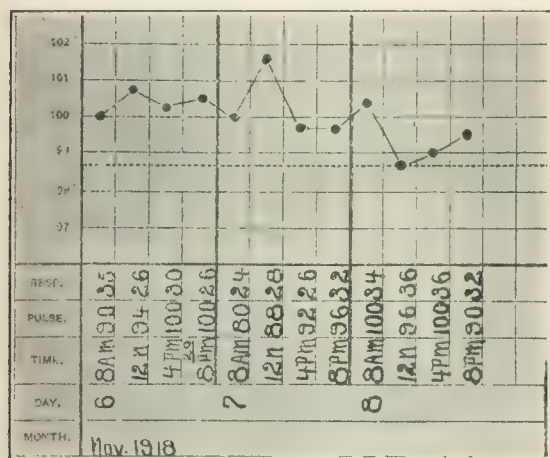


CHART VI.—Defervescence in Case II.

the appendix. Observation from hour to hour showed a localizing tendency near the diaphragm. Subdiaphragmatic abscess seemed unlikely in view of the absence of antecedent symptoms, chills, and septic temperature. There was neither jaundice nor history of jaundice. This, with the absence of gastric symptoms and colicky pain, was against gallbladder disease. The lancinating pain, increased by respiration and radiating to right shoulder, tenderness at ninth costal cartilage, rapid respiration, and abdominal rigidity, were explainable on the basis of a severe diaphragmatic pleurisy. This seemed more likely as a pleural friction rub could be heard in the lower axillary region. The absence of a chill and the temperature not over 100° for forty-eight hours were unusual for pneumonia, and may have been due to the preceding influenza. On the third day the temperature rose to 103° (see Chart V) and definite consolidation was evident in right lower lobe. The pain only gradually lessened and morphine was required for several days. The temperature fell by lysis, reaching normal on the eighteenth day, from the onset of the second pneumonia.

Pneumococci Type II were present in the sputum and the urine gave a Type II precipitin reaction. Two blood cultures were negative. The x ray ex-

amination made by Dr. A. B. Bayless, on the date of first normal temperature, showed general pleural thickening over both lungs and general mottling of both lungs. The aorta was widened. The x ray diagnosis was bronchopneumonia involving both lungs. Particular interest attaches here to the fact that physical examination showed a frank lobar pneumonia which was confirmed by the leucocytosis and manner of onset, and lobar pneumonia was diagnosed. The same fact has been noted repeatedly in fatal cases. Physical examination would indicate frank lobar pneumonia whereas autopsy showed a massive bronchopneumonia of a certain peculiar type which will be discussed elsewhere. In the patient under discussion, the temperature declined by lysis without further complication. Resolution was slow but steadily progressive.

In final review, here was a typical case of severe influenza, with an early development of bronchopneumonia of influenzal type in the left lung. This was accompanied by a high leucocyte count and pronounced toxemia. After five days of normal temperature and convalescence, a second pneumonia developed in the right lower lobe accompanied by diaphragmatic pleurisy of unusual severity, high leucocytosis and a temperature rise which was delayed for forty-eight hours. Physical signs indicated lobar pneumonia. The x ray showed massive bronchopneumonia. The first pneumonia is considered to have been influenzal, and the second pneumococcal, although evidence on this point is not conclusive.

350 POST STREET.

POSTINFLUENZA ALOPECIA.

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It may be said of the recent epidemic of influenza, that the disease attacked its victims suddenly and often without premonitory signs; it overwhelmed its victims with a severe toxemia and its accompanying pneumonia, or gradually subsided to leave a physical wreck. During the height of the epidemic, complications, with the exception of pneumonia, were rare. Though complications were few, sequelæ now observed are numerous. Among the sequelæ, with which the dermatologist is concerned, alopecia is predominant. A review of the literature on symptomatic alopecia demonstrates that typhoid and syphilis are mentioned as the most frequent of the general infectious diseases to be followed or associated with loss of hair. During the past three months the writer has observed daily at least two new cases of postinfluenza alopecia; in fact, during the course of one period of twenty-four hours seven such cases appeared. Personal interviews show that this has been the experience of other dermatologists. It may be stated that no other disease, not even excluding typhoid, has ever produced so many cases of alopecia.

To avoid repetition and the unnecessary consumption of space and the reader's time, it is deemed

advisable not to describe in detail the histories of several cases but to give the salient features from one case.

On December 21, 1918, F. Z., a schoolgirl fourteen years of age, a native of the United States, applied for treatment of sudden loss of hair from the scalp. Two months previous to her first visit the patient had an attack of influenza complicated by pneumonia. She was confined to bed for one month and during that time she suffered from marked prostration and hyperpyrexia. One week before applying for treatment she noticed that the hair of the scalp was falling out in handfuls. Previously her hair had always been healthy, long, and thick. No pain, itching or burning of the scalp was present. Examination of the scalp showed that the hairs were dry, lustreless, short, and loose. The free ends of the hairs appeared thin and pointed and suggested an atrophy of the strands causing part of the hair to fall off. There was an apparent loss of hair involving the whole scalp but most marked over the frontal region. Occupying this area were three small bald patches; these were not completely bald, but showed several strands of short, thin hair. There was no evidence of inflammation, seborrhea, parasitic disease, or any of the common diseases of the scalp. No other region was affected.

The examination of the patient's general condition revealed no abnormal findings except that of anemia and poor nutrition. The history obtained in this case is similar to that obtained in all the cases; that is, one week to eight weeks after an attack of influenza which was usually severe and complicated by pneumonia, hyperpyrexia and severe prostration the hair began to fall from previously healthy scalps. Some cases of alopecia developed after a mild influenza of short duration. The local findings also resembled those cited in this case, but the great majority did not present distinct areas of baldness. Age, sex, and the color of the skin or hair have no etiological relationship to the alopecia. The condition is probably caused by two factors interfering with the nutrition of the hair; first, the toxemia and second, the general failure of nutrition.

It would not be amiss to describe briefly the clinical characteristics which differentiate this type of alopecia from those which may resemble it. Post-influenza alopecia differs from alopecia areata, in that, it is a thinning or loss of hair and the formation of distinct bald areas is uncommon. Bald areas, when present, are not sharply demarcated and entirely devoid of hair, do not show the typical exclamation point hairs of alopecia areata and the surface is not smooth and white. From ringworm of the scalp it is distinguished by the absence of crusts, diseased and broken, fragile hairs, itching and fungi. Ringworm of the scalp rarely occurs after the fourteenth year. Seborrheic alopecia, with which it may be confused, is slow in onset, runs a prolonged course, shows lesions in other localities and is accompanied by dandruff and itching.

The prognosis, as regards recovery is favorable. With the improvement of the constitutional condition the hair tends to return. It is yet too soon to state definitely the length and course of the condi-

tion. However, it seems that those patients who suffered least from toxemia and hyperpyrexia are showing the more rapid improvement under treatment. It is advisable to give all patients a guarded prognosis because it is possible for those who suffer from a permanent or prolonged disturbance of metabolism to have a permanent alopecia or a slow recovery.

Treatment consists in the employment of all measures to improve the constitutional condition of the individual and restore the normal nutrition of the scalp. Moderate exercise is advised but the patient should be cautioned against overexertion and fatigue. An open air life should be encouraged. The best diet is one that is richest in carbohydrates, less rich in fats and poor in proteins. The bowels should be regulated and the urine made nonirritating. Tonics are indicated; codliver oil and maltine for the general nutrition and iron, arsenic, strychnine and gentian for stimulation of appetite and the general tone.

Local treatment depends upon the application of all measures that promote a healthy condition of the skin. Massage, counterirritation and the application of irritating ointments and salves stimulate the peripheral circulation and thus improve the nutrition of the hairs. The high frequency current and galvanism are also of service for local stimulation. The exposure of the scalp to the ultraviolet rays from a sun lamp is recommended highly as a valuable adjunct in the local treatment. With the quartz filter at a distance of eight inches from the scalp each of five areas is given five to ten minute exposures. Treatments are repeated every five to eight days. Local hygienic measures should be observed; cleanliness, frequent brushing, avoidance of trauma, as from the pressure of hats and the frequent exposure of the scalp to fresh air and the sun are of value.

CONCLUSIONS.

Postinfluenza alopecia is very common. It appears three to eight weeks after the attack of influenza. It follows the mild as well as the severe cases of influenza. It is characterized clinically by the sudden thinning and falling of the scalp hair and occasionally by areas of incomplete baldness. The prognosis is generally good. Treatment includes the improvement of the general nutrition and local stimulation. The ultraviolet rays from the mercury vapor lamp are of value in the local treatment.

161 EAST SEVENTY-NINTH STREET.

Adrenalin Therapy in Urinary Amebiasis.—Thodoro Bayma and Munzio Fagundes (*Annaes Paulistas de Medicina e Cirurgia*, August, 1918) report what they believe to be the first three cases of urinary amebiasis in Sao Paulo. These cases presented the usual symptoms of acute cystitis with frequent and painful micturition. Centrifuged urine showed the presence of the entameba dysenteriae, which was also found in the feces. The cases cleared up rapidly under the oral administration of adrenalin according to Bayma's method and vesical lavage with adrenalin solution in one per cent. strength.

HOSPITAL ABUSES.

BY J. W. KENNEDY, M. D., F. A. C. S.,
Philadelphia.

If the average hospital could put into words its own abuses it would be a most caustic tirade of injustice practised by both our profession and the laity. Conducting probably the largest private surgical charity in this country, I am in position to speak of the trials of the medical institutions. I wish to say in the beginning that unless the public comes to the rescue of the hospitals and dispensaries of our country they are doomed to bankruptcy and their progress, scientific advancement and amount of legitimate charity will be stunted by a dishonest citizenship, and this term exactly covers the fullest scope of hospital abuse. Permit me to detail some of my experiences in the conduct of the Joseph Price Hospital, as from forty to fifty per cent. of our work is charity. I can well bespeak the trials of the public hospital.

I first want to say to the medical profession that they are reprehensible in their lack of support of their professional home, the hospital. It seems to be a prevalent opinion among our profession that the hospital is an institution which simply effervesces its own support. Now I know from a large personal experience that not over ten per cent. of patients who enter the average hospital are legitimately charity patients. Many of the physicians know this, but have not been taught that the hospital is a member of his professional family and has never felt the necessity of careful financial relations with the medical institutions with which they are connected. If we could only extract that most detestable of all characteristics, selfishness, from the human being, most of what remains would be of a high type of humanity. I wish to say to my brother practitioners, that even realizing that we are doing more charity through our services than any other class of men, unless they come more uniformly to the financial support of the hospital by seeing that each patient does what he or she can toward paying for services rendered in our medical institutions, they will not only have to give their services to such institutions, but will have also to give financial aid toward the upkeep of the hospital. The medical profession is doing much to pauperize the noblest institutions of our country, and are popularizing an illegitimate charity with the idea of promoting some personal favoritism with a particular family.

The profession should remember that that particular family has the one sick member to care for, while the hospital has one hundred or one thousand, and he should think of it in this ratio. Hospital superintendents complain about large fees charged by certain surgeons, the patient paying little, if any, hospital support. Again comes the complaint that large surgical clinics are popularized by admission of patients for little or nothing for the institution, in order that they may receive surgical services from a particular operator, the operator caring little regarding financial arrangements as long as the clinic is fat. I am sorry to say this is true and it has encouraged charity to the extent that it has be-

come one of the greatest hospital abuses. The exceedingly large clinic which has been built up through an illegitimate charity has not been even productive as a teaching centre. The great number of surgical cases soon swamps the surgeon and we find him rich with the knife, but poor indeed in knowledge of clinical history, diagnosis, personal care and postoperative relations with his patients. As much as it may seem inconsistent with the common fitness of things, real surgical progress will never come through excessive numbers of operations unless the surgeon in charge has personal relations with each patient before, during, and after each operation. The surgeon is bound to become a dwarfed clinician unless he become more a physician. Ten specialists will never equal one well-grounded man in the accurate recognition of disease in any great number of cases, and yet I do not deprecate the specialty which has come to stay and has its place. I stray from my subject here because I am often appalled at the scars of surgery.

I feel that dishonest citizenship is never so low as when it attempts to feed upon an institution whose function it is to take care of the sick. I have had millionaires use my phone and say to me: "I guess there will be no charge as I am a heavy contributor to the institution." The pompous millionaire did not recognize me as the owner and sole contributor to the institution. It is not uncommon for some member of the legislature to ask for assistance from the hospital, threatening with his alcoholic breath to withdraw his influence in obtaining the yearly state support, when there has never been any state support in the history of the particular institution. If you feel the hospitals are not on tottering financial legs just review the Philadelphia institutions and shame will be written on Philadelphia citizenship. I have said in literature that nineteen out of twenty deaths in my specialty, abdominal surgery, were due to human errors; a goodly proportion of this death rate is due to lack of legislative control and governmental support.

When the government thinks seriously of us as a profession and supports us in our true traditions, and thus permits us to exercise our up-to-date privileges, we will reward the government with a life saving service which will be the most admirable of its departments.

Early in the history of the recent war Great Britain realized the importance of milk as a food for infants and the sick and took charge of the entire milk supply of the country, with the result that the infant mortality from birth to the age of five years was reduced fifty per cent. lower than it had been even in times of peace and plenty.

This is one of the most magnificent showings of which I have any knowledge. The government steps in, takes charge of the most important food for infants, sees that the poor gets such food, reduces the death rate fifty per cent. in spite of the fact that food in her country was the scarcest in her history. You see the government become a real physician with the power which should be in the hands of every physician. There is nothing which quite so much makes my blood boil as to have my privileges taken from me by some political body

which lives for money and power and threatens our medical institution by his lack of support.

I should feel that the high death rate of the recent influenza epidemic with a far greater death roll than our fatalities in the present war, would call the attention of our government to the need of better support of that department of health which should better care for our medical units. The lack of medical care in this epidemic, by which I mean doctors, nurses, and medical institutions, increased the death rate to a lamentable degree. People died by the thousands for the want of care. It is my opinion that any time our government chooses to become a real physician it can lower the death rate of our entire country seventy-five per cent.

It was not necessary to have a devastating war to bring about the real need of an organization such as the Red Cross, such need has constantly been with us. I have known for a number of years that the death rate due to positive human neglect by acts of omission and commission was greater than the entire legitimate death rate.

I have seen the hospital accounts doubled and trebled without any corresponding effort in civil life to compensate. I have seen through dishonest citizenship, both lay and professional, abuses of our medical institutions which could only mean destruction or crippled effort. I have seen the most insulting abuses to the greatest friend the American hospital ever had. My beloved master, the late Joseph Price, did more to establish, encourage, popularize, and support the local and general hospital than any man in America and received in return abuse from many of the institutions he conceived and dedicated. I trust this war will give us some big, honest, thinking men.

At the beginning of the war, knowing it impossible to leave the Joseph Price Hospital to enter war service without closing my institution permanently, I did what I felt was the only possible way of rendering my country war service, by admitting, free of hospital and professional charge, all dependents of those who were in the service. This soon became an enormous charity and was of great satisfaction and pleasure to me; but it soon tainted of the hospital abuse and I found many accepted charity who were not in any way dependent upon those in the service. I have operated upon and kept free of hospital expense the servants of a great number of people who are very conspicuous in civil life, both socially and financially, and it is the rarest thing for any of these well to do people to pay a cent for their faithful Mary or John who has served them a decade or more, and yet some of these same people have written their names on conspicuous monuments of public charity. It may be easy to get \$500,000 for a public charity if the donator may baptize such charity, but try to get \$5,000 whose only receipt is the imprint upon a human soul and false humanity shows her real colors.

When I left the farm and felt the last and greatest blessings of a Christian and gentle mother, honesty and charity were to me consistent virtues; honesty remained unchanged, but this attribute they call charity has not remained a consistent virtue. I see it distorted in many edifices erected for chari-

table purposes. If you will give us individual honesty we will not need the charity erected by the millionaire of possible illgotten fortune.

It requires no great strain on any thinking man's logical conclusions to know that the most difficult proposition which now faces the great impending Peace Conference in France, is to so purify the heart of man that force and law shall be mere accessories in the governments of peoples. It has been necessary for me to dwell upon individual dishonesty as it appears in its most hideous form when used to rob institutions which have absolutely no income, are established entirely for charitable purposes, and whose function it is to care for the sick and oppressed.

That individual honesty is at a very low ebb is most forcibly shown in my conduct of the Joseph Price Hospital. I have three separate accounts: one is a legitimate charity account, the other a pay account, and the third an honor account. My honor account includes those who are brought to the hospital for some urgent operation where no time has been given for financial preparation, the patient being one who has an earning capacity; a nominal charge amounting to above one half the actual hospital expenses is made such a patient as they leave the institution. We explain that this is an honor bill and that there is no legal obligation, the bill may be paid at their convenience and in amounts they may determine. We have several hundred such accounts and not one has ever been paid, in spite of the fact that a life saving service has been granted to an able bodied man with an earning capacity. There seems to be quite a universal feeling that a hospital is a free institution and it is useless to bother as to where it obtains its support.

The medical institutions in the future face difficult problems regarding their scientific help, internes, nurses, etc. The National Protective Nurses Associations are demanding shorter duty hours for the nurses in training; this, of course, means more help and greater expense. The professional nurse should be protected and well paid; I place her calling above my own, and I could not get along without her; however, she should not permit organized protection to rob her of a conscientious relationship with her patient or the poor and needy will be robbed of her service.

People must become more uniformly human; they must be taught their duty to the medical institutions; they must be made to know their duty as honest men, or the hospital is doomed.

241 NORTH EIGHTEENTH STREET.

Effect of Dry Heat on Resistance to Cancer.—James B. Murphy and Ernest Sturm (*Journal of Experimental Medicine*, January, 1919) find that mice whose lymphocytes have been stimulated by dry heat develop a higher resistance to transplanted cancer than control mice inoculated with the same tumor, while the general health of the animals is not affected. These experiments, carried out on over 100 mice, strengthen the authors' belief that the lymphoid elements are an important link in the process of so called cancer immunity.

INACTIVITY MEANS WASTE.

BY ROBERT H. MACNAIR, M. D.,
Springfield, Mass.

As it seems to be so universally the rule that inaction, throughout the entire realm of nature, means waste or decay, the following interesting case may prove an apt illustration as to how this natural law is exemplified in the physical economy of man. Of course every scientific mind knows that, as man was unquestionably placed in this mysterious world—to work out his own salvation, or destiny, with more or less fear and trembling—in the psychophysical organism there is very apt to arise a condition of decided retrograde metamorphosis—an old New England farmer referred to the same as a condition of "dry rot"—when man's mentophysical machinery is allowed to stagnate; hence the ancient adage, "It is better to wear out than to rust out."

J. M. C., the subject of this report, is a man who should be considered in the prime of life, especially as he comes of a good, sturdy, old New England family. The patient has never been addicted to any form of dissipation, but has lived a very even, if a rather monotonous life. Engaged in business, he has simply put in the regular hours in the usual routine way, but he has never taken part in any exercise that might be considered more strenuous than quietly waiting on customers, the patient being of an exceedingly quiet temperament. The business engaged in does not actually require the use of any other part of the muscles, brain, or nervous system than that necessary to handle the coin and count the change, etc. However, not a few individuals seem to consider the latter occupation extremely trying and confining, in this age of materialism, tending to develop a decided money mania.

Just a little beyond the half century mark, and from no apparent predisposition, or exciting cause (the patient does not even use tobacco) there appears in this seemingly robust, healthy man a very decided manifestation of paresis.

There are, of course, marked neurasthenic symptoms, especially a distressingly tired, languid feeling upon rising at six a. m., the patient's rising hour for a great many years. The appetite is most excellent, the functional work of the entire organism, save the brain and nervous system, is quite as normal as could be expected from a system at that age. There is no trace of insomnia. If the patient happens to awaken in the night very quickly he falls into a healthy sleep again. But there is that characteristic symptom of the neurasthenic, a desire to be constantly talking about his own personal condition.

Complaint is made of the utter loss of muscular power, especially in the arms and forearms. The tremor of hands is pronounced, hence there is always the utter lack of disposition to engage in exercise that might be, even now, of decided benefit to the organism. I should note the fact that there are no domestic cares and worries to overtax the system, as the patient is a bachelor. Possibly, some exponent of those natural defensive conditions that might prevent so much "race suicide"—would at once suggest that all is due to the fact that the

patient is not really living in accordance with nature's requirements in his life of single blessedness. Then here we have a well defined case of general nervous—also mental, as the patient's mind works very sluggishly—deterioration, prematurely; from what cause?

There does not seem to be a very encouraging prospect that anything of importance can be accomplished by drug treatment. As may be imagined, it requires a great deal of coaxing, moral suasion, to induce the patient to engage in any outdoor exercise. "What can I do?" he asks. "Get hold of a good, strong wooden rake and, morning and afternoon, clear off the fallen leaves upon your lawn." "But, I have not sufficient power in my arms to use a rake." Then the patient will assume an upright position and begin a few gymnastic performances with a light chair, but very gingerly, as if he is afraid that something will break. When his sister, with whom he makes his home, asks, "What shall we do with the poor fellow, if he continues to go down?" the reply perforce must be, "There are a great many just such cases, perhaps caused by entirely different influences, at the State institutions for the insane. However, as conditions are now apparently in their incipency, possibly there may be a decided improvement from judiciously following up the just requirements of nature, provided, of course, Dame Nature has not already become disgusted, and decidedly discouraged from past neglect.

It would seem especially interesting, in this era of progressive hustle and grind that an able-bodied man in New England, the land of sturdy habits and intense energy, should become an organically defunct proposition, in what ought to be the very prime of life, from no apparent cause or acquired habit. But, seemingly, we are now passing through an age of interesting freaks, in a great many lines of man's temporal life. Personally, it has been impressive, that here we have most unmistakable evidences, as in not a few other directions, that man is indeed a ruthless, reckless violator of nature's just and reasonable laws.

When there is so very much intensity of thought given to the all important "getting by" process, regardless of how safe the "going" is, or the schedule that is being maintained, there should be no great wonder. When it is carefully considered, the course man is now maintaining in working out his destiny, with fear and trembling, especially when paresis happens to develop in man prematurely, there should be no question as to why modern man does not enjoy the good, ripe old age similar to that recorded of his great grandsire Adam, or of one of the latter's nearer grandsons—Methuselah.

Aside from the fact that so many of the laws of the moral code are being violated in this intense "getting by" process, in an intensely materialistic age, there can be little question as to the fearful detriment, too frequently even unto destruction, that is being wrought upon man's psychophysical organism, that automatic mechanism that was created well made and intended to last and run fairly well for threescore and ten years.

477 SUMNER AVENUE.

PHYSICAL EDUCATION AND NATIONAL HEALTH.

By J. RUDIS-JICINSKY, A. M., M. D.,
Chicago, Ill.

During the past four years I have had plenty of actual experience and opportunity to study the real value of exercise in education and in medicine, not only with the healthy and absolutely brave soldiers of Serbia, in the beginning of this war, but also as the director of the Military Hospital, Inzinirski Kasarna, in Uskub in 1914-1915. The future soldiers were drilled, before the war, in public schools, colleges, and finally in the gymnasiums of their national organization of gymnasts, the Sokols. They believed that with strong, fully developed and healthy individuals a strong and brave nation could be maintained, the weaklings, men or women, being comparatively few.

The Sokols' system of universal physical education originated with the Bohemians or the Czechoslovaks and appealed very strongly to the Slav race, the Serbians especially. The founder of the Sokols, Dr. M. Tyrs, said: "The Sokols, which give attention to all the callings of life, professions and all classes of people, without distinction, effect the physical and moral education and improvement of the whole Bohemian and Slavic nation.

In this country we knew about the influence of physical culture, we have written and read about different systems of exercise and with the recent progress along old lines of investigation and the development of new, modern institutions, we studied also the ideas of Sokols and their claims in regard to the effects of muscular work on the heart, lungs, vessels, and excretory organs, the tissues of the nervous system, the skin, the bone in development and all the tissues contrasted in function, in physical character and in chemical composition. When we consider the tissues of the body and examine them microscopically we find several varieties of material in regard to the intensity of the life processes which take place in them. In some cases we have to do with structures which are comparatively passive in their nature. This is true of connective tissues, their service being mechanical. The bones are a conspicuous example of this class. They unite and support and determine the general form of the body, so each organ is to be considered as possessing a minor framework of material, which acts for the most part as though it were not really alive.

But this material is very much alive even in the most minute portions: in its cells, constantly growing and developing, and owes its relative form and strength to constant changes and activity with the increased movement and the increased circulation of blood of each individual cell. The ability of such movement belongs to the contractile tissues. The epithelial tissues form the boundaries between the organism and the environment with all the opportunities for exchange of gaseous and dissolved substance. In regard to the nervous system and its work this consists of the coordination and communication of the various parts of the body, not directly

from organ to organ, but always by way of the axial part of the system, so that all physiological reactions employ a central link with all the integrity and cooperation of the parts for the advantage of the whole, that is through the aid of nerves and nerve centres. It is not entirely so, because, as we know, the chemical products passing from organ to organ have much to do with the coordination of activities of every individual. One's own nervous system is, in part, demonstrated through personal consciousness of action, and that brings us to the increased mental capacity with the increased physical training.

In accordance with what has been said, we must therefore consider the nerves as conductors of energy, the chief source of this energy being recognized in the external forces which are brought to bear upon the organism, and which are termed stimuli in our life manifesting itself through movement, heat production, and secretion. Muscles and glands in action give us the best proofs of what is going on in the mechanism of the body which is governed by the nerves. And if that is the case we at once will understand why we have always had so many exhausted men and so many delicate women who were of little use to themselves or others, and why, by the examination of our men of military age the great unfitness to face the struggle was demonstrated.

We were not the first to discover this. The medical men, writers on public health as well as the examiners and members of exemption boards, the teachers, instructors in physical development, and officers in the training camps, the leaders of our armies, educators, and directors of different societies, sociologists, and economists, all knew that a soldier, a sailor, laborer, factory hand, or an operator in any branch of industry, is furnishing his or her part of the work only through his physical and mental condition, the latter depending in a large degree upon the actual activity of the first. On the other hand, when we, the examiners, compared notes with others in different parts of the country, we found to our great satisfaction that all those recruits who came from the schools and colleges, where the light athletic sports, exercises, games, and physical culture were recognized or who were at times members of gymnastic societies, receiving gradually a proper, systematic, and regular training with proper organization of games, were nearly all accepted for the military service.

This fact we have recognized also with our membership of the Sokols, the actives giving us according to our statistics eighty-five per cent. volunteers of fine physical development, real examples of health, personal hygiene, and mental individuality of a real character. And you will ask, why such and similar organizations as the German Turners, and the Sokols especially, had such marvelous results, furnishing the best and most patriotic individual characters, which in the camps nearly always brought them to leadership.

The Sokols start to educate their children early, they invite them to their gymnasiums from six years up and under the enthusiastic instructors, men and women, they attend to their physical, men-

tal, and moral development, requiring usually proper classification in a selection of exercises according to clearly defined principles of reasoning powers and systematic education of observation, avoiding all fatigue and strain. The modern physical director or instructor, with his purpose clearly in mind, has to eliminate all nonessentials and confine himself strictly to the useful, making the life of the children more livable, that is, happier and more useful, paying attention to the capacities, growth, development, age, sex, and the surroundings, hygienic conditions, possible malnutrition, deformities, and condition of every individual pupil.

From the ages of six to nine they give their children simple postural free exercises and mimetic movements, walking, balancing, swimming, dancing, steps for the girls, and outdoor games with sufficient activity and keeping the mind alert in proportion. The influences of such work, if a system of thorough physical examination is inaugurated at least once a year, may be observed soon in deeper breathing of the pupils, resulting also in better circulation of the blood, which with the sedentary habits in the schools and other habits may improve the physical condition, if we consider also fresh air and outdoor work with recreation and proper nutrition.

For children from nine to fourteen years of age they have classes with games and corrective exercises which develop the whole muscular system, especially the legs and thighs, the demands on nervous control and coordination being moderate with a greater influence on blood pressure, pulse and respiration—deep breathing. Agility, accuracy, courage, speed, and strength are the results of such a practice.

Young people from fourteen to twenty years of age must go through exercises again specially classified for the whole muscular system; forearm, arm, and shoulders, thigh, and legs. In girls the abdominal muscles, above the pelvis, back, and neck, are employed with gymnastic apparatus or without, followed by free and more complicated set up exercises in groups, calisthenics, and dances, so that the demand on the nervous system would be great here and moderate there, slight or extreme, according to the physical and mental qualities of the individuals and with the main object in view to have an increased influence on the circulation of the blood, the heart, and lungs.

In the years between twenty and thirty they reach the highest point of activity and the training is arranged for the increased demand for nerve control to gain in agility, endurance, and speed. The choice of exercise will depend then not only on its known effects upon the heart and circulation and nutrition, but also upon the stage of development of the nervous system. The principal rule of the Sokols' instructors and directors is to provide recreation for the children and to make their men and women fit and ready for all the serious work of life, preparing the youth especially for future duties as strong citizens in no way exhausting any portion of their vitality, while in gymnasiums, or on the playground, and the field. What such modern methods of this system mean for military service, the Czechoslovaks have proven not only

in Siberia, but at all the fronts of our allies.

From thirty to forty years of age they have drills for working out the entire muscular system, practising on apparatus, exercises of strength and endurance, which have an extreme demand on the nervous system and a great influence on the blood pressure, respiration, and excretion. Here they try to promote suppleness and develop those muscles which are seldom brought into play in ordinary daily life. The influence on coordination in such cases depends mostly on the intricacy of the exercises practised and the form of the apparatus with the complication of the setting up of the skillful physical feats in free exercises, the movements being executed in time with the orders or counting of the leader of the groups, and they do not produce muscular fatigue, which follows the ordinary athletic exercises.

In the classes for the older people, from forty to sixty years of age, they have in the first place simple stunts of endurance and lighter tests of strength. Before commencing the set up exercises, the leader will march the men at quick time for five hundred yards, then face them about and bring them back for two hundred yards at quick time. Any exercise of that sort preparatory to further work on apparatus, is designed, both from scientific and practical points of view, to give exactly the right amount of drilling to every group of the muscles of the body. Any tendency toward hurried, careless work is discouraged by the leader, who at all times, insists upon uniformity, elegance, and accuracy of movements. The instruction is given in careful detail worked out in advance by the teacher and the divisions, based upon broad tests with certain respect to the classes of women.

Here, as already stated, at the beginning of the war we found many of our youths in anything but a good physical condition, and today we have splendid American men returning from abroad and from the camps over here. But the universal training would not be and could not be effective unless it was practised under medical supervision and supplemented by the most important thing that makes not only a good citizen, but a good soldier, and that is voluntary subordination to the cause or discipline. The only way a man acquires the quality of discipline is to live with it. The same holds with women, because there is no difference in the muscular strength of women and men which might be due to sex only as such, the difference being perhaps in the "use of the muscles," mode of living, dress, etc., as they themselves have learned during their physical training lessons of years of practice and lately in the munition factories and other occupations.

A good army is made up of healthy, strong, and disciplined soldiers. An effective army must have size, while its training is both for the sake of men, and more especially for the officers. Having this experience, we certainly will agree with Professor Howard Marsh in his statement, that the first measures in training suggested must begin in infancy, then in childhood, and to produce the proper results, the lessons of this war should guide us in regard to our youth: "The duty of the nation is plain. It must deal with the raw material just as it

is—and that without delay—in the interests of both national health and military efficiency, and this can only be done by the removal of young men from their present surroundings and by placing them under improved sanitary conditions, where they will receive careful physical and moral training.”

1900 BLUE ISLAND AVENUE.

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RECENT GLEANINGS RELATIVE TO THE PROPHYLAXIS AND TREATMENT OF INFLUENZA.

BY LOUIS T. DE M. SAJOUS, B. S., M. D.,
Philadelphia.

(Continued from page 375.)

The possibility must be considered that the specific influenza virus may actually be of a filterable, i. e., very minute, size. Such a virus, it seems plain, might readily pass through a gauze mask that had proved itself practically impervious to the nonfilterable bacteria used in the Petri dish experiments. On the whole, it is clear that protection by masks may vary enormously in value according to the care taken and principles followed in their construction. Experiments intended to elucidate the efficiency of different types of masks must reproduce clinical conditions far more closely than has hitherto been the case if the conclusions formulated are to be held valid. If the virus of influenza be filterable and that of its complications, as is generally believed to be the case, nonfilterable, mask protection of the patient might be conceived of as more effectual in reducing mortality than in reducing the incidence of the original influenza itself.

Disappointing results from the use of gauze masks in the prophylaxis of influenza certainly cannot be held to invalidate the entire procedure, but rather point to the existence of some imperfection in their construction or manner of use which must be remedied before wholly satisfactory results can be expected. The possibility that the specific influenza organism may be a minute, filterable germ suggests that, perhaps, the masks so far used in influenza have been of too coarse a mesh, and that in this disease smaller interstices are required than those existing in the masks already definitely shown to be effective in arresting pneumococci, the bacillus prodigiosus, diphtheria bacilli, etc. As a step in this direction, some have already advocated and practised the interposition between neighboring gauze

layers of a piece of absorbent cotton sufficiently large to cover amply the nose and mouth, e. g., a layer of cotton cut to measure six inches by three inches.

Another feature of the average mask that may be of importance is its failure to protect the eyes. Montizambert, 1918, has advised that nurses and others who stoop over influenza patients should wear masks extending in front of the eyes but provided with transparent eye pieces. Vincent, 1918, recommends the use of a light gauze helmet, with the gauze supported on a thin metallic frame and provided with a visorlike projection over the eyes to ward off infected droplets from these structures. The metallic frame is intended to prevent contact and pressure of the gauze upon the projecting features of the face, especially the nose, with the consequent discomfort and greater likelihood of soiling the gauze with moisture from the orifices. The mask is so contrived that the gauze can easily be changed and the whole device sterilized. Keefer, Friedberg, and Aronson, of the United States Army, similarly deem the combined head and face or helmet mask the most efficient, if made with close meshed material, and assert that it may be worn for some time with relatively little discomfort. For clinic work and ward visits they found satisfactory the use of a frame of copper wire covered with several layers of gauze held in place by small strips of adhesive plaster or by basting thread. The frame was, in this device, curved to fit the nose and mouth closely. The mask was held on by rubber bands fixed at its sides by tapes or paper clips and slipped over the ears. Experience with such masks proved their advantages in the rapidity with which they could be adjusted or removed, the absence of discomfort, and the fact that conversation was in no way interfered with.

On the whole, the facts presented in this and preceding installments would appear strongly to indicate that, in the future, results better than those already noted may be obtained from masks, 1, by the use of mask material more definitely adapted to exclusion of the particular form of infection actually present; 2, by proper care that the mask shall protect the eyes as well as the nose and mouth and shall fit the facial surface closely at its margins to obviate free entrance of air currents carrying infection; 3, by due consideration of the danger attending removal of the mask for even a short period of time during exposure to infection, the simile of the gas mask being invoked to impress upon the wearer the necessity of constant protection. Especially should condemnation of the mask because of seemingly unreliable results be avoided. The poison gas mask has already been made completely efficient. So should the infection mask if infected and properly used.

Apart from mask protection, the transmissible nature of influenza warrants an inquiry into the question of propagation by other forms of contact, direct or indirect. Hand shaking has been deemed an important mode of communicating the infection, and there is also a possibility of contagion through the common use of towels or napkins, unwashed kitchen utensils, the barber's hands or implements,

etc. Colonel Lynch and Lieutenant Colonel Cumming of the United States Army, have recently published highly significant data indicating a definite rôle of the patient's hand in the distribution of the influenza virus and its secondary infections. Struck by the explosive character of the epidemic in certain military organizations at the port of embarkation at Newport News, while other organizations living under practically identical conditions were much less severely stricken, these officers investigated the cause of the discrepancy, bearing the possibility of hand to mouth or indirect contact transmission especially in mind. In one unit, consisting of 1,090 men, the great majority of the men were quartered in barracks, and the remainder in tentage. In both groups the ventilation and cubic air space requirements were complied with, and the mode of life and daily routine were practically the same. The conclusion was reached that the method of quartering did not influence the rate of infection. On the other hand, while the incidence rate per 1,000 among men using tableware at meals was ninety-four, among a group of over 400 men eating from mess kits, all subsequently washed in the same water by the old line method, the rate was 476 per 1,000. Transmission by the hands and kits through the common wash water was thus strongly indicated.

(To be continued)

CLINICAL NOTES FROM FRANCE.

CHARLES GREENE CUMSTON, M. D.,
Geneva, Switzerland.

TREATMENT OF WOUNDS OF THE RECTUM.

Very little has been written on the wounds of the rectum in warfare, and, therefore, I would call attention to some statistics on this subject recorded by Mocquot and Fey who have had thirty cases under their care. These were: five cases of peritoneal rectal wounds, nineteen subperitoneal injuries of the rectum and anus and seven rectourinary lesions. In the four instances of peritoneal rectal wounds the patients offered multivisceral lesions, the missile having at the same time involved the small intestine and rectum in three, the cecum in two and the mesentery in one. In three cases the rectal injury was found at the time of the laparotomy and in one case it was overlooked. Only one of the four patients recovered and, strange to relate, this case offered a perforation of the small intestine and rectum and a wound of the mesentery with severe hemorrhage from the mesenteric artery. Subperitoneal wounds of the rectum and anus often became gangrenous; therefore, the track of the missile must be freely opened up and all foreign bodies removed. When this has been done suture must not be essayed in wounds of the anal canal and the wound should be allowed to granulate up from the bottom even if a cicatricial stricture should ultimately result. On the other hand, in wounds of the rectal ampulla suture should be resorted to but it must always be completed by exclusion of the rectum by making an iliac anus. Of the nineteen patients under the care of Mocquot and Fey, ten recovered after operation.

In the remaining seven cases of rectal wounds the bladder or urethra were also involved. High rectal wounds involve the bladder, while the urethra may be injured in gunshot wounds of the anus. Of the former, there were four, and in each one a rectovesical fistula resulted. Only one patient who was treated at once, recovered without this complication after cystostomy and suture of the rectal wound had been done. The three remaining patients came under treatment after some time had elapsed after the receipt of the traumatism and were naturally, infected and died in spite of iliac colostomy. I would add that Mocquot and Fey are of the opinion that cystostomy performed at once is the treatment par excellence of rectovesical wounds. Iliac colostomy may, perhaps, be useful if at the same time there is considerable muscular and bone damage around the rectum. Direct suture is only to be resorted to in wounds of the peritoneal portion of the rectum and bladder and, being abdominal injuries, they are to be dealt with by laparotomy. Of the three patients with rectourethral wounds, only one died and this is not astonishing because there was a general bursting of the perineum.

LOCALIZED TETANUS.

The war unfortunately has given much opportunity for the study of tetanus and therefore, upon the present occasion I shall endeavor to sum up our present knowledge of the prognosis and symptomatology of the localized form of this morbid process. First of all it is said that localized tetanus is always a chronic tetanus and is particularly marked by its long duration. The incubation period is usually much longer than in ordinary cases of the disease, one month not being unusual and some cases have been as long as three months. There are exceptions to this rule, however, and in not a few instances the incubation period lasted only a few days, not being longer than in the most acute forms. After the incubation period has passed the contractures appear, at first intermittently, in the form of painful spasms and then they are continuous with exacerbations. There are three forms of contracture, the first being a purely localized form in which, during the entire evolution, the tetanic phenomena remain localized in the limbs. These are the mildest cases which rapidly recover, usually in less than a month, and are less prone to result in trophic sequelæ. Then, there is the primary generalized form with secondary localization. In some of these cases the contractures predominate in one or several limbs while in others it is only toward the end of the process that localization appears. These cases are of long duration, with a long convalescence which often gives rise to trophic disturbances in the involved limbs. Finally, the third form is where the affection is localized at first and then becomes general. The contractures are at first limited to one limb, then develop in the opposite member and finally in the spinal and neck muscles. Trismus is the last symptom to appear. In rare instances the respiratory muscles are affected and death occurs from asphyxia. Therefore, it is evident that localized tetanus is not always as benign as some writers describe it to be, but nevertheless it is true that when

localized in the limbs it represents the least serious form of the disease, the mortality being about one in seven. Even in cases progressing normally toward recovery there are certain complications to be feared. The contractures often subsist for many weeks in the same groups of muscles, resulting in serious lesions which are sometimes permanent. The paraplegic type is more apt to give rise to musculo-tendonous retraction, originating in the soleus and gastrocnemius muscles. The tendo Achilles which is as tense as a cord, retains the foot in equinism and interferes greatly with walking or standing.

These musculotendonous retractions are generally easily overcome but they may persist after convalescence for a considerable length of time and require careful orthopedic treatment. Some writers have described trophic disturbances during convalescence from localized tetanus, which were seated in the integuments, muscles or tendons. Vasomotor disturbances play a part in their pathogenesis as is shown by the changes in the local color, temperature and secretions. Very rarely sensory disturbances arise, which are characterized by a subjective sensation of intense heat followed by an impression of cold, but they do not affect the clinical aspect of neuritic phenomena. These possible trophic complications occasionally prolong the convalescence and require two or three months for their cure. From what has been said it will be seen that a tetanus localized in the limbs is an essentially chronic form of the disease and as such may be regarded as benign. The treatment is the same as for any case of tetanus.

INFLUENZA.

I am glad to say that a much neglected therapeutic measure, yet still so potent when correctly used, is returning to favor on the Continent. I refer to bloodletting, which during the pandemic of influenza is being resorted to with success in the pulmonary complications of this disease, particularly when pulmonary edema supervenes with cyanosis and imminence of asphyxia. From four to 500 c. c. of blood is withdrawn and immediately followed by an intravenous saline solution of the same amount as that of the blood abstracted. The use of antipneumococcic serum has also given excellent results in influenza. When a patient is first seen and the temperature high, a subcutaneous injection of from twenty to forty c. c. of antipneumococcus serum seems logical from the fact that the organism is found in the sputum of influenza patients with pulmonary complications.

Quinine has been highly praised by many practitioners and the powdered bark of cinchona has also been recommended, a teaspoonful to be taken in a large cup of black coffee three or four times daily. Personally, I believe that some of my cases were greatly benefited by the cinchona inasmuch as it seemed to cut short the infection if the treatment was begun at once. The bark may also be given in the form of an acid decoction, the best one being that of the Danish Pharmacopœia:

Cort. cinchonæ,25 grains;
Acid. hydrochlor. dil.,3 c. c.;
Aq.,q. s. ut f. decoct.;
Colatur.,200 c. c.

All things taken into consideration, the best treatment of influenza and its complications appears to have been symptomatic. The various so called specific sera which have been essayed do not appear to have yielded any really serious results.

The bradycardia observed at the time of convalescence from influenza is unquestionably due to a hyperaction of the pneumogastrics which probably results from a decreased action of the sympathetics. Both the backache and bradycardia are due to the intensive antitoxic work carried on by the suprarenals during influenza, the first representing the initial phase of congestion and hyperfunctioning, the latter testifying to the relative repose following hyperactivity and which is necessary for the reconstitution of the lipoid reserves that have been drained during the influenzal toxemia.

A rather important communication has just been made by Professor Socin, of Lausanne, to the medical society of that city, on ninety recropsies made on subjects dying from this epidemic affection. The first deaths occurred at the beginning of last July and the mortality attained its maximum at the end of the same month. In August it had decidedly decreased, while in September there were only a few isolated deaths. Finally, October marked a short-lived recrudescence of the epidemic.

The majority of deaths occurred between the ages of twenty and forty years. This was likewise the case in Geneva. As to sex and age Professor Socin gave the following figures: From twenty to thirty years there were twenty-five men and eight women; between thirty and forty years of age there were twenty-seven males and nine females, but even deducting the deaths among soldiers it was noted that males are more exposed to pulmonary complications (which are so frequently fatal) than females. Out of a total of ninety deaths there were only two which could be directly attributed to influenza. The first of these two cases, in which cerebral symptoms predominated, showed multiple punctiform cerebral hemorrhages. These lesions, which are also met with in other intoxications, salvarsan for example, are due to vascular changes—hyalin and fibrinous thromboses. The second case, which had presented a very marked hemoglobinuria, offered no macroscopic lesion. The microscopic changes on the other hand, were in the form of blood pigment casts in the urinary canals, signs of the hematuria during life. There was no distinct change in the glomerulae. In both cases death was due to general intoxication.

Vascular changes are the rule; hyperemia of the respiratory tract with acute bronchitis. There were the same changes in the pia and medulla oblongata. The cerebrospinal fluid was increased and a true serous meningitis existed which caused the dura to bulge when the skull was opened. The cerebrospinal fluid was limpid, its albumin content not increased neither were its figured elements. It was a simple hypersecretion due to vascular changes. The gastric mucosa was also hyperemic with punctiform hemorrhages which, in certain areas, were confluent, often giving rise to eroded hemorrhagic plaques. Both cases presented an extensive hemorrhage of the cecal mucosa. Clinically, the patients

offered the picture of an acute appendicitis and in both operation revealed an acute typhlitis and catarrhal appendicitis. Whether or not the hemorrhages in the various viscera resulted from the cerebral changes is a question, but this origin is to be admitted in the case of the gastric erosions. The tracheobronchitis was probably the result of direct infection. Socin is of the opinion that per se influenza is not dangerous and is rarely fatal; the serious accidents are due to its complications. Of the secondary complications of influenza, pneumonia is unquestionably the most important. It is always extensive, involving the entire lower lobes and sometimes the upper lobes partially. On section the pulmonary tissue offers a diffuse infiltration and by scraping a slightly spumous liquid can be collected. Therefore, the infiltration is not complete, although it offers the aspect of lobar pneumonia. Influenzal pneumonia always offers the same picture no matter whether its duration has been two days or a week, viz.: the grayish aspect as found at the end of red hepatization. It does not undergo an evolution and there is no resolution. The organism does not react as it does in ordinary pneumonia. Usually lobar, it commences by small foci which rapidly invade the entire lobe. Occasionally small miliary foci of suppuration form which are not long in becoming confluent, resulting in large abscesses with extensive destruction of the pulmonary tissue. Very rarely a purulent pneumonia is met with where the lung is transformed into a single large abscess. It might be thought that tuberculous subjects, with diminished vital resistance, would be easy preys to the bacillus of influenza, but quite to the contrary as Professor Socin points out, there exists an antagonism between influenzal pneumonia and tuberculosis. The pneumonia is limited in extent in most tuberculous subjects and rarely lobar.

No other change is to be noted in the other viscera excepting the spleen and this is noteworthy. The gland is striking from its small size and in forty-three out of the ninety necropsies its volume was decidedly below the normal, this being due to both destruction and atrophy of the splenic tissue. It has been shown that the antitoxins accumulate in the spleen and it is probable, according to Socin, that these substances arise in the spleen itself.

The majority of deaths during influenza are due to secondary infection from the pneumococcus and in fifty-three cases out of eighty the pneumococcus was found in pure cultures much more so than in ordinary pneumonia; in some cases there was an association with Pfeiffer's bacillus and in only four was the latter organism found alone.

Why does the pneumococcus develop in such great quantities? In reply to this question Socin says that influenzal intoxication diminishes the resistance of the lung while the tracheobronchitis predisposes to infection. Normal pulmonary tissue is sterile so that it may be supposed that the gripe does away with this faculty of defense. Perhaps the movements of the vibratile cilia became abolished, a condition which would allow the bacteria to descend.

Why does the organism not react? Why are

these mildly virulent organisms capable of producing such destruction? In reply Professor Socin believes that it is due to the splenic atrophy resulting from intoxication. The weak leucocytic reaction in the lungs, the infrequency of pleuresy, show the mild virulence of the cocci. Nevertheless the infection spreads throughout the lungs because the organic defense in the spleen is abolished. The splenic functions may be awakened by injections of salvarsan, colloidal silver, tuberculin or dead pneumococci.

Legg's Disease.—Leonard W. Ely (*Annals of Surgery*, January, 1919) reports a series of cases of arthritis deformans juvenilis, as it was originally called by Perthes. He states that this condition is usually classed as Perthes's disease although originally discovered and described by Legg. After giving the history of five cases he arrives at the following conclusions: The disease is due to an error in the development of the upper epiphysis of the femur. At times the acetabulum shares in this malformation. The great trochanter may or may not be involved. It possesses a congenital element and is first observed between the ages of five and ten. It affects boys more frequently than girls in the proportion of four to one. It is frequently seen after the reduction of a congenital hip dislocation occasionally on the sound side. It may be bilateral with symptoms on one side only. It is not attributed to infection or trauma, but the symptoms of the disease may be brought about by trauma. The condition is diagnosed easily by the x ray and will pursue a definite course with or without treatment, but treatment may modify this course and prevent the deformity which ordinarily follows (coxa vara). The so called areas of destruction seen in the head of the bone may be areas of unossified cartilage. The x ray picture shows: A flattening, broadening, and at times a lateral displacement of the epiphysis containing one or more divisions and an irregularity of ossification; an irregularity or even a segmentation of the cartilage between it and the neck; loss of bony structure; an irregularity in the contour of the upper part of the neck of the femur; distortion of the head; an occasional enlargement of the trochanter; an irregularity of the acetabulum, which however, is not characteristic. There is a great difference between the marked changes in the x ray picture and the comparative insignificant physical signs and symptoms. The affection seems to run its course in two or three years, with an active period of a year. The x ray may show an alarming picture after the physical signs and symptoms have subsided. Fibrous or bony union of the joint never occurs. The restriction of motion is due to mechanical causes. At times the disease has been diagnosed as tuberculosis. It may be easily differentiated as tuberculosis causes more pain, muscular spasm, atrophy and a greater restriction of motion, and there is an absence of the disproportion between the physical signs and the x ray picture. Treatment consists of reduction of the deformity under an anesthetic if necessary, and the immobilization of the fully abducted hip in a short plaster spica until the neck has become solidified.

Editorial Notes and Comments

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HUMAN NATURE AND HARD WORK.

One of the greatest surprises of the war was undoubtedly the way our young men responded to the call for physical exertion required of them, and instead of sinking under the strain of it, or any large proportion of them failing in health, they were almost without exception actually bettered. If a physician had been asked before the war what would happen to a lot of our young men taken from the cities if they were to be placed in open ditches in the open fields, exposed to the inclemency of the winter weather and required to do the hardest kind of hard work, he would probably have been rather pessimistic as to the outcome. To many of us it seemed as though the luxuries and comfort of modern life had relaxed the physical fibre, of city dwellers at least, and made it impossible for them to stand the hardships of a soldier's life except with such sacrifice of numbers as would make serious inroads upon the number of the effectives that would be left to do the real soldiering after even a few months of this hard life.

We found that we were entirely mistaken and that the young men, instead of breaking down under the strain of war and its alarms, the irregular sleeping, the eating of coarse food often served cold and taken whenever one had the chance, wet feet, damp beds, and all the rest, were actually in better health than they were at

home. The letter from the perilously rich young man quoted by Agnes Repplier in a recent number of the *Century* illustrates this very well. He wrote that he had not had dry feet for over a month, he had not slept on a dry bed for several months, he had never thought it possible that he could eat such coarse food, but he could digest tenpenny nails, and he never felt so fit in his life! There is a sample of what happened to the young men. And the wonder of it all has been that the city boys have stood the strain better than those from the country.

Fortunately, there also came some experiences for the women, and especially the younger ones among them, which make it very clear that the feminine cousins, sisters, and aunts of these young men are no different in nature from their male relatives and that their physical fibre has not been relaxed by modern comforts and conveniences, and that they, too, can stand almost impossible conditions, and, instead of breaking down under them, be all the better for the experience.

The young women nurses, in proportion to their numbers and to the character of the disturbing scenes and sights and shocks through which they had to pass, suffered less from so called shell shock than the men around them. Many a delicately nurtured girl showed that she could do hard physical labor for many hours at a stretch for many days in succession, and sleep the better, eat the better, and become more physically fit as a result of it all. Some of them never knew the powers they had until they were asked to perform tasks that would have seemed certainly impossible to them before the war, and they went through them faithfully in spite of the fact that sometimes they were sure they must drop from sheer tiredness, and yet there was no nervous exhaustion among them except in a comparatively few in their early careers, and they were of the class whose habit of cultivating self pity could not be overcome even by the high patriotic motives that the war called into activity.

Not alone have the women directly connected with war work demonstrated the fact of how much hard work women can do, but also those who, in the absence of man power, took the men's places in various departments of labor. Miss Eva Fenton, of the Hygiene Staff of the British Ministry of Munitions, declared that in England in the munitions plants, even in the

heavy work, as many as ninety-five per cent. of all the workers were women. In some cases, indeed in a great many, the workers were voluntary recruits from some of the better classes of society who showed their patriotism by taking their places beside the women of the lower classes to win the war. It was not an unusual thing in England for a woman of average strength to lift a weight of fifteen pounds in the shape of a steel shell, from one table or bench to another, intermittently all day, and yet not only not break down under the task but actually grow strong and rugged and enjoy better health than before, because the hours were absolutely regularized and proper feeding was made a special task of the Government authorities. Some of the women actually lifted as high as twenty-five pounds many hundreds of times all day and yet did not break down under it or even have their efficiency impaired.

Their physiological functions were all more normal than before, almost without exception. Very few of them had to have any monthly lay-offs for the feminine periods, and not a few of them went through their periods in ever so much better health and without so much annoyance and pain as before.

Surely these precious lessons of the war as regards the effect of hard work on both men and women must not be lost. Not a little of the pathological conditions of the prewar times were manifestly due to the fact that energy manufactured in the human body and not used up as it should be in exertion was making itself felt as a sort of short circuit in the organism and producing annoying symptoms. Dooley said long ago that the most important thing for human happiness was for a man to get tired enough every day so that he would sleep well every night. Without that, there is no health and no happiness. Hard work still remains the best prescription for health. There is nothing that will replace it. Mankind has been prone to find all sorts of excuses to do away with the necessity for hard physical labor whenever that was possible, but success in this policy, far from doing good, does harm. This is as true for the women as for the men. There has been too much coddling for their own good. Physical exertion makes the best preventive of ill health and the best safeguard against many of the feminine ills quite as well as the masculine complaints. It took a costly war, the costliest in all human history, to teach us that. Surely we must derive every ounce of profit from it that we can.

LYMPHADENOMA OF THE TONSIL.

A lymphadenoma, and particularly when seated in the tonsil, undergoes the same evolution as that of cancer in general in the majority of cases. Like carcinoma, there may be involvement of the lymph nodes and there may be metastases in other organs. Its evolution is progressive and ends in cachexia. Ulceration of the tonsillar tumor is not uncommon, but only at a late period of the process. A phenomenon worthy of attention is induced by arsenical treatment. A lymphadenoma may cease in its development for several months following arsenic medication. Sarcomatous or lipomatous transformation in lymphadenoma of the tonsil is a question too obscure for discussion, but one fact is certain: The growth extends by invasion of the surrounding structures and by the multiplication of its own cell elements. When the very resistant but thin fibrous shell, in which the tonsil is embedded, has been invaded by the neoplasm, all surrounding tissues are rapidly involved and in some cases the large vessels of the neck do not escape. Sometimes they are pushed aside by the growth or completely surrounded by it, but the walls of the vessels may be corroded by the malignant cells and serious, if not fatal, hemorrhage ensues. It is for this reason that certain surgeons have wisely resorted to ligature of the external carotid as a preliminary step to removal of the growth.

A neoplasm of the tonsil may remain latent for some time and reach quite an advanced stage before it is noticed, and this is particularly true of lymphadenomata. Difficulty in swallowing is generally the first functional disturbance complained of, and at length a dull pain, extending to the neck and particularly to the ear, arises. Meanwhile, the growth slowly increases in size and finally partially obstructs the back of the throat. The size and situation of the neoplasm causes nausea and vomiting and periodical paroxysms of coughing. Sialorrhœa is common and fetid when there is ulceration of the tumor and at this time hemorrhage may occur. Finally, pronunciation becomes defective and symptoms of asphyxia, particularly during sleep, arise and in some cases have been so serious as to require tracheotomy. Inspection and palpation of the interior of the mouth, as well as from the outside, will give all the necessary data as to the mobility, hardness, and size of the tumor and the condition of the lymph nodes. Those at the angle of the jaw and entire submaxillary region are to be particularly sought for, but usually there is little difficulty in detecting them, as they generally are

quite large. Examination of the various viscera, particularly the spleen, liver and testicles, should never be overlooked because metastases are relatively frequent in lymphadenomata. The most common diagnostic error is to mistake a lymphadenoma of the tonsil for a simple hypertrophy of the organ, but the fact that the lesion is bilateral means nothing since lymphadenoma of the tonsil is apt to occur in both glands. From a differential diagnostic standpoint it is well to remember that sarcoma of the tonsil is practically always unilateral. The progress of lymphadenoma of the tonsil is essentially variable. Occasionally it is very slow, having all the attributes of a non-malignant tumor, but the submaxillary lymph-nodes will be enlarged, and should, therefore, put the physician on his guard. Other cases follow a very rapid development, but between the two extremes there are many variations in the evolution of the morbid process, and at all events the prognosis is always serious for reasons which are obvious.

THE BEGINNINGS OF DISEASE.

The first evidence which we have of disease is found in the amphibian age in the latter part of the paleozoic era, probably some 12,000,000 to 20,000,000 years ago, evidence of caries being very common among fossil vertebrates and Permian fishes of that age. In a series of studies in paleopathology which appear in the *Annals of Medicine* [vol. 1, No. 4], Dr. Roy L. Moodie, of the University of Illinois, tabulates the geological evidences of paleopathology in a most informing manner, so that one is enabled at a glance to grasp something of what is known concerning the beginnings of disease. There is no geological evidence of the existence of disease earlier than the Mississippian period. There is evidence of the existence of nonpathogenic bacteria among the first known fossils of the Keweenaw period, but the first definitely recognizable pathological lesions are found among the fossil vertebrates when caries manifests itself. An early tertiary species of a three toed horse has left a mandible showing extensive evidence of caries and of some necrotic process which has also resulted in the absorption of the alveolar margins and the exposure of the roots of the teeth similar to the results now produced by pyorrhea alveolaris. Caries has also been observed in the teeth of the mastodon and the early cave bear of Europe. The fossil remains of the early races of men are singularly free from this disease. Since the fossil remains of the soft parts of the body are so rare,

evidence is lacking as to the diseases attacking those parts of the animal, but the bones and teeth have left records, a careful study of which, from a pathological point of view, constitutes paleopathology. Fractures, of course, there were, and the author presents an illustration of the oldest known case of fracture. This was a simple fracture of the left radius of a dimetrodon, a primitive reptile from the Permian period of Texas, which was incompletely healed.

Interesting deductions are drawn by the author from his studies regarding the incidence of disease as indicated by geological data. He plots this in a graph which shows clearly that the line followed the base level for the first twelve geological periods of the earth's history, began to rise in a rapidly ascending curve which reached its peak among the dinosaurs, mosasaurs, crocodiles, plerosaurs, and turtles, and took a sudden drop with the extinction of the large group of giant reptiles which came at the close of the carboniferous period. The curve again took an upward turn, reaching the highest point with the present age. Numerous excellent illustrations are given of fossils bearing evidence of diseases which so closely approximate in their manifestations well known disease processes of the present day that the author is justified in using familiar nomenclature in describing pathological conditions in fossils ten million years old. One of the interesting deductions drawn by the author is the effect of senescence in a race in lowering its resistance and leading to its disappearance. This process of senescence preceding disappearance of a type is shown repeatedly in the fossiliferous remains throughout the ages.

HOME TREATMENT OF THE DISABLED.

It had been somewhat rashly surmised by the authorities that scattered bands of convalescent soldiers would be as easily drilled in the fields of health as on the plains of battle, but, freedom once regained, there has been a disregard or disinclination shown to carry out the necessary treatment or to learn some handicraft. "Theirs not to reason why—" does not apply in peace times, so, led mainly by a sense of justice, influenced partly by the thought that every uncared for soldier is an argument for the Socialist, many plans are being evolved for aftercare, and among them is one already in course of trial. This is the War Seal Foundation in London, with specially designed blocks of flats to accommodate men of the fighting services who have become totally or permanently disabled in the sense of requiring con-

stant care and treatment, regular in mode and time of administration, and to give certain specialized treatment at home. The busy mother has no time to take her disabled man to the hospital and spend hours waiting his turn, and, often, the hospital is a long distance away and a high car fare. There is an administrative building in which is a resident electrotherapeutic superintendent assisted by a matron and voluntary workers. There are also honorary physicians and surgeons and an honorary visiting physician.

The accommodation is intended to preserve the man's family circle unbroken, the home atmosphere being deemed better than that of a sanatorium. There are two airy bedrooms, a spacious hall, a parlor, a kitchen-scully-bathroom, with specially low built bath, and a private balcony. In the parlor there is a special recess for a wheel chair, and a wide porch, common to all on each floor, which allows the patients to sit out of doors. The rent, including linoleum and roller blinds, use of wheel chair, rates and taxes, and a "penny in the slot" gas stove, will not exceed one dollar and fifty cents a week, not a very large sum for all granted. Those to take precedence in admission are spinal cases, hemiplegics, and rheumatic disablements. Provision is made for ionization and other treatment in the man's own room when it is not possible to move the patient. Already, seventy-two of these flats have been built and the scheme has been registered under the War Charities Act. The generosity of the founders has seen to it that the buildings are not in a congested district but in one of the best.

THE MEDICAL CORPS OF THE CUBAN ARMY.

While the laws of Cuba provide for a regular army of 17,000 the force only numbers about 12,000 men at present. Colonel Valery Havard, a retired officer in the Medical Corps of the United States Army, was a member of a commission which was appointed in September, 1918, to prepare plans for a reorganization of the medical service of the army and the navy of Cuba. At present the medical section of the Cuban Army has thirty-four officers including two lieutenant colonels, two majors, fourteen captains, fourteen first lieutenants, and two pharmacists with the rank of first lieutenant. The private practice of medicine in Cuba is so remunerative that the military service does not hold out sufficient attractions to fill the requirement of the service. The commission proposes [*Military Surgeon*, February, p. 186] that captains and lieutenants shall receive \$25 a month in addition to the pay of their grade. It also proposes to raise the medical service to the rank of a department with a Brigadier general at the head and with the following additional officers: two colonels, three lieutenant

colonels, nine majors, twenty-four captains, and twenty-nine first lieutenants or a total of sixty-seven commissioned officers. There are also one pharmacist with the rank of captain and two with the rank of first lieutenant. The commission also recommends the establishment of a special military medical school in the Columbia General Hospital for the instruction of candidates for admission to the Medical Corps. It is also recommended that the Medical Department of the Navy be raised to the rank of section or bureau, the present force of a chief and four assistants being enlarged to ten medical officers and further increased to sixteen when the naval hospital is completed. These are to have the rank of captain and of first lieutenant. Two pharmacists and two dentists are also provided for with the rank of first lieutenant. It is interesting to note that pharmacists receive recognition in the army of our neighbor though not in our own.

Obituary.

THOMAS ADDIS EMMET, M. D.,
of New York.

The death of Dr. Thomas Addis Emmet, which occurred on Saturday, March 1st, removes one of the most interesting and romantic figures from the field of medicine in New York. He was born on May 29, 1828, at Charlottesville, Va., a son of Dr. John Patten Emmet, professor of chemistry and materia medica in the University of Virginia, and a grandnephew of Robert Emmet, the Irish patriot. Doctor Emmet studied at the University of Virginia and took his medical degree at the Jefferson Medical College in 1850. He served as physician to the Emigrant Refuge Hospital on Ward's Island, as assistant surgeon and later, chief surgeon to the Women's Hospital, and as a visiting or consulting physician to many institutions in New York. He attained considerable prominence in the field of the diseases of women and published many articles in the medical journals, having been a frequent contributor to the *NEW YORK MEDICAL JOURNAL* as well as to the special journals devoted to gynecology and obstetrics. He was also the author of a textbook on the principles of gynecology which ran through several editions and had a very large sale.

Early in his career Doctor Emmet began to take an active part in the agitation for Home Rule in Ireland and became president of the Irish National Federation of America in 1906. He was made a Knight Commander of Saint Gregory the Great, by Pope Pius, being one of the few Americans who had been made a papal count. He was for many years one of the foremost collectors of American prints and autographs and extra illustrated number of books, one collection of which was sold to the late John S. Kennedy for \$150,000 and presented by him to the Lenox Library. Another collection was sold later for \$72,000. Doctor Emmet married Catherine R. Duncan, who died on November 14, 1912. The rooms in which he died were in the top story of a building erected by him several years ago on the site of his old home at 87 Madison avenue which he had occupied for forty years.

News Items.

Heavy Influenza Toll in England.—It is recorded in the registrar general's returns that the total number of deaths from influenza in England and Wales during the last quarter of 1918 was 98,998.

Army Physicians Injured.—Dr. Nathan Bowker and Dr. D. Greenberg, in charge of the Government Hospital at Amato, were seriously injured in an automobile accident. Doctor Greenberg received a fracture and other injuries and he was taken to Atlantic City.

Hospital Facilities for American Soldiers.—A report from the Surgeon General's Office shows that on February 15th there were 105,476 beds available in army hospitals in this country for the care of wounded and sick American soldiers. Of these 53,149 were occupied and 46,327 were vacant. Additional facilities will be made available when the new hospitals to be established at St. Louis, Philadelphia, and Hot Springs, N. C., are opened.

Functional Reeducation of Wounded Soldiers.—At a stated meeting of the New York Academy of Medicine, held Thursday evening, March 6th, the evening was devoted to a consideration of the problem of functional reeducation of the disabled soldier. Dr. W. Gilman Thompson, chief of the Functional Reeducation Clinic in New York, spoke of the problem as related to the French and American soldier. Major H. Tait McKenzie, director of the Department of Physical Education University of Pennsylvania, discussed the problem in connection with the British soldier. Lantern slides were used to illustrate the two addresses.

Clinical Society of Hospital for Deformities and Joint Diseases.—The following program has been arranged for a stated meeting of the society, to be held in the Dispensary Building, 41-43 East 123d street, Tuesday evening, March 11th. Interesting clinical cases will be presented by members of the staff of the hospital; Dr. Seymour Oppenheimer will read a paper on the Importance of Blood Examinations in Surgery of the Nose and Throat, which will be discussed by Dr. Emanuel Libman, Dr. Alfred Hess, and Dr. Mark S. Gottlieb. Dr. Guttman will read a paper on Orientation and Equilibration which will be followed by a general discussion.

Church to Supervise Health of Its Missionaries.—A medical department, under the direction of the Board of Foreign Missions, to guard the health efficiency of its missionary workers, has been established by the Methodist Episcopal Church. Dr. J. G. Vaughan, formerly of Nanchang, China, is executive secretary of the new department with temporary offices at 111 Fifth avenue, New York. Missionaries in the field and on furlough will have the benefit of counsel from the new department, while all candidates will undergo their medical examinations from the physicians in charge. To provide for the best service in this respect, suitable offices and equipment will be obtained, with a sufficient staff of trained workers. Supervision of the health of the workers in the field will gradually be taken over by the new department.

The Harvey Lectures.—The fifth lecture in the series will be given at the New York Academy of Medicine, Saturday evening, March 15th, by Colonel F. P. Underhill, Medical Corps, U. S. Army, his subject being War Gases.

\$400,000 for Johns Hopkins Medical School.—At a recent meeting of the General Education Board, founded by John D. Rockefeller, \$400,000 was set aside as an endowment for a department of obstetrics for the Johns Hopkins Medical School in Baltimore and \$150,000 was donated to the Meharry Medical College in Nashville, a school for negroes.

The Roaldes Prize.—This prize, amounting to \$200, is offered by the American Laryngological Association in general competition for the best thesis upon some subject directly connected with laryngology or rhinology. Papers must be in the hands of the secretary, Dr. D. Bryson Delavan, secretary, 40 East Forty-first Street, New York, city, prior to June 1st.

King George Decorates American Physicians.—Five American officers have received the British Military Cross, four of them members of the Medical Corps, as follows: Captain Edward Christoferson, Medical Corps, attached to the Welsh Fusilliers; Lieutenant Thomas Doyle, Medical Service; Lieutenant Alexander Gillis, Medical Reserve, and Lieutenant Robert MacDuffie, Medical Corps, attached to the Warwickshire Regiment.

Conference for the Rehabilitation of the Disabled.—A conference will be held in New York, March 18th to March 22d, for the purpose of discussing the rehabilitation of the disabled. This conference will be international in representation and in the scope of subjects discussed. It will be held under the auspices of the Red Cross Institute for Crippled and Disabled Men and that part of the programme relating to the work for blinded soldiers will be directed by the Red Cross Institute for the Blind. Representatives of practically all the governmental agencies in the Allied countries dealing with disabled soldiers will attend. Many of the leaders in the rehabilitation work will come to the United States for the first time to attend these sessions. Two of the evening meetings will be held in Carnegie Hall and will be open to the public. Among the American authorities who will speak at the various sessions are: Colonel Frank Billings, chief of the division of physical reconstruction of the Office of the Surgeon General of the Army; Lieutenant Colonel James Bordley, in charge of work for blinded American soldiers and sailors; Lieutenant Colonel Harry E. Mock, in charge of convalescent centres for the surgeon general; Dr. Charles A. Prosser, director of the Federal Board for Vocational Education; Dr. J. A. C. Chandler, chief of the rehabilitation department of the same board; Mr. T. B. Kidner, formerly vocational secretary of the Canadian Invalided Soldiers' Commission and now attached to the staff of the federal board; Mr. Curtis E. Lakeman, director of the division of aftercare of the Department of Civilian Relief of the American Red Cross; Lieutenant Colonel Charles E. Banks, chief medical adviser of the Bureau of War Risk Insurance; and Dr. R. M. Little, of the American Museum of Safety.

Securing Occupation for the Blinded.—Blinded, maimed soldiers are to be provided with positions by the Red Cross, which has created a bureau for a survey of the manufacturing and industrial plants for jobs. Charts will be made showing exactly how many blind and maimed soldiers may be used.

Special Meeting of the Buffalo Academy of Medicine.—Dr. E. C. Rosenow, chief bacteriologist of the Mayo Clinic, Rochester, Minn., delivered a lecture on the Pathogenesis of Focal Infections with Special Reference to Oral Sepsis, at a special meeting of the Buffalo Academy of Medicine, held Tuesday evening, March 4th, in the academy rooms. The lecture was illustrated with lantern slides demonstrating the location of bacteria from caries, dental pulps, and alveolar abscesses. Bacteriological and clinical findings in illustrative cases and the results from removal of dental foci were shown, also the mechanism of dental infections in relation to the removal or devitalization of teeth. Fundamental principles based on clinical and experimental findings which would serve as guides in various dental procedures were considered.

Personal.—Dr. S. Leon Gans, of Philadelphia, has been appointed chief of Pennsylvania State genitourinary dispensaries, to succeed Dr. John Laird, of Reading, who has been made chief of the laboratory dispensaries, succeeding Dr. John B. Rucker.

Dr. Howard L. Hull, of Philadelphia, has been promoted to the position of chief medical inspector of the Pennsylvania State Health Department, vice Dr. B. Franklyn Royer who has been acting commissioner of health since the death of Dr. Samuel G. Dixon.

Dr. Edward Wadsworth Peterson has returned to New York from service in the United States Army and announces that he will resume practice at 535 Park avenue.

Philadelphia Medical Societies.—During the coming week meetings of medical societies will be held in Philadelphia as follows:

MONDAY, March 10th.—County Medical Society (board of directors); Samaritan Hospital Medical Society.

TUESDAY, March 11th.—Medical Examiners' Association; Pediatric Society.

WEDNESDAY, March 12th.—County Medical Society.

THURSDAY, March 13th.—Academy of Surgery; Esculapian Club; Pathological Society; Psychiatric Society.

FRIDAY, March 14th.—Atlantic County Medical Society; Northern Medical Association.

Meetings of Local Medical Societies.—The following medical societies will meet in New York during the coming week:

MONDAY, March 10th.—New York Ophthalmological Society; Society of Medical Jurisprudence; Yorkville Medical Society; Williamsburg Medical Society, Brooklyn.

TUESDAY, March 11th.—New York Academy of Medicine (Section in Neurology and Psychiatry); Manhattan Dermatological Society; New York Obstetrical Society.

WEDNESDAY, March 12th.—Brooklyn Medical Association; Medical Society of the Borough of the Bronx; New York Pathological Society; New York Surgical Society; Alumni Association of the orwegian Hospital, Brooklyn.

THURSDAY, March 13th.—New York Academy of Medicine (Section in Pediatrics); West End Clinical Society; Brooklyn Pathological Society.

FRIDAY, March 14th.—New York Academy of Medicine (Section in Otolaryngology); Clinical Society of the German Hospital and Dispensary; Eastern Medical Society of the City of New York; Flatbush Medical Society, Brooklyn.

Confirmation of Colonel Noble's Nomination Held Up.—As the result of a protest from Senator Martin, the Senate Committee on Military Affairs has held up the confirmation of the nomination of Lieutenant Colonel Robert E. Noble, Medical Corps, U. S. Army, whose present temporary rank is major general, to be a permanent brigadier general in that corps. Secretary of War Baker appeared before the committee on February 14th and urged that the nomination be confirmed, with the result that the committee, by a vote of five to four decided to report favorably Colonel Noble's nomination, the vote also releasing the nomination of Colonel Walter D. McCaw, Medical Corps, U. S. Army, to be a brigadier general. On February 25th the committee once more voted favorably to report for confirmation in the Senate both these nominations, which have been in committee since December 4, 1918.

The Dean of the College of Physicians and Surgeons Resigns.—At a meeting of the Board of trustees of the College of Physicians and Surgeons, Columbia University, held on March 3d, the resignation of Dr. Samuel W. Lambert, as professor of clinical medicine and dean of the medical faculty was accepted to take effect on June 30, 1919. In accepting his resignation, the board adopted the following resolutions:

Resolved, That the Trustees in accepting the resignation of Dr. Samuel W. Lambert, after fifteen years of service as dean of the College of Physicians and Surgeons, and professor of clinical medicine, cordially acknowledge their obligation to him for his indefatigable efforts to advance the interests of the university and of the college, to raise the teaching of medicine and surgery to a higher plane, and to increase the efficiency of the treatment afforded by the hospitals of the City of New York.

We recognize that he has been largely instrumental in making the need for a closer relation between the university medical school and the hospitals more widely and thoroughly understood and appreciated, and has successfully demonstrated the advantages resulting therefrom, and that in so doing he has rendered a service to education and to the public of great and far reaching importance.

We also recognize the success which he has attained in his efforts to raise the standards and increase the efficiency of the College of Physicians and Surgeons, and we desire especially to record our appreciation of his self sacrificing devotion to its interests and of the results which he has accomplished. The principles which he has established will, we believe, lead to the realization of the ideals for which he has labored so assiduously, and our regret that we are to lose his active cooperation is not lessened by our confidence that the work which he has already done will live after him.

No reason for the resignation has been assigned either by Doctor Lambert or by members of the board of trustees. Doctor Lambert was born in New York, on June 18, 1859, and was graduated from Yale University in 1880. In 1885, he took the degree of doctor of medicine at the College of Physicians and Surgeons and engaged in practice in this city. He has been attending surgeon at the New York Lying-in Hospital and the Nursery and Childs Hospital and visiting surgeon at St. Luke's Hospital. He has been dean of the faculty of the College of Physicians and Surgeons since 1904 and professor of applied therapeutics since 1906. He is a member of the New York Academy of Medicine, the Association of American Physicians and of various medical organizations.

Miscellany from Home and Foreign Journals

Secondary and Late Sterilization of Infected Wounds by the Carrel Method.—G. Rottenstein (*Revue de médecine*, March-April, 1918) reports the results obtained by him with the Carrel procedure in long standing wound cases with persistent sinuses leading from foci of osteitis, in which the ordinary methods, such as curettage, ether, and iodoform, Callot's fluid, Beck's paste, etc., have proved disappointing. His study of the procedure also bore on cases of surface wounds and encysted missiles. The results showed that the Carrel method, when applied in the secondary and late treatment of wounds, is capable of rapidly eliminating infection just as it prevents its appearance when prophylactically employed. It should be used only after free opening up of the local tissues has been practised. In surface wounds and wounds of the soft tissues, regular and rapid healing follows its employment. In the case of embedded projectiles, it permits of union by first intention by warding off the reawakening of latent microbic infection. In fractures, it facilitates rapid consolidation and cicatrization. On the whole, it fulfills the three requirements of the military surgeon; first, reducing the suffering of the wounded and curtailing their period of immobilization; second, assisting the government by reduction of the number of days of hospital treatment and of the rate of subsequent pension disbursements; and third, restoring the patients sooner to active service.

Bone Grafting in Ununited Fractures of the Mandible.—Percival P. Cole and Charles H. Bubb (*British Medical Journal*, January 18, 1919) point out the remarkable progress which has been made in the treatment of fractures of the mandible since the outbreak of the war. Even under the best conditions for immediate treatment, however, there remain about ten per cent. of the cases in which there is either nonunion or fibrous union, most of which have been discharged from hospital as having had their treatment completed. This is a calamity which results from the failure to standardize the methods of treatment and the results which are to be accepted as satisfactory. No ununited fracture of the mandible is cured and, what is worse, the condition is one in which the disability becomes progressively greater as the teeth used for supports are lost. The most satisfactory method of treatment for ununited fracture is by means of the pedicled graft, or of free transplants where the former cannot be employed. As a result of experience the technic of the use of the pedicled graft has been modified by the fixation of one or both ends of the graft by wire passed through holes bored in the graft and the ends of the fragments, and by the use of much bulkier grafts than formerly. For success the utmost care must be observed at every step to avoid the slightest possibility of a breach of asepsis. The skin margins should be guarded by towels clipped to them; all sutures should be tied with forceps instead of the gloved fingers; and the wound must never be touched or handled by any-

thing other than instruments. Certain conditions are necessary to permit the employment of a pedicled graft. First, the site of the fracture must be such that the loss of the bone is in the horizontal part only; second, the gap in the bone should not exceed four centimetres, though where an extra thick graft can be cut a gap as great as six centimetres can be filled successfully; finally, the tissues of the submaxillary triangle on the side from which the graft is to be cut must be free from scar tissue. The graft may be taken from one side to fill a gap on the other side if necessary, but this entails considerable dislocation, the use of a very long pedicle, and an increased risk of dislocation of the graft, so that the results may not always be perfectly satisfactory. A very important point in the initial treatment of fractures of the mandible is to avoid the extraction of teeth so far as possible, for the edentulous jaw rapidly atrophies and leaves poor material for subsequent grafting if that should become necessary. A total of thirty-four cases have been treated by the pedicled graft method and of the twenty-three in which the final result was known over ninety per cent. had been completely successful. This contrasts with seventy per cent. of similar results in cases in which it had been necessary to employ the free graft.

Surgical Treatment of Tuberculous Adenitis.—L. Dufourmentel (*Presse médicale*, December 5, 1918) ascribes the opposition of the majority of tuberculosis specialists to surgical excision of tuberculous lymphatics largely to the frequent sinus formation, prolonged care, and conspicuous scars resulting from drainage of the operative wound. As a matter of fact the wound in such cases should never be drained. Among sixty cases recently treated surgically by the author, over one half showed marked softening and covered the wound with pus; yet none was drained, and several laboratory examinations showed that the pus actually was sterile. The wound was always completely closed at once, and it never subsequently reopened. The fastenings were removed on the sixth day and about the fifteenth day the patients were discharged as convalescents. The scars subsequently observed in a number of cases were never more conspicuous than if they had followed an admittedly aseptic operation such as ligation of a vessel. Actually, such treatment yields in a few days results which other procedures show only after weeks or months. In women, in whom even a linear scar is unacceptable, the treatment is doubtless not appropriate; but in men, when the time element is important, and especially in the army, the surgical treatment is of great advantage. It is also indicated wherever traces of scarring already exist or would later result from repeated punctures. In this category may be placed cases already presenting sinuses and cases with very marked lymphatic enlargement constituting a more conspicuous defect than a mere incision scar. To obviate recurrence, any existing dental or pharyngeal lesions should receive careful treatment.

Ventral Decubitus in the Reduction of Subtrochanteric Fractures.—Constantini and Vigot (*Paris médical*, December 14, 1918) point out that in fracture of the femur below the trochanters there is much displacement of the bone fragments. The upper fragment is forcibly drawn forward and outward by muscular action, threatening the integrity of the femoral vessels, while the lower fragment sags downward in recumbency and is drawn toward the ischium, behind the upper fragment. Reduction is difficult because there is no purchase with which to remove the upper fragment from its faulty position. To obtain good reduction, the upper fragment must be considered immovable and the lower fragment brought into line with it as best one may. The ordinary procedures employed to this end, such as a sitting position of the patient or some mode of suspension of the limb, proved disappointing in the authors' hands. They had complete success, on the other hand, by the use of a table with removable cross slats, the patient being placed in ventral decubitus on it, the slats from the inguinal region to above the knee removed, and the affected limb allowed to hang through the resulting gap, with the foot held up near the table by a loop of bandage about a foot long. Direct inspection of the bones in three cases with accompanying extensive wounds of the soft parts showed that in this position the two femoral fragments came directly into line. A large plaster cast, embracing the pelvis, root of the normal thigh, and the affected limb down to the ankle was then applied in this position. The fragments were thus held at all times in perfect alignment and the patients' suffering wholly relieved.

Blood Volume in Wounded Soldiers.—Oswald H. Robertson, and Arlie V. Bock (*The Journal of Experimental Medicine*, February, 1919) base their conclusions on the study of twenty-one cases of hemorrhage. The patients were either suffering from the late effects of primary hemorrhage or from secondary blood loss. Blood volume determinations were made by the vital red method of Keith, Rowntree, and Geraghty. In some of the cases there was a great reduction in the total blood bulk, it being as low as fifty-four per cent. in one instance. Patients suffering from acute blood loss and a considerably diminished volume showed a much reduced pulse pressure, to twenty mm. or less. Hemoglobin determinations made simultaneously on blood from the ear and vein showed a noteworthy difference, which bears a relation to the blood pressure, as the discrepancy diminishes as the pressure rises. This point is regarded as a valuable indication of the state of circulatory efficiency. By means of the blood volume and the hemoglobin percentage the actual amount of blood loss was shown in cases of severe anemia to be as much as five sixths of the total hemoglobin. Besides the vital red method of estimating progressive changes in blood volume, these were calculated from changes in hemoglobin percentage produced by the injection of gum acacia and also by the changes in hemoglobin percentage following the dilution of the blood by the patients' own body fluids. Gum acacia injections, like transfusion, increased the blood volume. How-

ever, the blood volume was only partially restored by such measures, but forced fluids by mouth completely restored it in a comparatively short period. Reticulated red cell counts showed that the amount of bone marrow stimulation is considerable after hemorrhage. The patients on forced fluids, with consequent rapid restoration of blood volume, showed a higher percentage of reticulated cells than those in whom no attempt was made to increase the amount of fluid in circulation.

Torsion of the Appendix.—John E. Payne (*British Journal of Surgery*, October, 1918) reports a case where ten years ago the patient was seized by a sudden abdominal pain and faintness which lasted about six hours. There was no vomiting and the pain gradually subsided. The diagnosis made, at that time, was appendicular colic. This attack was followed by indigestion, which persisted for several months, and the patient often suffered from pain in the right iliac fossa on the second day of her menstrual periods. Two years ago the patient had another attack of severe pain, which lasted for thirty-six hours, was accompanied by vomiting, but bore no relation to her menstrual period. This was diagnosed as a bilious attack. For the past month the indigestion had been bad with some abdominal pain, and a sense of fullness in the epigastrium. She was finally seized with a sudden pain in the epigastrium after lunch, vomiting several times. The pain then shifted to the right iliac fossa and became continuous. On opening the abdomen the appendix was found pointing downward and slightly outward in the right iliac fossa, quite free, except for a slight recent adhesion from the extreme tip to the iliac fossa. It was found to be twisted and it took three complete turns to unwind it. The appendix distal to the narrowing was gangrenous and the mesoappendix dark and swollen. It contained fecal material and it seems probable that the previous attacks were due to a constipated appendix and that the torsion had resulted from the peristaltic movements on the part of the appendix.

Acute Appendicular Obstruction.—S. T. Irwin (*Lancet*, January 18, 1919) submits an analysis of 131 urgent operative cases of acute disease of the appendix and lays especial stress upon the occurrence, symptoms, diagnosis, and treatment of acute appendicular obstruction. True acute appendicitis usually is of indefinite onset, without great initial pain, and shows no troublesome constipation. The pulse rate and the temperature are raised from the onset and the pain is localized from the beginning, to the right iliac fossa. If pus be present in such cases it is usually small in amount and well walled off by adhesions, and the walls of the appendix are thick and not likely to rupture. This is the common type and is less dangerous than the obstructive form because of the small amount of material within the appendix, its low tension, and the walling adhesions. On the other hand the great majority of the critical cases of acute appendicular disease are cases of acute obstruction due to concretions, strictures, kinks, bands, worms and seeds and other foreign bodies. A typical case of acute obstruction begins with severe pain referred to the epigastrium or um-

bilical region and of a colicky character. Vomiting soon comes on and is recurrent, and constipation is a prominent feature. These are the first stage symptoms and are associated with little or no rise in pulse rate or temperature. There is little tenderness over the appendix region and almost no abdominal rigidity at this time. A rigid, distended appendix will be found at operation in this stage. About twenty-four hours later there will be a diminution in the pain and the vomiting will disappear. The temperature is then slightly elevated and the pulse is accelerated. Tenderness over the appendix is extreme and there is a wide area of rigidity. Operation will show an organ which is partly or wholly gangrenous, surrounded by some plastic lymph, but usually not well walled off. The third stage comes with the rupture of the gangrenous organ and infection of the peritoneum and it is marked by the occurrence of pain in the right iliac fossa, severe and continuous, and associated with nausea and but little vomiting. The temperature may fall to below normal, but soon rises, and the pulse is very rapid. The abdomen is boardlike. Operation reveals either a localized or a general peritonitis. It is seen from this description that perforation is generally preceded for about thirty-six hours by definite symptoms which are sufficiently characteristic to permit of a diagnosis of acute obstruction of the appendix. Before the disease reaches the third stage operation should be undertaken immediately and no moving or disturbance of the patient should be permitted until after the operation. When operation is performed before rupture of the appendix the prognosis is very good, but when it has been delayed to the third stage the mortality varies from nine to fifteen per cent. While perforation should be anticipated in the majority of cases by the proper study of the course and symptoms, it is not possible to anticipate it in all cases but in so far as it is possible, to that extent will the mortality be diminished.

Röntgen Examination of the Appendix.—E. I. Spriggs and O. A. Marxer (*Lancet*, January 18, 1919) show that by the use of the proper methods of examination the appendix can be visualized and studied röntgenologically in the majority of cases, and that the information yielded by this examination is of great value. The patient should be prepared by a dose of castor oil thirty-six hours before the opaque meal. The best opaque meal is 425 mls (three fourths pint) of buttermilk with 150 grams of barium, or less, depending upon the subject's build. The following points deserve special stress: 1. Manipulation and careful screening are necessary to find the appendix, to determine its tenderness, and to reveal its mobility and movements. 2. Several plates must be taken as they, alone, reveal the chief features which must be studied. 3. The patient should be either supine or in the semilateral position. 4. The positions of the parts are first determined by manipulation with the gloved hand, while the wooden spoon is used for the later manipulations because it is not opaque and plates can be taken when the appendix is brought into clear view. 5. The ileum and cecum can usually be moved about to give the best exposures of the appendix. 6. If

the appendix be behind the cecum a semilateral view may reveal it. 7. The end of the ileum and appendix should be shown filled at the same time when possible. 8. Movements must be very gentle, or must not be made, when there is pain, tenderness, or inflammation of the appendix. 9. A Coolidge tube should be used throughout, with a two millimetre aluminum screen. 10. Where the appendix fills in part only, or empties before it has completely filled and the case is doubtful, the usual dose of barium should be divided and given in a succession of meals. By a careful perfection of the technic the appendix can be revealed and studied in more than eighty per cent. of all cases. The details of the findings in both normal and diseased appendices are given at length and the authors summarize their observations by saying that the normal organ fills and empties at about the same time as the cecum; that in young people it may fill and empty repeatedly, the cecum remaining full; and that the best views are to be secured from twelve to fourteen hours after the opaque meal. The determination of whether the appendix is, or has been diseased demands attention to its filling and emptying, its shape, and mobility, to the presence or absence of concretions, its position, and to the presence of hyperactivity, spasm, and tenderness. Continued contractions and spasm accompany active inflammation and, while the presence of a tender point is of value, it requires care in its interpretation. The direct x ray examination of the appendix is of great aid in the diagnosis of cases of chronic appendicitis. In a series of thirty-six cases in which the x ray and operative findings were compared the diagnosis was verified at operation in all.

Diagnostic Value of Moro's Percutaneous Inunction Test and Von Pirquet's Cutireaction Test.

—J. W. Allan (*Glasgow Medical Journal*, December, 1918, and January, 1919) notes that Moro's test consists in rubbing into a limited area of skin an ointment containing Koch's old tuberculin, while the Von Pirquet test consists in the inoculation of a solution containing Koch's old tuberculin through an abrasion made in the skin, e. g., by means of a metallic perforator. He reports his experiences with these tests at the Bellefield Sanatorium, Lanark, the Moro test having been conducted alone in twenty-one cases, the Von Pirquet in twenty, and both tests in three. When these tests are applied to cases in which tubercle bacilli have been found and to cases presenting evidence of phthisis on physical examination of the chest, one may be at first surprised to obtain negative results. If the cases are advanced, however, and show pyrexia, one need not be surprised, for it is known that such cases fail to give a reaction. Slight or early cases give the best response. Where a positive reaction is obtained in cases in which the bacteriological report is negative, it should be remembered that failure to detect bacilli is not conclusive proof of the absence of tuberculosis. The same applies in the case of a negative result from auscultation and percussion of the chest, as even a skilled physician may fail to detect a lesion. From a positive reaction one may conclude that the patient harbors tuberculosis, but not that it is necessarily active.

The Antiscorbutic Factor of Lemon Juice.—

A. Harden, Sylvester S. Zilva and G. F. Still (*Lancet*, January 4, 1919) call attention to the fact that the first two of the authors had demonstrated the possibility of removing all of the acids from lemon juice and of concentrating the product remaining without sacrificing the antiscorbutic properties of the original. The original tests were made upon animals, but in the present communication the authors cite several cases of scurvy of varying degrees of severity in children in which the concentrated, acid free lemon juice was employed. In every case the results obtained were remarkably rapid and most favorable. In from thirty-six to seventy-two hours after the first dose there were definite evidences of improvement in the state of the gums and in the tenderness in the extremities. These went on to rapid and complete recovery. The preparations used varied from those twice as concentrated as the original lemon juice to some seven times as concentrated. It was thus possible to administer the antiscorbutic substances of from six to twelve lemons in twenty-four hours without causing the least disturbance in digestion. The chief advantage of this concentrated preparation is found in the fact that the removal of the acids and the reduction in bulk permits the administration of large doses of the antiscorbutic principle without the least danger of producing a diarrhea or other digestive disturbance. This permits one to bring scurvy under control with greater rapidity and certainty than by the necessarily cautious use of original lemon, or other fruit, juices.

The Antiscorbutic Properties of Vegetables.—

Maurice H. Givens and Harry B. McClugage (*Journal of Biological Chemistry*, February, 1919) in the present study continue an investigation to determine the antiscorbutic power of various foods, the effects of preparation and preservation on these foods, and allied problems. The question of desiccation of foods is one of no little importance from an economic standpoint, but further information concerning the physiological value of such foods is certainly desirable. For a long time the tomato has been considered a pleasant, but nonessential article of diet, but the authors' experiments with guineapigs show that it may be an essential accessory in the prevention and cure of scurvy. Not only the fresh vegetable, but dried tomatoes as well, exhibited this antiscorbutic property, so that apparently the tomato, like orange juice, possesses the antiscorbutic vitamine. The method of drying the vegetable is given in detail; two ranges of temperature were used, "low dried," 35° to 40° C., and "high dried," 55° to 60° C. Tomatoes dried by either method retain some of the antiscorbutic vitamine after storage of at least three months. The conclusion of Chick, Hume, and Shelton that "guineapig scurvy is due to the deficiency of a specific accessory substance" is confirmed by this work, for a small daily addition of tomatoes to a diet known to produce scurvy in guineapigs maintained these animals in apparently good health. It is also in accord with the belief of Cohen and Mendel that roughage, as it affects the texture of the diet, is not the determining factor.

Study of an Unusual Glycosuria.—Lovell Langstroth (*American Journal of the Medical Sciences*, February, 1919) reports a case of glycosuria with an apparently lowered renal threshold for glucose and evidence of abnormal carbohydrate metabolism, but no symptoms of diabetes. The daily amount of sugar excreted by the patient varied from a trace to fourteen grams, but bore no relation to the amount of carbohydrate ingested except during the fast days, when only traces were found in the urine. The percentage of glucose in the urine varied from 0.22 to 1.5 per cent., and was inversely proportional to the amount of urine. Kidney function was normal so far as could be determined by the phenolsulphonephthalein excretion and the blood urea nitrogen.

Renal Diabetes.—Cameron Vernon Bailey (*American Journal of the Medical Sciences*, February, 1919) says that renal diabetes, or better "renal glycosuria," should be considered as a condition of glycosuria not dependent upon a temporary increase of blood sugar in an individual free from symptoms of diabetes mellitus. The condition can be recognized by morning synchronous blood and urine sugar tests, the specimens being collected before the patient has had anything to eat or drink. Two types can be recognized: Cases with normal or subnormal blood sugar and glycosuria, which is greatly influenced by blood sugar changes, and cases with a constant glycosuria which varies with the rate of urinary excretion and is little influenced by blood sugar changes. The possibility of renal glycosuria being in some cases congenital; whether or not the clinical course remains free from symptoms of diabetes mellitus; the lack of reserve energy which such a condition produces if severe; the direct effect upon the kidney of continued excretion of sugar, are interesting points to be observed in this condition.

Prevention and Treatment of Diabetic Coma.

P. J. Cammidge (*Lancet*, January 11, 1919) reviews the several theories of the causation of coma in diabetic subjects and lays great stress upon the fact that diabetes and its complicating coma are not due to any single defect in metabolism, but are due to a general reduction in all metabolic capacities. Diabetic coma is due to the cumulative effects of a whole group of causes which result from the general metabolic failure of the organism and the control of diabetes and the prevention of coma demand the prevention of all possible causes. The patient's tolerance for carbohydrate, protein and fat must be severally determined and his diet carefully adjusted so that the tolerances are never exceeded. His total food intake must also be kept within his metabolic capacity. A sufficient allowance of inorganic salts must also be provided. When the several tolerances have been carefully determined by reductions in the diet, or by fasting and subsequent study, the diet should be built up gradually, first allowing green vegetables alone; then adding small and increasing amounts of carbohydrate; then fat free protein; next more carbohydrate followed by more protein until nitrogenous equilibrium is reached. Then fat may be introduced and slowly increased while its

effects upon carbohydrate and protein metabolism are being studied. Green vegetables and raw salads should be given each day. The attempt should not be made to raise the food intake to the theoretic caloric requirements unless this point can be reached without disturbing the balance of the metabolic processes. The best guide for the protein allowance is the nitrogen balance, while the fat should not exceed the carbohydrate allowance, at least at first, and should be controlled by the fat content of the blood. When a patient is first seen after coma has developed, or when the development of coma is imminent, treatment should be begun at once by putting the patient to bed and surrounding him with hot water bags to keep him warm. Absolute rest and quiet must be secured and all disturbing influences eliminated. One or two large enemas should be given to clear out the bowels and a pill of bile salts, calomel and rhubarb may be given if there is a history of constipation. Gastric lavage may be beneficial if practicable. All food should be stopped and replaced by sixty mls (two ounces) of lemon juice and a thin puree made either of seven to eight ounces of potato, or of two and a half to three ounces of oatmeal. These are to be given in small amounts every three or four hours. The potato should be steamed for three to four hours and the oatmeal boiled gently for five to six hours to dextrinize the starch. After twenty-four hours this small amount of carbohydrate can be omitted for one or two days. As much liquid as possible should be drunk in the form of hot water, weak tea or coffee, or thin broth, at least five to six pints being given in twenty-four hours. If necessary some of this fluid can be given by rectum or intravenously. Alkaline injections may be tried if the above measures do not control the coma, a litre of five or six per cent. sodium bicarbonate solution being given three or four times in the first twenty-four hours. Cardiac stimulants such as digitalis, strychnine, caffeine, alcohol, camphor, or ammonia, or pituitary subcutaneously, should be begun early.

Protein Feeding and the Concentration of Aminoacids in the Tissues.—H. H. Mitchell (*Journal of Biological Chemistry*, December, 1918). The purpose of Mitchell's work was to determine whether an increase in the aminoacid concentration of the tissues actually occurred during protein digestion, and if possible, to obtain information as to the rate of aminoacid catabolism, by investigating the changes in concentration in the tissues of the nitrogenous metabolites of the aminoacids, ammonia, and urea. Albino rats were used for the feeding experiments. The ammonia and aminoacid excretion was found to be greater in young animals than in adults. In vigorously growing animals during protein digestion, a distinct increase in the aminoacid content of the tissues was noted, and as the rate of growth decreases, this increment becomes smaller, so that in the adult animal only an inconsiderable increase in aminoacid concentration is demonstrable. Nevertheless, in adult rats the urea content is distinctly increased. In both fasting and fed animals the ammonia and urea content of the liver was usually higher than that of the muscles.

Etiology of Influenza.—M. Aitoff (*Presse médicale*, December 9, 1918) reports bacteriological studies of twenty cases—severe cases of epidemic influenza met with in Archangel, Russia. Pneumonic foci in one or both lungs almost constantly complicated these cases. Examination of the nasal mucus and sputum regularly showed the presence of a variety of the pneumococcus of Fraenkel, in most instances the bacillus of Pfeiffer, and in a few instances, a pseudodiphtheria organism. The author, reflecting upon the constant combination of the pneumococcus and influenza organisms, deems this a condition of symbiosis with mutually increased virulence of these two germs. The pseudodiphtheria organism probably finds an appropriate soil for its propagation in the patient's system, weakened by the disease.

Influenza-Pneumonia Showing Gas in Fascial Tissues.—Elbert Clark and Martin J. Synnott (*American Journal of the Medical Sciences*, February, 1919) believe that the gas in these cases is not of bacterial origin, but is air from the lung which has been distributed by purely mechanical factors. Their reasons for this belief are: The cases of influenzal pneumonia at Camp Dix which showed gas in various fasciæ showed clinically no evidence of an intercurrent infection; three ran uneventful courses and the patients recovered. At autopsy the gas containing tissues showed little blood in the vessels, presented no discoloration, no congestion, no induration, or other signs of inflammation. Bacteria were not recovered. Gas was not found within the muscle sheaths. In the gas cases that came to autopsy the alveolæ containing air appeared emphysematous in the more nearly consolidated lobes of the lungs. The distribution of the gas corresponded to what we would expect to be the dissemination of gas escaping from the weakened alveolæ of the lungs under pressure.

Acute Pulmonary Emphysema during Influenza.—Robert G. Torrey and Lawrence C. Grosh (*American Journal of the Medical Sciences*, February, 1919) found from the observation of 1,150 soldiers with epidemic influenzal pneumonia that the disease differed essentially in its pathology and course from lobar, bronchial, or lobular pneumonia. Certain conditions were invariably present, including an intense bronchitis and peribronchitis similar to that found in a previous epidemic of pure hemolytic streptococcus infection. There was also present from the first a destructive softening of the lung parenchyma. In addition to this there was always an early and persisting generalized pulmonary emphysema, which frequently was the main factor in causing death by interference with the mass movement of the venous blood. These conditions were found in every case examined at autopsy. Except for frequent acute otitis media there were almost no complications or sequelæ outside of the chest. The pulmonary emphysema, with consequent venous stasis, accounted for the cyanosis, epistaxis, and fixation of the chest in the phase of extreme inspiration, with low stand of the diaphragm, which characterized these cases, and also accounted for the paradoxical physical signs in cases in which fluid developed in the chest.

Experimental Studies on the Significance of Septicemia.—P. Govaerts (*Presse médicale*, November 25, 1918) refers to Bull's investigations which showed that when bacteria are injected into the circulation they either determine a septicemia from the start or else disappear from the blood stream within a few minutes' time. Injecting typhoid bacilli in rabbits, Bull found the organisms promptly undergoing agglutination, with disappearance from the blood in a few minutes and destruction by phagocytosis in various organs. He concluded, therefore, that agglutination is the main factor in the protection of the body against septicemia. Govaerts now calls attention to the striking discrepancy between the slow agglutination of bacteria *in vitro* and their immediate disappearance when injected into the blood stream. Experiments instituted to ascertain the cause of this difference showed that, where rapid disappearance from the blood stream occurs, the bacteria quickly become adherent to the blood platelets, which themselves likewise become agglomerated and diminish in number in the circulation. Natural immunity to a germ arises merely from an ability of the platelets immediately to take up the germs introduced and prevent them from floating free in the blood stream. *In vitro*, blood platelets appeared to have selective power, promptly separating staphylococci injected into the circulation from pneumococci, which remained free and separate. Stability of a microorganism in the blood, and not its virulence, is the essential condition of a septicemia infection, though the intensity of the septicemia depends upon the aptitude of the organism to multiply in the blood. In all likelihood, such stability results from physical conditions existing at the surface of contact of the organism with the blood plasma. The various non-specific agencies which have at times yielded success in the treatment of septicemias, such as colloidal metals, peptone, nonspecific serums, and dead microorganisms of the commoner varieties, all induce, when injected intravenously, agglutination of the blood platelets and a leukopenia.

Diminished Breathing Capacity of the Lung Apex in the Absence of Tuberculosis.—Giacchino Breccia (*Presse médicale*, December 9, 1918) found this condition frequently in the examination of recruits. Percussion shows diminished resonance, with a relatively high pitched sound and generally tympanitic quality; there is seldom actual dullness. Vocal fremitus is diminished or normal. The vesicular murmur exhibits lessened intensity or obscurity, without rough or bronchial breathing. Expiration is prolonged, but neither resonant nor blowing. Diminished expansion of the apex is noted, and at times the volume or projecting mass of the apex is reduced, though it is never irregular nor asymmetrical. Even light percussion elicits no dullness, and there are no râles, even in the morning, after meals, or after muscular exercise. X ray examination reveals diminished apical expansion, but no opacity nor change of density; transparency is slightly diminished, evenly in both apices. Clinically, the condition may result from an apical pneumonitis, as from influenza, diphtheria, typhoid, malaria, hyphomycetoma, granuloma, etc.; an active or

passive congestion of renal or cardiac origin; an interstitial or sclerotic condition, as in pneumonocniosis or Bozzolo-Krönig collapse; a localized mucocatharrhal process, as in asthenic and hypotrophic children; or a rachitic or other skeletal deformity reducing apical expansion. The condition is most commonly met with in subjects about twenty years of age; in those with retarded development, narrow or cylindrical chests, poorly developed respiratory musculature or adenoid and lymphatic growths or enlargements; in poorly muscled subjects with brisk idiomuscular reactions; in subjects with exaggerated superficial and deep reflex action and pronounced vasomotor hyperemic reflexes; in individuals with slightly subnormal blood pressure, unstable hearts, tachycardia, relatively slight endurance, and tendency to sweating upon the least exertion. The diagnosis of nontuberculous diminished apical expansion depends upon exclusion of tuberculosis in the apex or elsewhere in the lung through absence of its physical signs, negative tuberculin tests, etc. The condition may be considered as predisposing to further local trouble, and should be treated as soon as discovered by respiratory mechanotherapy and any other measures calculated to strengthen the muscles of respiration and increase thoracic expansion and the contractility and elasticity of the lung.

Rupture of the Uterus.—Robert Y. Sullivan (*American Journal of Obstetrics*, October, 1918) notes that within the past ten years two changes have come in obstetric practice bearing directly upon rupture of the uterus, viz., the widespread use of pituitrin in labor and the rapidly widened scope of Cæsarean section. The condition has been estimated by various authors to occur in from one in 235 to one in 6,100 pregnancies. Close observation of the course of labor and especially repeated abdominal palpation should result in sufficient warning for the protection of the patient. Four observations, existing at the same time, suggest impending rupture, viz., strong pains without appreciable advancement; exquisite tenderness on palpation, to the degree of actual hysteria; undue bulging in the lower uterine fold during pain, with subsequent relaxation; sensation of tearing muscle fibre when the abdomen is palpated during labor. To this may be added cord-like tension of the round ligaments especially that on the side of threatened rupture. After the accident has occurred, if the hemorrhage is slight it would seem best to deliver from below; if possible, sew the rent partially, and drain. But if the hemorrhage is great or not in proportion to the shock, especially if the fetus is wholly or partly within the abdomen, there is no choice but laparotomy. Hysterectomy will better protect the patient from all subsequent dangers—hemorrhage, sepsis, and obstruction—than suture. In general, the field of Cæsarean section, which increases the danger of uterine rupture, should be restricted more than at present to mechanical disproportion and surgical emergencies. Pituitrin should be withheld until the head is in sight and never used in cases of disproportion nor in the first stage of labor. Adequate study of all obstetric cases before labor should greatly reduce the frequency of rupture. Internal pelvimetry is the guide to safety in disproportion.

Tonsils in Streptococcus Hemolyticus Carriers.—H. J. Nichols and J. H. Bryan (*Journal A. M. A.*, November 30, 1918) investigated the nasal cavities, the pharynx and the tonsils to determine the site of infection in carriers of the *Streptococcus hemolyticus* and found that in every case the tonsillar crypts were infected, whether or not positive cultures were obtained from the other sources. Efforts were systematically made to cure these carriers and it was found that attempts to produce chemical or mechanical disinfection were futile. A twenty-five per cent. solution of silver nitrate having, however, cleared up a few cases, as did dichloramine-T, Dobell's solution, or hot alcohol. Even excised, infected tonsils resisted disinfection by submersion for five minutes in twenty-five per cent. silver nitrate solution, the infection lying deep in the crypts. The only satisfactory method of curing these carriers proved to be tonsillectomy, this rendering throat cultures negative in practically all cases.

The Intravenous Method of Local Treatment of Inflammatory Processes.—(*Zentralblatt für Chirurgie*, 1918, No. 17.) The limb is first made bloodless by elevating it and then by the hand the blood is expressed by massage. An elastic band is next applied from the distal up to the proximal end of the limb. If the inflammatory process situated exactly at the peripheral end the elastic band is to be applied starting at the site of the lesion. At the proximal end some large cutaneous vein is exposed and a canula introduced into its lumen. An injection is then made with a syringe holding 100 c. c. The fluid injected makes its exit through the wound and enters the bone. The vein is then tied and the skin incision sutured. The elastic band is left on for one half hour, this time of "isolation" of the medicated fluid appears to be enough to render it inoffensive, because children can even support large doses of tuberculin by this procedure without complications arising. The writer has obtained good results with a one per cent. vaccine solution and tuberculin appears likewise to be of use.

Preparation of a Soluble Concentrated Product of the Thyroid Gland.—J. M. Rogoff (*Journal of Pharmacology and Experimental Therapeutics*, October, 1918) began with the product "A" obtained by alkaline hydrolysis of normal hog thyroids according to Kendall's method. This product was subjected to further hydrolysis in water acidified with hydrochloric acid, and the resulting solution filtered through a Chamberland filter. Hydrated ammonium silicate was added to the clear filtrate and the mixture shaken and filtered through paper. After washing, the absorbed product was separated by slow percolation with a dilute solution of ammonia in water until the percolate came through colorless. The ammonia being then driven off, a reddish brown aqueous solution was obtained which on evaporation yielded an amorphous powder containing 13.44 milligrams of iodine per gram or but slightly less than the product A, which contained sixteen milligrams. The aqueous product, given to tadpoles in doses of 0.5 to one milligram every other day, caused extreme emaciation and differentiation—typical thyroid effects.

Clinical Significance of the Helicoidal Convergent Visual Field.—A. Mairé and G. Durante (*Presse médicale*, November 28, 1918) note that upon repeated examination of the visual field at a single sitting, the successive fields obtained differ slightly in size—usually by not more than three or four degrees. The second field obtained is often somewhat larger than the first, sometimes sufficiently so to impart to the curve the form of a divergent spiral. In certain nervous patients, however, especially those suffering from brain commotion, the authors obtained progressively diminishing visual fields, imparting to the curve the form of a convergent spiral. This peculiarity is manifestly not due to focal brain disease; nor was it associated with hysteria in the author's cases. All the patients presented a markedly increased fatigability, but this is held not to be the main factor of the convergent visual field, for in the instances reported the sign was only unilateral. The sign is believed best accounted for as a manifestation of intermittent claudication of the retina, i. e., a condition associated with insufficient blood supply or defective innervation of the part, whereby all sustained effort is rendered difficult. All the patients presenting it showed marked dermatographism, indicating pronounced sluggishness of the vessel walls; in one case there were also signs of paralysis of the ocular sympathetic due to lesion of the cervical plexus. The sign seems allied to the vascular disturbances described by Babinski and others in shell shock—disturbances which may involve but one side of the body and sometimes become manifest in vasomotor crises of the Jacksonian type.

Pollakiuria Due to Eyestrain.—W. W. Kahn (*Journal A. M. A.*, December 7, 1918) takes pains to define the term pollakiuria as increased frequency of micturition—that is six or more times during the day and the necessity to rise from sleep at night. A case is given in detail which shows the intimate relation between eyestrain and pollakiuria in a young woman. Prompted by this case a large series of persons was studied and it was found that about twenty per cent. of patients with refraction errors showed pollakiuria. The cases were fairly evenly divided between men and women, the latter preponderating slightly. Of the 316 cases discovered, 126 reported for treatment for the relief of their eyestrain and for further observation. Of these sixty-five per cent. showed either marked improvement or complete relief of their pollakiuria following the relief of the eyestrain. The results of Bugbee's and others' observations which seem to point to the existence of some organic lesion in the genitourinary tract of almost every patient with pollakiuria must be accepted as correct, but the demonstration of the importance of a neurosis in the production of pollakiuria, as seen in the eye cases, leads the author to the belief that a large proportion of the organic lesions are not the sole causes of the pollakiuria, but that in many instances such a lesion is but one of the causative factors and often the lesser. The cure of so large a number of cases by simple elimination of eyestrain is offered in confirmation of this belief.

The Distribution of Lethargic Encephalitis.—S. P. James (*Lancet*, December 21, 1918) made an epidemiological investigation of the distribution of this epidemic disease in the hope of throwing some light upon its cause, or its relation to other diseases. The observations indicated that the disease was widely, but very sparsely, distributed through the country generally; that cases occurred in localities in which there were no cases of true poliomyelitis at the time; and that cases have occurred where true poliomyelitis was present, but rare. It seemed evident, therefore, that this new syndrome of lethargic encephalitis was not a form of acute poliomyelitis.

Bronchial Spirochetosis.—Anibal Corvetto (*Annales de la Facultad de Medicina de Lima*, September-October, 1918) reports a case in a young Peruvian male of twenty-three years, of the rare condition of bronchial spirochetosis, which was first described and its microorganism isolated by Castellani in 1905. The spirochete is best stained by the silver salts and the prognosis of the disease is usually favorable. In Corvetto's case the patient recovered under simple symptomatic treatment. The physical signs were normal on percussion and palpation, whereas auscultation revealed loud sibilant râles in the lower right lung; the temperature was subnormal and there was a racking cough with serosanguineous sputum.

Standardization of Antimeningococcic Serum.—Amoss and Marsh (*Journal of Experimental Medicine*, December, 1918) repeated the work of Hitchins and Robinson in order to investigate the correctness of the conclusion of these authors that protection tests are as reliable an index of immunization as agglutination or complement fixation tests. The results obtained did not confirm the above statement. Agglutination is considered by Amoss and Marsh as the method of choice for standardization, as it is the only one which clearly distinguishes between the types and varieties of meningococci. The experiments show that infection tests with the meningococcus carried out on laboratory animals are extremely variable in their results, so that this variability unfavorably affects the protection tests, and renders it unsuitable as a method of standardization.

The Quantitative Determination of Phosphorus.—Edward B. Meigs (*Journal of Biological Chemistry*, November, 1918). The nephelometric method has proved of the utmost value in promoting rapid estimations of various substances in blood and urine, and has greatly improved the accuracy of many of the older processes. The author discusses various errors which are inherent in the determination of phosphoric acid by the use of the strychnine molybdate reagent for the precipitation of phosphorus, according to the procedures recommended by Bloor, Kober, and others, and states the conditions under which determinations are to be made if they are to be of any degree of accuracy. The effect of the strength of the acid used and of the temperature at which the reagent is precipitated is quite considerable, and care must be taken in working in a hot room or warm climate that the results are checked on standard solutions.

Bacillus Multifementans Tenalbus.—James L. Stoddard (*Lancet*, January 4, 1919) isolated this new anaerobic organism from a case of gas gangrene of the arm and subjected it to careful bacteriological investigation. The various cultural characteristics of the organism are given in detail and it is pointed out that in some respects it resembles the *Bacillus vibron septique*, from which it is, however, distinguished by definite differences in the characters of its colonies, and in its morphology, serology and pathogenicity. It has been named with reference to its main features—the multiplicity of its fermentation reactions and the tenacious, white colonies it produces. It does not appear to be pathogenic when inoculated alone into animals, but when combined with the *Bacillus sporogenes*, both it and the latter organism become pathogenic. In the human case from which it was originally isolated it was found in combination with the *Bacillus sporogenes*. Excision of the gangrenous muscle was followed by prompt recovery.

The Nervous Syndrome of the Posterior Retro-parotid Space.—Villaret and Faure-Beaulieu (*Presse médicale*, November 21, 1918) report two new cases of a symptom complex first described by them in 1916. It is produced by injury at a point below the base of the skull at which are grouped, about the internal jugular vein and internal carotid artery, the ninth, tenth, eleventh, and twelfth cranial nerves and the trunk of the sympathetic. The resulting symptoms comprise narrowing of the palpebral fissure and pupil, enophthalmos, marked aphonia, disturbances of deglutition, lingual hemiatrophy and unilateral disturbances of taste, and paresis of the trapezius and sternocleidomastoid muscles. The occurrence of this particular combination of symptoms is not only of theoretical interest but may in certain cases permit of precise clinical localization of the site of an injury and facilitate proper surgical treatment. It may be classed with the syndromes of Avellis, Schmidt, and Jackson—all types of paralysis of lower cranial nerves.

Erythema Multiforme.—William H. Guy (*Journal A. M. A.*, December 14, 1918) observed forty-seven cases of endemic erythema multiforme, comprising all degrees of severity. In an endeavor to discover the cause of the erythema careful clinical and laboratory investigations were made and the only noteworthy feature found was the almost constant presence of hypertrophied and mildly inflamed tonsils. Cultures from the deep crypts of the tonsils showed the hemolytic streptococcus to be the predominant organism in thirty cases; pyogenic streptococci were isolated predominantly in nine cases, and in one case the hemolytic streptococcus was recovered from a recent vaccination wound. In the majority of the cases the streptococcus became very difficult to obtain by the time the exanthem had cleared up. In none of the patients who had tonsillectomy performed was there a recurrence of the erythema, although ten of the patients had previously had recurrences. In no case were organisms isolated from the blood and it was believed that the condition was the result of a systemic intoxication from the local growth of the hemolytic streptococcus.

Proceedings of National and Local Societies

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.

Sixty-eighth Annual Session, Held in Philadelphia, September 23, 24, 25, and 26, 1918.

The President, Dr. WALTER F. DONALDSON, in the Chair.

(Continued from page 395.)

Pneumonia.—Dr. W. J. K. KLINE, of Greensburg, laid importance upon the trained ear in the diagnosis of this disease. Active diaphoresis was indicated which might be produced by external moisture and heat and by means internally creating active succession of the internal organs, this to be followed by warm potations and a saline cathartic. *Veratrum viride* was recommended in the presence of arterial tension. The routine use of *veratrine* was discouraged. The tincture was regarded as the most reliable drug and in adults should be used in doses of eight to ten drops every two hours, the dose to be reduced or increased as required to bring the pulse rate down rapidly to eighty or to sixty beats until nausea appears, when the rate would be lowered. This rate to be maintained for from twenty-four to forty-eight hours is an important factor in clearing up the congestion.

Dr. CHARLES REA, of York, recalled that in the Civil War twice as many people died from disease as from war injuries, and referred to the great significance of pneumonia in the present struggle. In the hemolytic streptococcus pneumonias paucity of progress in treatment was noted; since the greater number of cases followed measles, therapeutics should be directed toward prevention. In the treatment of lobar pneumonia there should be avoidance of polypharmacy, in the form of drugs or bugs. Early digitalization was regarded favorably in that the patient might respond quickly to digitalis by the mouth should sudden necessity arise. Turpentine in enemas and stupes was regarded as the best means of combating abdominal distention. In the treatment of streptococcus bronchopneumonia there was little to offer in treatment beyond preventive measures and intelligent care.

Dr. S. SOLIS-COHEN, of Philadelphia, confessed to a change of feeling regarding the value of mixtures of stock bacteria since having observed the work of Majors Smith, of Uniontown, Dare and Bergey, of Philadelphia. They had prepared a vaccine from streptococci, staphylococci, *Micrococcus catarrhalis* and four types of pneumococci from the use of which the mortality was less than six per cent.

Laboratory Methods in General Medicine.—

Dr. M. HOWARD FUSSELL, of Philadelphia, made a plea for accurate diagnosis by history taking, thorough physical examination and routine laboratory examinations. The man not educated in the more modern and accurate diagnostic methods should associate with himself a young man to do this routine work for him. Doctor Fussell exhibited a conveniently arranged kit with the facilities for making the diagnoses in conditions met in the work of the general practitioner.

Dr. HENRY RHEA DOUGLAS, of Harrisburg, cited a case demonstrating the importance of diagnosis upon the principles enunciated by Doctor Fussell. In a boy of nine years treated for an eye condition accompanied by anemia and glandular enlargement, subsequent history taking suggested a Wassermann test which gave a reaction of four plus.

Some Drug Eruptions.—Dr. M. B. HARTZELL, of Philadelphia, said that while a large number of drugs produce eruptions but relatively few affected all individuals; that the same drug did not always produce the same form of eruption. The iodides usually causing an acneform eruption, might cause more serious disturbance; this was true also of the bromides. The hypnotics produced eruptions of varying character. *Arsphenamine* sometimes caused a violent dermatitis with symptoms of nephritis. The possible etiological factor of a drug should always be remembered in the presence of an unusual form of eruption.

Dr. JULIUS H. COMROE, of York, cited an idiosyncrasy to drugs mentioned to him by Dr. B. A. Thomas, Philadelphia, in the administration of 270 grains of potassium iodide three times a day in ascending doses for almost three months without producing an eruption. The administration of three grains in another case had been followed by a most intense rash. Routine ascending doses were discouraged; it seeming to be wiser that each case should be treated as an individual entity with diminution or interruption of the dose upon the beginning of an eruption. Special attention to the emunctories during the administration of bromides, iodides, etc., would in his opinion better meet the prophylactic requirements presented.

The Place of the Medical Inspector in Preventive Medicine.—Dr. CLARENCE R. PHILLIPS, of Harrisburg, said that contagious diseases were the diseases of childhood largely because of compulsory education which brought children into close contact. The problem of prevention was distinctly one to be handled by the State. The instrument for protection in the scheme of the State Department of Health was said to be the county medical inspector. Parents should be educated and teachers instructed; stern measures might be required to enforce the provisions of the new school code pertaining to communicable diseases.

Dr. WILMER KRUSEN, Director of Health, of Philadelphia, claimed for the county medical inspector the cooperation of the public in eliminating preventable diseases. Quarantine would be unpopular until the family appreciated that the rights of the individual ceased where the rights of society began. Development of the conscience of the practitioner who sees communicable diseases in their incipency was also in Doctor Krusen's opinion an essential in the eradication of preventable disease.

X Ray Examination of the Heart and Great Vessels.—Dr. G. W. GRIER, of Pittsburgh, had seen in x ray examination of the heart only two cases in which the heart was unquestionably too small for

the performance of normal function, being in each instance about the size of a baseball. The athletic heart was said to be often hypertrophied; the small "drop" heart was supposed to indicate predisposition to tuberculosis of the lungs. Doctor Grier had fluoroscoped one case of heart block. The slow massive contractions of the left ventricle occurred about twenty times to the minute, while the rapidity of the contractions of the right auricle was extraordinary. He regarded the x ray of distinct advantage in determining size and contour of the heart. In the differential diagnosis of aneurysm of the aorta and solid tumors in the mediastinum both fluoroscope and radiogram were to be used.

Combating Septicemia with Arsphenamine.—

—Dr. SAMUEL R. HAYTHORN, of Pittsburgh, said that no single means could be applied to properly treat both the local lesions and the general blood stream infection which combine to form clinical septicemia; successful treatment of septicemia, therefore, depended upon the use of appropriate local as well as general measures. Arsphenamine had been administered in twenty-nine cases of proved septicemia with seventeen recoveries and twelve deaths. The treatment was found to be beneficial when used early in septicemia if they were associated with primary foci easily accessible to surgical interference. In endocarditis and conditions in which secondary localizations had become firmly established arsphenamine was disappointing because it did not affect the localized lesions on the heart valve.

Dr. HAROLD A. MILLER, of Pittsburgh, had used arsphenamine in fourteen cases. In none were there any untoward symptoms attributable to the drug. It was his experience that puerperal sepsis presented no contraindications to the use of arsphenamine which were not also contraindications in syphilis or other diseases. In all but one case, that of vegetative endocarditis, in which the arsphenamine had been given, a negative blood culture had been demonstrated. In every case in which the remedy had been given before localization of the infection there had been a temperature drop in the way of crisis within twenty-four hours. Increase in the leucocyte to 32,000 followed the administration of the arsphenamine within from twenty-four to forty-eight hours.

Dr. GROVER C. WEIL, of Pittsburgh, cited a case of staphylococci septicemia in a compound fracture with fluctuating temperature for five weeks with a drop of temperature to normal five days after administration of salvarsan and with disappearance of the staphylococci five days later. The man regained his usual weight and there was almost complete union of bone in three weeks following the first administration.

One Hundred Cases Treated with Autogenous Vaccines.—Dr. WILLIAM A. WOMER, of New Castle, classified results in 100 cases including arthritis, acne, abscess, boils, carbuncles, endocarditis, eye, ear, nasal sinus, and other infections. Of the 100 cases eighty-seven per cent. recovered completely. The most satisfactory results were obtained in infections of the skin and subcutaneous tissues. The results in respiratory conditions were not encouraging.

Dr. WALTER D. BLANKENSHIP, of Lancaster, emphasized that while autogenous vaccines were not a panacea in certain cases they were imperatively indicated. General lines of treatment as indicated should be used in conjunction with the vaccine therapy. He quoted Billings as saying that in 500 arthritic cases all upon the same hygienic treatment, the results were quite as good in those not receiving the vaccine treatment as in those which did. He agreed with Doctor Womer that in endocarditis in which a focus of infection could be localized vaccines were of great value.

The Physical Examination in the Diagnosis of Early Pulmonary Tuberculosis.—Dr. LOUIS V. HAMMAN, of Baltimore, stated that in 100 men presented for examination at least seventy-five have pulmonary tuberculosis. Of the seventy with signs of pulmonary change in only four or five would the disease of pulmonary tuberculosis develop. Nothing could be of greater importance than to distinguish between tuberculous infection and tuberculous disease. The physical examination in the diagnosis of pulmonary tuberculosis, he said, really had its value from the relations of all the other associated clinical facts. One exception to this statement was that definite moist rales limited to an apex was an almost absolute indication of pulmonary tuberculosis, provided the general evidence also indicated the disease. Such conclusion was justifiable even though the usual symptoms of tuberculous disease were absent. Not only the obviously tuberculous should be excluded from active service, but those likely to develop the disease from exposure. The generally accepted principle that the liability to develop pulmonary tuberculosis was directly proportionate to the extent of the pulmonary involvement might in the light of later knowledge be abandoned. Little, in his opinion, was really known about resistance to tuberculous disease; the chance location of a tubercle, overexertion, or pregnancy, might be the deciding factor in resistance. Differentiation between recent active and old inactive lesions was regarded as of the utmost practical importance in the problem of pulmonary tuberculosis.

Dr. ELMER H. FUNK, of Philadelphia, agreed with Doctor Hamman that physical signs were valuable only as emphasized by the consideration of history and symptoms. Of far more importance was the determination whether the disease was clinically active or inactive. Of importance was knowledge from the x ray point of view of what constituted a normal chest.

Essential Hypertension.—Dr. HERMAN O. MOSENTHAL, of Baltimore, referred to the importance of the recognition of this disease which so far was characterized by the presence of only one symptom, hypertension. There was known no pathological physiology of the organism bringing about hypertension. It was said to exist in a great number of individuals and usually resulted in severe lesions of the heart, brain, or kidney, causing death. The diagnosis could be made with certainty only when the tests for renal function were available. The most intricate questions in metabolism were involved in treatment. Thus far more theory than fact had been adhered to in management. Mental

and physical rest constituted the main elements in treatment. A diet regulating quantity rather than quality was of first importance in food control. The disease demonstrated the value of yearly prophylactic examinations for apparently normal individuals. Attention to hygiene might prolong life.

Dr. JAMES M. ANDERS, of Philadelphia, emphasized the great importance of the recognition of essential hypertension. In his opinion the condition was by no means as frequent as indicated by certain writers. Cases had not been excluded in which some cause of hypertension might have been revealed by further investigation. The tests for renal function were necessary in diagnosis. Such tests showed that, any cases of apparent essential hypertension could not be so regarded. Cases of persistent hypertension in middle aged men in active business given somewhat to excess in eating, and the use of alcohol and tobacco, he had found yield to treatment, prolonged rest and correction of the habits of the patient. These were not instances of essential hypertension.

Blood Pressure from the Point of View of the General Practitioner.—Dr. H. A. HARE, of Philadelphia, emphasized the fact that the result of a blood pressure examination should be taken only as a part of the picture, of no greater importance, if as great, as other parts. A moderately high pressure with a low specific gravity of the urine and many hyaline casts was of far more importance than a very high pressure with a urine practically free of casts. Too much stress, he believed, was placed upon one blood pressure estimation. High estimations made in the office would be far above those taken with the patient at home in bed or in a chair, thus giving an erroneous view of the constant pressure. The practice of estimating the systolic pressure without the diastolic was to be condemned. A pressure above normal might be present for years without trouble; a pressure below normal might cause disaster in a few hours. The diastolic pressure subtracted from the systolic gave an idea of the actual cardiac power. He drew attention to the fact that as a man grew older he established what Doctor Hare had termed a "pathological norm," a rising pressure, systolic and diastolic, being essential to his normal existence. Such pressure must not be forced to the theoretically normal level for a man of thirty years. The endeavor should be to reduce the systolic and diastolic pressure sufficiently to relieve stress, and to increase the difference between the systolic and diastolic pressures. In such cases electric cabinet baths, massage and the alteratives were as a rule of more value than the nitrites.

Blood Pressure as a Prognostic Factor.—Dr. R. MAX GOEPP, of Philadelphia, regarded blood pressure as more useful in long range prognosis than as an index of immediate developments. Statistics showed hypertension regardless of cause to have an unfavorable effect on longevity. "Simple" hypertension, so called, he said, belonged either to the group of early interstitial nephritis, or that of simple arteriosclerosis. Diastolic pressure was regarded as of more importance in prognosis of acute infections than of chronic diseases.

Dr. JOHN A. LICHTY, of Pittsburgh, believed that in ten years essential hypertension will have ceased to exist. This might be paralleled in the matter of hyperchlorhydrias, which twenty years were called a disease. Very few of such conditions had been observed since the effect of gallbladder, appendiceal and other conditions upon the gastric secretion had been known. He regarded hypertension as a manifestation of disease or physiological disturbance in an organ which would after a while be understood. He asked Doctor Goepf's interpretation of a constantly low blood pressure.

Tests for Food Protein Sensitiveness in Asthmatics.—Dr. ALEXANDER STERLING, of Philadelphia, gave a review of the clinical pathology of asthma. The reactions of twelve patients were tested with twenty-five different food proteins. There was a positive reaction in only one. In the presence of positive reactions exclusion in diet and desensitization are indicated. Fifty per cent. of the asthmatics were benefited by subcutaneous injections of gradually increasing doses of foreign vegetable proteins.

The Treatment of Syphilis of the Central Nervous System.—Dr. T. P. TREDWAY, of Erie, emphasized the importance of early recognition of involvement of the central nervous system and the selection of cases and mentioned the following as the methods in common use in the intraspinal injection of arsphenamine and mercury: Autoarsphenamized serum, arsphenamine in small quantities added to serum, mercurialized serum, and arsphenamine in small quantities added directly to the fluid. The author's best results had been obtained by the last mentioned method. In paretics he believed that a prolonged remission was the best that could be accomplished. In tabes dorsalis he had seen cases in which clinically progression had been retarded for three years; best results followed the combination of general and intraspinal treatment.

Intraspinal Autoarsphenamized Serum Treatment of Cerebrospinal Syphilis.—Dr. B. A. THOMAS, of Philadelphia, in his study of this subject did not claim that arsphenamine therapy could restore degenerated spinal cords or remove the possible necessity of institutional care. The accessory employment of intraspinal treatment he believed accelerates restoration of the spinal fluid to normal. Intraspinal treatment by autoarsphenamized or arsphenamized autoarsphenamized serum injections should supplement intensive intravenous therapy when necessary. Treatment in qualified cases should be continued until the spinal fluid and the blood findings were negative, except globulins which might continue positive in many cases irrespective of the amount of treatment.

Dr. LORAIN L. SCHWARTZ, of Pittsburgh, believed that unless the necessity of routine lumbar puncture in all cases of syphilis was not universally recognized by the medical profession there would be as many posterior sclerosis tabetics, paretics, and cerebrospinal cases in twenty years as at present. Opportunities for better work rested primarily with the physician seeing the patient during the first six months of the infection. Upon the slightest sign of

central nervous involvement he has the spinal cord explored and believes that in this way the patient is saved many doses of salvarsan. The skeptical views held by many neurologists he felt were justified in that by the time the patient reached the neurologist serious anatomical changes had taken place.

Dr. JAY F. SCHAMBERG, of Philadelphia, emphasized the responsibility of the medical profession regarding the treatment of syphilis. Especially valuable in his opinion was the colloidal gold test in warning of impending changes in the nervous system. It was to be realized that the blood Wassermann did not indicate the changes taking place in the central nervous system. Were the early spinal fluid changes detected and persistent and scientific treatment instituted he believed that tabes and paresis could be banished. A striking instance of syphilis was cited in which marked relief was obtained in thirty-six hours after an intraspinal injection of arsphenamine.

Dr. ALFRED GORDON, of Philadelphia, referred to his experience with several hundred cases of neurosyphilis, in some of which brilliant results attended the first or second administration of auto-neosalvarsanized serum. In one case the intraspinal treatment was followed by immediate relief from pain. The possibility of the psychic element being a factor was eliminated by the presence of anatomical changes.

Duties, Responsibilities and Rights of the Members of the Patient's Family.—Dr. THEODORE DILLER, of Pittsburgh, made a plea for the rights of the well members of the family, often forgotten or ignored, in cases of chronic invalidism of one member. The financial sacrifice and disturbance thus entailed were often totally unnecessary. The mother who kept an imbecile child at home with her four healthy children was harming the latter and really doing the defective one no good. He believed that the physician had here a distinct duty toward the family, and while his advice might be unavailing he should ever be alert to use his influence in this direction.

Nervous and Mental Sequelæ of Infectious Diseases.—Dr. ALFRED GORDON, of Philadelphia, considered the functions of the nervous system and the causative factors of nervous reactions with the effect of foci infectious processes upon the central and peripheral nervous system. The localization of the foci infectious element and the variety of these localizations with their probable causes were also discussed and the sequelæ recorded of fifty-two cases of various infectious diseases. Special emphasis was placed upon the fact that infectious organisms or their product might be disseminated in the body by continuous extension of the infectious process and by successive invasion of the most delicate structures of the body.

The Application of the Principles of Advanced Psychiatry.—Dr. J. ALLEN JACKSON, of Philadelphia, stated that in communities with a population of over 500,000 service would best be obtained through a municipal bureau of mental hygiene under the supervision of a trained psychiatrist with subordinate district supervision. Definite psychia-

tric centres under the direction of an alienist assisted by a trained field worker should be established in the districts. Public education should here be encouraged. Early care and treatment with assignment to proper institutions—custodial, psychopathic, preventorium, or general hospitals could be thus carried out. The alienist in charge of the psychiatric centre should bear the same relation to the custodial institution as does the medical inspector of the bureau of health to the hospital for contagious diseases. While the immediate effect of such a bureau would be a temporary increase of custodial patients there would ultimately be an increased recovery rate. By such measures the propagation of the mentally unfit would be checked and the cost to municipality and State would be eliminated.

Prognosis in Cases of Intestinal Perforation in Typhoid Fever without Operation.—Dr. C. W. EISENHOWER, of York, urged that the physician watch closely for complications in typhoid fever and call the surgeon immediately upon the suspicion of perforation. The experience of the general practitioner was that recoveries from intestinal perforation in typhoid fever without operation were more frequent than indicated in the textbooks. In some instances evidence had been found of a local protective plastic peritonitis preventing escape of bowel contents resulting in recovery. The prognosis of intestinal perforation was regarded as too grave to warrant departure from the accepted treatment of prompt surgical intervention.

Report of a Case of Pellagra.—Dr. L. L. SCHWARTZ, of Pittsburgh, defined the three theories given concerning pellagra, the deficiency, the maize, and the parasitic, the latter being the most widely accepted at present. While the usual duration of the chronic form of the disease was from five to ten years, in America death during the first or second summer was common. The cardinal symptoms he said were often indicated by the alliterative formula—dermatitis, diarrhea, and depression. The first essential in treatment was removal of the patient from the surroundings in which he had acquired the disease, with the institution of a liberal mixed diet. Arsenic was the one medication of apparent value, and the forms in which it seemed to be most useful were salvarsan intravenously, or sodium cacodylate given intramuscularly.

Studies in the Serum Treatment of Epidemic Cerebrospinal Meningitis.—Dr. JOHN A. KOLMER, of Philadelphia, referred to the reduced mortality from epidemic cerebrospinal meningitis with the serum treatment by the intraspinal route. The gross mortality of seventy to ninety per cent. among patients not treated with serum had been lowered to thirty per cent. by the serum treatment. The problem was complicated by the facts that more than one type of meningococcus were capable of producing the disease and that the microorganisms might be carried and disseminated by convalescents and healthy carriers. It was regarded as highly important to employ a potent polyvalent serum in the treatment of meningococcus infections because at the present time type diagnoses and the employment of monovalent serums were not available as in the di-

agnosis and treatment of lobar pneumonia. During epidemics between one and two per cent. of persons were chronic carriers, constituting the greatest source of danger. With the least clinical suspicion of meningitis the physician should resort to spinal puncture. It was stated that Flexner regarded the microorganisms as infecting the meninges by direct extension along the lymphatics of the olfactory nerves with their occasional presence in the blood stream. Recent studies, particularly by Herrick and Caeslack, indicated that the coccus might be present in the blood more frequently than heretofore thought, and that this "meningococcus sepsis" might produce systemic symptoms. It is Doctor Kolmer's custom to culture the blood routinely at the time of spinal puncture. If after two intraspinal injections of large doses of antiserum no improvement was shown clinically and in the analysis of the cerebrospinal fluid the author advised that a serum of a second manufacturer be substituted, with the hope that it might contain specific antibodies not present in the first. Upon the basis of his experimental results with the influence of fresh normal serum alone and in combination with anti-meningitis serum upon virulent meningococci, Doctor Kolmer believed the method worthy of further trial in improving the results of the serum treatment of meningococcus meningitis.

SECTION IN SURGERY.

Dr. JOHN L. ATLEE in the Chair.

Dr. JOHN L. ATLEE, of Lancaster, stated that all of our surgical principles and practices had been put to such a trial during this war as they never had been before, and only the absolute scientific truth could stand the test. In the past our progress had been hampered by the barnacles of sects and dogmas founded upon the most absurd theories, but scientific facts alone, not theories, can endure today. The absence of the great number of physicians who left their patients to serve their country, will leave the door more widely open than ever to the charlatan and the patent medicine, and unquestionably this crisis is a wonderful opportunity for the quack. Let each and everyone of us remember that we have every weapon that any charlatan, quack or patent medicine possesses, but that most of these weapons we would not deign to use, and we have one other which they do not possess, the knowledge of the science of medicine, and this is the one weapon no sect or system can withstand. At this time, therefore, above all others we should study our art with diligence and apply it with careful thought and untiring energy.

An Anatomical Incision for Groin Surgery.—

Dr. J. NORMAN WHITE, of Scranton, Pa., stated that an incision three inches long, three fourths of an inch external to the spine of the pubes, commencing at and at right angles to Poupart's ligament and extending toward the umbilicus gives access at once to the inguinal canal and round ligament and extension downward and slightly inward exposes the femoral ring. If a femoral has been mistaken for an inguinal hernia or vice versa, no new incision is required nor extensive prolongation of the one already made. Infection is made less frequent and the wound never fills with fluid as often happens

with other incisions. This incision has the following advantages: No bloodvessel need be tied because none are cut; it is a bloodless incision and is parallel rather than across the blood and lymph vessels. Leaving the blood and lymph supply intact infection is less frequent. Any operation in the inguinal region can be performed through the one incision, including appendectomy. A common cause of infection is the catgut knot, in the anatomical incision there are no knots.

Dr. T. TURNER THOMAS, of Philadelphia, told of having tried this incision in about a dozen cases. You do not get the same free and easy exposure of the canal as you do with the ordinary oblique incision. The novice would have trouble in locating the external oblique ring, but the experienced would not. So that is not an objection. I do find that very few if any blood vessels were divided and I thought that because the blood vessels were not divided that the healing ought to be a little better than with the ordinary incision. So that the effect on me of my little experience has been rather to incline toward the incision. I think that there is enough advantage in the small number of blood vessels divided to warrant us in using it in spite of the little restriction in the exposure of the field.

Thoracic Surgery.—Dr. GEORGE P. MÜLLER, of Philadelphia, said that thoracic surgery, particularly that of the lung, had been affected to some extent by the experience of the war. While nothing very striking or very original has as yet been forthcoming, the invaluable point has been established that the lung may be handled, with proper technic, as freely as is the kidney or the stomach. But the surgery of this part of the body has been "in the making," for some years prior to the war, ever since the cabinet of Sauerbruch, and particularly the method of our own Meltzer, stimulated surgeons to see what they could do in the opened thorax without fear of the dangers of a collapsed lung. The particular aim of this paper, however, is to call the attention of practitioners and surgeons to certain points in the technic, learned from the great numbers of sick and wounded in camp and in the field, which are applicable to similar conditions in civilian life. Pierre Duval, however, has shown us that the exposure of the lung and the removal from it of a foreign body is as safe as most other major operations and not only enables us to remove the bullet but also to clean the pleural cavity of its contained blood clot. Shortly after the receipt of the injury, when reaction has occurred, ether is administered by the open method (an endotracheal apparatus is not necessary), and an incision nine or ten inches long made over the fourth or fifth rib. About six inches of the rib is then removed, and after cutting the intercostal membranes the pleura is carefully separated with the fingers above and below for some distance, to mobilize it. The pleural membrane is then rapidly divided the full length of the opening and a rib spreader rapidly placed in position and sprung open. The lung is then taken by a pair of grasping forceps and pulled to the wound. If these manoeuvres are done rapidly the mediastinum is steadied before the pneumothorax has had time to work injury to the circulation. The lung can then be drawn out on to the chest, the

bullet easily felt, the lung incised over the bullet which is removed, and the incision in the lung closed by one or two fine catgut sutures. Blood clots are scooped out, the cavity gently mopped and disinfected, if thought necessary, by ether (Duval) or perhaps by Dakin's solution. The lung is then replaced but still steadied by the grasping forceps and the pleura closed. This is not easy to do and it is probably impossible at times to avoid some tearing. The muscles are next pulled together with catgut mattress sutures and the skin sutured with silkworm gut. No drainage should be introduced. Finally, the pneumothorax is emptied by aspiration. If it is determined not to search for the bullet we should aspirate the pleural cavity on the slightest suspicion of the onset of infection, and if cover slip smears confirm our suspicion the chest must be opened and drained.

Dr. NATHAN W. GREEN, of New York, said the question of operative procedure upon the thoracic viscera must be determined by the pathological or traumatic conditions found at the time. Injuries to the heart must be sutured. Injuries to the lung must be closed if possible, but if too extensive may require a local resection of the injured area. Large vessels may require ligation to control hemorrhage, but injuries to large vessels may prove so rapidly fatal that they infrequently come to the operating table. In wide injuries of the chest the patient may be in profound shock, of course then it is best to do as little as possible, and to wait until it has passed off. While we are waiting, septic infection may implant itself.

Dr. SAMUEL J. MELTZER, of New York, said that eight years ago he constructed a simple apparatus for intratracheal insufflation for Doctor Carrel. He had seen many of his experimental dogs in which the thorax was transversely opened widely—double pneumothorax. These dogs recovered without having had an infection. In the course of the last year, he had demonstrated to many military officers, anesthetized and curarized dogs with the chest wide open. The entire heart was exposed to full view. The animals were kept alive and with normal blood pressure by the method of pharyngeal insufflation. He had demonstrated a fact of practical importance, namely, that if artificial respiration was sufficient the heart could be handled freely with impunity; but even a slight touch of the heart often led to fatal fibrillary contractions if the artificial respiration was suspended or was insufficiently executed. Artificial respiration was very useful during anesthesia and is indispensable in major operations upon the thoracic cavity.

The Absence of Clinical Symptoms During Preperforated Stage of Duodenal Ulcers.—Dr. LEVI J. HAMMOND, of Philadelphia, had operated upon fourteen patients during the past two years at the Methodist Episcopal Hospital for perforated duodenal ulcers. Not even the frequent complaint of digestive disorder was noted in the histories as occurring during their latent period. In none of them were such symptoms as paroxysmal pain, localized tenderness, vomiting, hematemesis, or hyperacidity of the gastric juices, complained of. The patients were males, with two exceptions, ranging in ages

from fifteen to seventy years, the greater number of them being between twenty and thirty. The two females were aged twenty-two and twenty-six respectively. None of the patients were chlorotic or anemic and there was no history of burns or scalds or other serious accidents that could have been a factor. In most instances the perforations occurred while the patients were at their usual occupations. In one, perforation occurred during the middle of the night while the man was asleep.

The Treatment of Malignant Disease by Combined Methods.—Dr. GEORGE E. PEABLER, of Philadelphia, said that four methods have been proven to be of distinct and positive value in the treatment of malignant disease. Each method could claim many successes to its credit, but the profession and the laity know well that each has also many failures. By certain skillful combinations, many cases which now are ultimate failures may be made successes, and in this way advance be made in the treatment of this dread disease. The four methods which stand out most prominently in my mind are; surgical excision, electrocoagulation, röntgen therapy, and radium therapy. As the name implies, in electrothermic coagulation there is produced a coagulation of the tissues by means of heat, the heat being generated by the electricity. It differs, however, from thermocautery for the removal of the disease, in that the heat is generated in the tissues and is produced by the resistance to the flow of the electricity through the tissues. Generally speaking, the effect of radium therapy is identical with that obtained by the röntgen rays, providing that the two agents can be used in equal amounts and equally well. The advantages of the röntgen rays consist in the fact that one can apply approximately a million times as much radioactive effect in the same period of time granting that the case is suitable, and that the rays can be applied externally. The advantages of the radium, however, consist in the ability to apply the radiation within cavities or in locations in which much energy would be lost in overlying tissues before reaching the diseased area. It also has the advantage of being applied with less technical skill.

Dr. G. BETTON MASSEY, of Philadelphia, stated that the question of the treatment of enlarged glands secondary to cancer of the tongue, mucous membrane of the mouth and the lip was a very serious one. It is gratifying to me to find that both the speakers, or at least the second speaker, has arrived at a decision that I formed some years ago, and that is, that the destructive method was better than excision if any method was available other than the x ray. I think that the method that I have so many times presented to this society in which a lower tension current was used than that used by Doctor Pfahler, was particularly advantageous in the enlarged glands that were movable in the neck. I have found the most successful removal of these glands was not to incise the skin, but after the destruction of the primary growth in the mouth or lip to pick up the gland with its overlying skin and pass a loop of thread beneath it by which it may be pulled away from the bloodvessels. With zinc points then passed beneath the gland and the op-

posite pole held on the skin over the gland, a current of half an ampere to an ampere turned on and the gland cooked or destroyed entirely in ten or fifteen seconds.

Postoperative Sequelæ of Acute Appendicitis.—Dr. JOHN B. DEEVER, of Philadelphia, showed in 1,700 operations for acute appendicitis collected from recent records at the Lankenau Hospital, sixty-six deaths gave a mortality of 3.7 per cent. The series included all cases of acute appendicitis with and without preoperative complications directly due to the condition of the appendix or to the involvement of other viscera. Of the complications fecal fistula occurred in forty-two patients, secondary abscess in thirty, and intestinal obstruction in twenty-seven. An analysis of the cases of obstruction shows that fully seventy per cent. required drainage at the original operation. There is no doubt that every case of acute appendicitis requiring drainage could safely be taken as an indication that operation was delayed beyond the most favorable moment. In the prevention of surgical complications nothing was more important than to forestall the formation of pus within the peritoneal cavity. In adhesions and consequent obstruction a large number of these cases would not have developed if the original appendicular disease had been treated early and no drainage had been required. In practically every death from appendicitis some one is to blame. The question is who is at fault. Is it the wise and experienced parent or guardian or friend who refuses to consent to, or advises against operation because he has had his appendicitis frozen out, or is it the ill advised administrations of an aperient or purge, or is it the doctor? It is too often the latter I am sorry to say. Summing up the facts will undoubtedly show that purgation was the primary cause of the complications.

The Abduction Treatment of Fracture of the Neck of the Femur.—Dr. ROYAL WHITMAN, New York, stated that the test of efficiency in the treatment of fractures involving joints, with one exception, was reduction of deformity, since otherwise function would be impaired. The exception was fracture of the neck of the femur, because the means hitherto at command have been inadequate to apply the rule. The fragments of a fractured femoral neck, which with the limb in the line of the body lie in a lateral relation, may by abduction be brought end to end and into resistant contact when the capsule is made tense. The abduction treatment is comprehensive in its character, and having assured the initial opportunity for functional recovery, supplements it by protection and aftercare, so notoriously lacking in conventional treatment, which are the more essential because repair is slow, and because of the strain to which the femoral neck is exposed. Weight bearing is not permitted for at least six months, the progress of reconstruction being estimated, not by time but by absence of discomfort, by voluntary control of movement and by successful x ray pictures. A modified hip splint that permits locomotion without weight bearing is therefore of great service during convalescence. The abduction

method has the great advantage, that it is applied with a definite purpose, whose accomplishment is physically demonstrable, and since it is under single control it fixes the responsibility for the result, in so far as it is determined by opportunity, on the one who undertakes the treatment. Conversely it would appear that the responsibility for failure must be borne by those who persist in conventional treatment, which is manifestly and admittedly inadequate to assure the essentials of repair, and which presents such a record of failure as to almost justify the inefficiency and neglect that have always characterized its practical application.

(To be continued.)

Births, Marriages, and Deaths.

Born.

RICHARDS.—At the U. S. Navy Ammunition Depot, Iona Island, N. Y., on Sunday, February 23d, to Lieutenant George M. Richards, Medical Corps, U. S. Navy, and Mrs. Richards, a son.

Married.

KING-DEVELIN.—In New York, N. Y., on Thursday, February 27th. Dr. George King and Miss Edith L. Develin.

Died.

ANDREW.—In Jersey City, N. J., on Tuesday, February 25th, Dr. Bromwell A. Andrew, aged seventy-one years.

CATE.—In Boston, Mass., on Friday, February 21st, Dr. George Riley Cate, of Brookline, aged fifty-two years.

CHEESMAN.—In Garrison, N. Y., on Tuesday, February 25th, Dr. Timothy Matlack Cheesman, of New York, aged sixty-seven years.

CUMMINGS.—In Philadelphia, Pa., on Monday, February 24th, Dr. N. John Cummings, aged fifty-three years.

CUNNINGHAM.—In Philadelphia, Pa., on Friday, February 21st, Dr. George A. Cunningham, aged forty years.

EMMET.—In New York, N. Y., on Saturday, March 1st, Dr. Thomas Addis Emmet, aged ninety years.

HERSH.—In East Greenville, Pa., on Monday, February 24th, Dr. John G. Hersh, aged sixty-six years.

JONES.—In Rochester, N. Y., on Saturday, March 1st, Dr. William B. Jones, aged fifty-seven years.

KEARN.—In New York, N. Y., on Monday, February 24th, Dr. James V. Kearns, aged forty-five years.

KELLY.—In Minneapolis, Minn., on Thursday, February 6th, Dr. Elijah S. Kelly, aged seventy-two years.

LAWLOR.—In Methuen, Mass., on Wednesday, February 12th, Dr. Richard H. Lawlor, aged forty-eight years.

MATTHEWS.—In New York, N. Y., on Tuesday, February 25th, Dr. Frederic Matthews, aged fifty-eight years.

PITT.—In Bloomfield, N. J., on Friday, February 14th, Dr. Jesse Baldwin Pitt, aged seventy-two years.

PLIMPTON.—In Boston, Mass., on Friday, February 21st, Dr. Lewis Henry Plimpton, of Norwood, Mass., aged sixty-nine years.

POWERS.—In Northern Russia, on Wednesday, January 22d, Dr. Ralph E. Powers, Lieutenant, Medical Corps, U. S. Army, of Akron, Ohio, aged twenty-nine years.

ROGERS.—In France, in January, Dr. Elton B. Rogers, Captain, Medical Corps, U. S. Army, of Winchester, Idaho, aged thirty-nine years.

RYAN.—In Hartford, Conn., on Tuesday, February 18th, Dr. Joseph P. Ryan, aged forty years.

SMITH.—In Indianapolis, Ind., on Saturday, February 8th, Dr. William A. Smith, of Grammer, Ind., aged fifty-four years.

STALLER.—In Philadelphia, Pa., on Sunday, March 2d, Dr. Max Staller, aged fifty-one years.

STRAUSSER.—In Reading, Pa., on Thursday, February 20th, Dr. Thomas A. Strausser, aged seventy-three years.

WELLS.—In Philadelphia, Pa., on Monday, February 24th, Dr. William Hughes Wells, aged fifty-nine years.

WILSON.—In Newburgh, N. Y., on Thursday, February 27th, Dr. Henry Wilson, aged fifty-four years.

WOOD.—In Houston, Tex., on Tuesday, February 18th, Dr. Hiram A. Wood, aged fifty-four years.

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INFLUENZA THERAPEUTICS IN HISTORY.*

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Influenza, following its usual course, having run its epidemic phase, is now to be with us for several years. It will gradually grow less virulent and become less frequent, but the bacterial strain which caused Spanish influenza will probably maintain its special virulence for some five to ten years at least. The story of the efforts made to treat it in the past will be interesting from an historical point of view, but it is not without practical value, since it illustrates so clearly the ease with which self-deception occurs and how much possible harm may be done to patients. Slow but sure is beyond all doubt the motto that must characterize the use of new remedies and conservatism, provided it does not degenerate into oldfogyism, is the particular virtue of the doctor.

It was a very wise old physician who said, originally, that the therapeutics of any generation in the history of medicine is always absurd to the second succeeding generation. Sometimes it has happened that the therapeutics of the generation has gone over into the succeeding generation, still in honor and usage, but very rarely has it lasted three generations. There are exceptions, of course. That greatest discovery in the history of therapeutics, the use of mercury in syphilis, has endured some six centuries since its discovery by the Italian surgeons of the thirteenth and fourteenth centuries. Quinine for malaria has maintained itself but those are about the only specifics we have left, though there have been many hundreds made and even thousands of cures for disease announced, taken up very enthusiastically, apparently confirmed by conservative observers and yet have afterward disappeared. The most important chapter in the history of medicine is the history of the cures that have failed.

Now that our influenza epidemic is gradually becoming a thing of the past, a review of the available information as to the therapeutics of the disease should be of interest. We have had a pandemic of influenza, that is, an epidemic affecting not only a

great many in one country but every people who are brought in contact with it through commerce, in every generation for four or five centuries at least. Probably it has come in nearly every generation since long before Christ. The epidemic described by Hippocrates and Livy some time before 400 B. C. was almost surely influenza. The first attack of it in this country was in 1648 when some 6,000 deaths occurred in the Barbadoes and St. Kitts alone, showing how virulent must have been the disease. It has usually begun in the East, traveling westward like the course of empire, and circling the globe in something more than a year. There are always slight epidemics of it during following years until humanity becomes accustomed to it once more. Some ten years after the Barbadoes and St. Kitts incident, Cromwell in England died in the midst of what was considered to be an influenza epidemic, so that evidently the affection had become endemic for a time in England.

We ought to know something about its therapeutics by this time but I fear that none of us have any confidence in what has been learned. In the last epidemic patients were treated mainly with the then new coal tar drugs and a great many physicians went on record with the declaration that they were sure that these cured their patients, or certainly did them a great deal of good. Of course, they reduced the fever and lessened the pain which are such marked symptoms at the beginning of influenza, but none of us now think that their use for these purposes is advisable, much less that they are curative. The whole question as to whether fever is not a conservative reaction on the part of the body so as to protect against microbic invasion is still open. Crude reduction of it by drugging is an eminently dangerous experiment. We feel sure now that the coal tar drugs did ever so much more harm than good and that undoubtedly some of the mortality of the disease in the epidemic of the nineties was unfortunately due to this empirical drugging and especially to the use in rather large doses of antipyrine. No one in this epidemic would think for a moment of employing such doses, so that it has taken less than a generation to make that bit of therapeutics absurd.

In the epidemic in the late forties of the nineteenth century, a favorite remedy was whiskey or brandy, or some form of strong, spirituous liquor. It is not surprising, seeing that practically every

*A paper read at the meeting of the Section on the History of Medicine of the New York Academy of Medicine, November, 1918.

continued fever and nearly all the febrile conditions were at that time treated confidently with whiskey. It would be amusing, only that it is so amazing, to take up a textbook of medicine written by some distinguished authority about the middle of the nineteenth century, to see how confident he was in the use of whiskey. Typhus fever, rather common then in epidemic form, typhoid fever, much commoner and recurring in frequent epidemics, pneumonia, puerperal fever, unfortunately frequent, septic conditions and pyemia, terribly common, erysipelas and tuberculosis were all treated with whiskey. "When nothing else would do any good, be sure to give whiskey," was the rule, and of course it was used with confidence in influenza. It was about this time that a distinguished American physician, quoting, I think, an equally distinguished English colleague, said that if he were offered all the drugs of the pharmacopeia on the one hand without whiskey, and whiskey without the drugs, on the other, for the treatment of pneumonia, he would choose the whiskey.

Curiously enough, the one therapeutic hint for influenza in this epidemic that was given with any confidence at the New York Academy of Medicine at the height of our epidemic some months ago was the use of whiskey. In the meantime, the American Medical Association has formally declared that whiskey is not a stimulant but a narcotic and that there are many safer narcotics, and has advised against the use of whiskey in therapeutics. Undoubtedly, however, whiskey has one good effect. This is not physical but mental. A great many patients attacked by influenza, especially if it turns into pneumonia, are very frightened and this makes them incapable of presenting their normal resistive vitality against the disease. For them, whiskey may be good, by lifting the scare. It will have to be given, however, in considerable quantities, so as to produce a certain sense of euphoria if that effect is to be secured, and it is extremely dubious whether the relaxation consequent upon its use to that extent may not prove harmful. It is interesting to have a revival of this kind in the second generation afterward.

Previous epidemics of influenza in the nineteenth century were treated by venesection, calomel and sometimes antimony. The idea was that these removed poisons from the body. It is very probable that harm was thus often done, though possibly a preliminary purgation in strong, healthy individuals often did good. Venesection in patients of the same kind undoubtedly often was of service. A large amount of toxic material was removed with the blood taking; a great call was made on nature's resources. The blood making organs were especially stimulated and from the high bactericidal qualities in such freshly made blood, in many cases, good was accomplished. Any one who has seen restless, tossing, vigorous pneumonia patients relieved by the taking away of a certain number of ounces of blood, to have the subsequent course of the disease much less disturbing in every way, followed by a normal crisis, is not likely to think that venesection is always harmful. Care in the selection of patients is needed, however. The

expression of old Doctor Parry, of Bath, in this regard must not be forgotten. A hundred years ago he said: "It is much more important to know what sort of an individual has the disease than to know what sort of disease the individual has."

The poor influenza patients of the end of the eighteenth and the beginning of the nineteenth century were particularly to be pitied. Venesection, as all those who know the work of Doctor Rush will readily appreciate, was at its height of popularity and its lowest depths in the quantity of blood let. Patients often lost several quarts of blood during the first forty-eight hours of the treatment. This was the rule also for other affections, and poor Mirabeau, a French politician and orator of the Revolution, suffering from angina pectoris, had some eighty ounces of blood taken from him in the course of about thirty-six hours. His own physician took it from the arm nearest the heart, a consultant took it from the other arm, so as to be far from the heart, and a third doctor called, took it from the big toe of his right foot because that was farthest of all from the heart. Our own first President, Washington, suffering from diphtheria, very probably was almost bled to death, though his fatal disease is usually said to have been *cynanche*.

The preceding epidemic of influenza in the eighteenth century, however, had been treated in various ways. Doctor Currie, for instance, emphasized very much the use of cold applied externally, cold water particularly being recommended, but cold air also was employed. Doctor Currie was for some years in this country and was in New York when there was an influenza epidemic about 1790. Afterward, he went to England and reached distinction over there. Dr. Alfred Magill, in the prize essay (1) to which was awarded the second prize ever given by the Medical Society of the State of New York, summed up some of Currie's experiences in the treatment of fever, in a way which shows that this custom of the end of the eighteenth century long anticipated Brand and his cold water treatment in the nineteenth, but at the same time shows that he realized how much cold air might mean in the treatment of fever, not only typhoid, then called typhus, but in all fevers. The scene described so vividly might very well have been a case of influenza or of pneumonia approaching its crisis, treated by the open air method. Doctor Magill said:

"No one can peruse Doctor Currie's recent experience in this matter without being convinced that cold water when properly applied is a most important remedy in case of fever. Its utility is not confined to typhus; it is equally serviceable in all fevers attended with increase of heat and arterial action. Its effect on the pulse is astonishing in many cases. We have often known the mere bathing of the hands and arms of a febrile patient to reduce the action of the pulse from ten to fifteen beats in the minute, and if this partial application of cold water has such an effect on the action of the heart, how much greater must be the effect of a cold bath. We have many instances on record of its calming at once the most furious delirium; persons in such a situation have often jumped over-

board from a vessel into the sea and been taken up perfectly calm and rational and with an almost complete extinguishment of the fever. With many strong instances recorded in various works of its remarkable efficacy in curing fever, it is justly a matter of surprise that physicians so seldom call its great powers into requisition. It exercises a more immediate control over the action of the heart than bloodletting. Doctor Currie mentions a striking instance of the effects of cool air in reducing the pulse. 'In the month of May, 1801,' he says, 'I was desired to see a patient ill of fever in Sparling street. I found him in the tenth or eleventh day of the fever, delirious and restless; the surface of the body dry, and his heat 104° F. The room was close and I desired the only window in it opened. The wind from the northwest blew directly into this window, and the bed being situated between it and the chimney, a pretty brisk stream of air passed over it. The patient had just thrown off a considerable part of his bedclothes and was exposed naked to the breeze. I sat by him with my finger on his pulse watching the effect. In a little time the pulse fell from 120 to 114 in the minute; he became more tranquil and soon afterward he sank into a quiet sleep, in which he remained when the water for effusion was prepared; of course we did not disturb him; he remained exposed to this cold air until morning when his pulse was found to be about 100 and his heat 101°.'

In the earlier epidemics of influenza during the eighteenth century, one of the favorite popular remedies at least, though there is no doubt at all that it was used very much by physicians, was the famous tar water of the time. Bishop Berkeley was particularly responsible for a wide diffusion of supposed information with regard to it. As he came to America with the idea of establishing a school of philosophy in Rhode Island near Newport and was with us for some years, his propaganda of the remedy was felt on both sides of the Atlantic. As pointed out by Oliver Wendell Holmes (2) "The bishop, as is usual in such cases, speaks of himself as indispensably obliged, by the duty he owes to mankind, to make his experience public. Now this was by no means evident, nor does it follow in general, that because a man has formed a favorable opinion of a person or thing he has not the proper means of thoroughly understanding, he shall be bound to print it, and thus give currency to his impressions which may be erroneous and therefore injurious. He would have done much better to have laid his impressions before some experienced physicians and surgeons, such as Doctor Mead and Mr. Cheselden, to have asked them to try his experiment over again, and have been guided by their answers. But the good bishop got excited; he pleased himself with the thought that he had discovered a great panacea; and having once tasted the bewitching cup of self quackery, like many before and since his time, he was so infatuated with the draught that he would insist on pouring it down the throats of his neighbors and all mankind."

The precious fluid was made by stirring a gallon of water with a quart of tar, leaving it forty-eight hours and pouring off the clear water, which was

the remedy. As Oliver Wendell Holmes says, "Such was the specific which the great metaphysician recommended for averting and curing all manner of diseases. It was, if he might be believed, a preventive of the smallpox, and of great use in the course of the disease. It was a cure for impurities of the blood, coughs, pleurisy, peripneumony, erysipelas, asthma, indigestion, cachexia, hysterics, dropsy, mortification, scurvy and hypochondria. It was of great use in gout and fevers, and was an excellent preservative of the teeth and gums; answered all the purposes of Elixir Proprietatis, Stoughton's drops, diet drinks, and mineral waters; was particularly to be recommended to seafaring persons, ladies, and men of studious and sedentary lives; could never be taken too long, but, on the contrary, produced advantages which sometimes did not begin to show themselves for two or three months."

"'From my representing tar water as good for so many things,' said Berkeley, 'some perhaps may conclude it is good for nothing. But charity obligeth me to say what I know, and what I think, however it may be taken. Men may censure and object as they please, but I appeal to time and experiment. Effects misimputed, cases wrong told, circumstances overlooked, perhaps, too, prejudices and partialities against truth, may for a time prevail and keep her at the bottom of her well, from whence nevertheless she emergeth sooner or later, and strikes the eyes of all who do not keep them shut.'"

The good bishop insisted particularly on its value in all fevers and, in connection with this, comes its use in influenza. The bishop says, "I have had all this confirmed by my own experience in the late sickly season of the year one thousand seven hundred and forty-one, having had twenty-five fevers in my own family cured by this medicinal water, drunk copiously."

Oliver Wendell Holmes concludes this portion of the essay with this very characteristic paragraph:

"Berkeley died at the age of about seventy; he might have lived longer, but his fatal illness was so sudden that there was not time enough to stir up a quart of the panacea. He was an illustrious man, but he held two very odd opinions: that tar water was everything, and that the whole material universe was nothing."

It is probable that tar water was less harmful than many of the other remedies so confidently recommended for influenza during the past two centuries. We have come round to recognize that the free use of water internally, especially cool water, is of great value. It is true that at one time, in the eighteenth century, they recommended very cold water, using melted snow for that purpose, and in large quantities, for febrile conditions, and this probably did harm. Unfortunately, in the midst of an epidemic at all times, with a great many ailing and a number of deaths, physicians are prone to feel that there must be something and they grasp at almost anything that is offered and forget that the most important rule for a physician must always be *non nocere*, to be sure to do no harm, and that is perhaps why Oliver Wendell Holmes ventured to

suggest that if all the drugs that mankind had ever used had been thrown into the sea, it would be ever so much better for mankind and ever so much worse for the fishes.

At the beginning of this essay, I quoted the expression "that therapeutics of any generation is always absurd to the second succeeding generation. Each generation, however, has been just as confident of its own therapeutics as the ages roll, as if there were no such rule of medical fallibility. In our generation, we would be very prone to believe that while of course the rule applied to the benighted generations who lived before our time, of course it could not be supposed to apply to our enlightened time. On the possibility of being very much suspected of disloyalty to our time, I might even venture to review what we have done in the therapeutic line in the epidemic now verging toward its close. The Public Health Service warned against the use of new remedies as yet untried and very frankly declared that none of them could be depended upon, though some of them, of course, had good authorities behind them. In default of the new, then, some physicians—indeed, I believe, a great many—I think at the suggestion of some health authorities, though I do not know just who they were, recurred to a very old method of treating influenza, used in the first part of the nineteenth century and earlier, namely the hot mustard foot bath and the mustard poulticing of the chest. I have had practically very little experience with the influenza during the epidemic, but I have seen some chests that are rather thoroughly blistered by mustard applications. I know of some cases where men were given very hot foot baths and then put to bed for a strenuous sweat three days in succession. In one of these cases, I feel sure that the patient did not have influenza at all, but only an ordinary bronchitis with a temperature of 101° or so, for he is and has been for years, subject to such bronchial colds in the changeable seasons, but the physician very confidently assured his family that his influenza had been aborted and pneumonia probably averted by these measures. I know of at least one tuberculous patient who was probably hurt by this mode of treatment and has a distinct setback in a rather favorable course of the affection, though I think that all that she suffered from was one of these slight exacerbations of her tuberculosis which occur whenever she is a little run down or disturbed for any reason, as she was by the occurrence of the influenza in some members of the family.

I wonder if there is any one who has any right to an opinion in the matter who thinks that applications to the external chest wall can influence in any material way the circulation in the lungs and above all, modify pathological conditions that are deeply seated, sometimes in a single lobe and sometimes only on the mucous membrane of the bronchial tubes? The mustard poultice is applied generously over the whole chest or at least over the anterior portion of both sides, and whatever change is induced in the circulation of the diseased lung must be supposed to occur in the healthy lung also. That organ is engaged bravely and faithfully, as a rule, in making up for the lack of function on the

other side. What is the effect of a mustard application on that? I am quite free to confess that I do not know, nor do I even know where to go to look for such information.

As for the hot mustard bath, I am not sure that I understand the rationale of that either. It is, I suppose, presumed to lessen the tendency of congestion in the lungs by bringing a great deal of blood down into the feet. The only trouble about that far reaching conclusion is, that the congestion of the lungs has already taken place as a rule, before the hot foot bath is applied. What effect, then, on the laboring heart, will the presence of two areas of congestion have? I am sorry to say that I can't answer that question either.

My only reason for discussing these negative details is that I fear that even before two generations have passed, some of our therapeutics of this latest epidemic of influenza will seem to be absurd. But then, perhaps, I am a pessimist. I hope not. And perhaps I am only writing so that some historian of medicine of the future generation may possibly be brought to know that some of us at this time had some doubt about the commonly accepted therapeutics and were waiting for the millennial period when our therapy will be scientific and not merely experimental.

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1. ALFRED MAGILL: *History, Causes, and Treatment of Typhus Fever.*
2. OLIVER WENDELL HOLMES: *Homeopathy and Kindred Delusions, Medical Essays*, Boston, 1861.

OFFICIAL PROVISION FOR THE TUBERCULOUS SOLDIER AND WHAT HE SHOULD KNOW ABOUT HIS DISEASE.

By S. ADOLPHUS KNOPF, M. D.,
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"The Federal Board of Vocational Education finds its largest and most difficult problems in rehabilitation those relating to tuberculosis. The cases of tuberculosis found compensable by the Bureau of War Risk Insurance have been about forty per cent. of the whole. The proportion has been fairly stable since the reports have begun to come in. It is important that every member of the Federal Board organization familiarize himself with the salient facts relating to this disease concerning which there is an enormous amount of misinformation."¹

The purpose of this present article is to be of help to the physicians and social workers within the Federal Board of Vocational Education and also those outside of it, in their dealings with the soldiers and sailors who have been discharged from service on account of tuberculosis, to give advice to the soldier and sailor himself, and finally to serve as a guide for his conduct so as to insure his own and

¹"Treatment and Training for the Tuberculous," by Dr. H. A. Pattison, in *The Vocational Summary*, published monthly by the Federal Board of Vocational Education, Vol. I, No. 10.

his family's future welfare. To impart this information in as practical and as brief a manner as possible we have put the subject matter in the form of questions and answers.

What is the Government doing to help the tuberculous soldier or sailor?

How far the different classes of soldiers or sailors, discharged in line of duty, are entitled

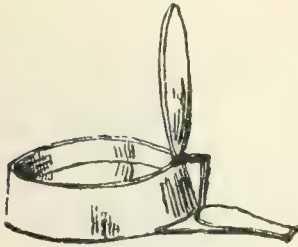


FIG. 1.



FIG. 2.

Metal floor cuspidor with large opening. It should be partly filled with wet sawdust. The cover is worked by foot. Fig. 1, open; Fig. 2, closed.

to compensation under the War Risk Insurance Law may best be learned from the following paragraph on tuberculosis taken from the American Red Cross pamphlet No. 210:

"Under a longstanding policy, continued in force during the first year of the present war, all men who, upon thorough medical examination and observation at the camps, were found to be suffering from tuberculosis were forthwith discharged from the Army. If the disease was diagnosed as acute tuberculosis or if chronic tuberculosis developed after the man had been three months in the service, it was accepted in effect that the Government was responsible and such soldiers were discharged 'in line of duty.' This meant that they were regarded as having incurred the disability by reason of their military service, just as if they had been wounded and were *prima facie* entitled to compensation under Article III. of the War Risk Insurance Law. If, on the other hand, the disease was discovered within three months after enlistment it was assumed that it had existed previous to entrance into the service and had escaped detection. In such cases, unless it was shown that some other disease or excessive fatigue or exposure since enlistment had reactivated tuberculosis, the discharge was 'not in line of duty,' and the War Department recognized no responsibility for the man's subsequent care and treatment. Under the operation of this policy almost 10,000 men were discharged from the Army from the beginning of the war up to June 1, 1918.

"In July, 1918, a complete change of policy, involving a more liberal view of the Government's responsibility, has gone into effect. In the first place, the Bureau of War Risk Insurance has ruled that it will take under consideration, even when a man has been discharged as 'not in line of duty,' any evidence that he may submit to show that a previous condition was aggravated by his military service, and that it will hold itself free to award compensation in such cases. In the second place, and more important, the recommendation of the Surgeon General, approved by the Secretary of War early in May, 1918, has resulted in postponing discharges on account of tuberculosis (as well as other causes of disability) until the men are cured or as nearly cured as the nature of the disability will permit. At the same time, General Order No. 47

of the War Department, issued May 11, 1918, ended for practical purposes the distinction as regards 'in line of duty' by providing that when a man is once accepted for service upon his physical examination at a military station, any subsequent determined disability shall be regarded as having been contracted in the line of duty 'unless such disability can be shown to be the result of his own carelessness, misconduct, or vicious habits, or unless the history of the case shows unmistakably that the disability existed prior to entrance into the service.' This means that men in whom tuberculosis developed in the service will ordinarily be sent to Army hospitals and kept, if possible, until the disease is arrested, certainly as long as they will stay."

In addition to the foregoing I copy an abstract from the report concerning tuberculous soldiers made to the executive committee of the National Tuberculosis Association by Mr. William H. Baldwin, the chairman of the Committee on Federal Legislation:

"The policy of the Surgeon General's Office as to keeping tuberculous soldiers in the army sanatoria until they have been adequately treated instead of discharging them is still being faithfully maintained, and there were in the eight sanatoria at the time of the last report 4,975 men under treatment with 512 beds then vacant.

"The enlargement of these sanatoria to a total of 8,214 beds is proceeding rapidly and it is the judgment of those in charge in the Surgeon General's Office that this will be adequate to take care of all tuberculous soldiers found who need treatment. It is stated that only 500 tuberculous men in the overseas forces who are to come back are known of at the present time.

"The physical reconstruction and vocational education of the men in these sanatoria is proceeding under the charge of the Reconstruction Division of the Surgeon General's Office, which has ninety-two male instructors and seventy-nine occupational aids at work, teaching a variety of subjects in the different sanatoria ranging from three or four to ten or more. Accommodations for instruction are inadequate in some of the sanatoria, but they are being remedied.

"A change has been made in the instructions as to allowing tuberculous soldiers to be discharged by which the surgeon in charge is permitted to let them go before treatment is finished providing they or

their relatives are able to furnish adequate care and treatment and promise to do so."

"I. Aside from the provision for compensation which has been made by the government, a law has been passed which in many respects is more advanced than that of any other country in provid-



FIG. 3.—Pocket sputum cup.

ing for the rehabilitation of disabled soldiers and sailors.

"2. The Federal Board for Vocational Education is clothed with authority to offer advisement, training, placement, and followup care for discharged soldiers and sailors who are compensable under the War Risk Insurance Act. The Bureau of War Risk Insurance provides sanatorium care and treatment for discharged tuberculous



FIG. 4.

Sanitary cardboard pocket sputum cups.



FIG. 5.

soldiers and sailors. Many of these cases do not require training for a new occupation and can safely return to their former vocations. In fact, it is everywhere conceded by tuberculosis experts that it is better for men to return to their former occupations unless there are special hazards such as excessive dust, gases, fumes, and poison or work requiring excessive muscular effort. For those cases that need retraining, however, the federal board will provide training for the occupation which appeals to the soldier and appears suited to his needs. The board also will assist the soldier or sailor in securing a job, and through its followup service will safeguard his interests.

"3. Further information concerning the work of the federal board can be secured from any one of its district offices, which are located as follows:

- District No. 1, 433 Tremont Building, Boston, Mass.
- District No. 2, Room 711, 280 Broadway, New York.
- District No. 3, 1000 Pennsylvania Square Building, 1416 South Pennsylvania Square, Philadelphia.
- District No. 4, 606 F Street N. W., Washington, D. C.
- District No. 5, 823 Forsyth Building, Atlanta, Ga.
- District No. 6, 822 Maison Blanche Annex, New Orleans.
- District No. 7, 1212-14 Mercantile Library Building, Cincinnati, Ohio.
- District No. 8, 1600 Westminster Building, 110 South Dearborn Street, Chicago.
- District No. 9, 815-824 Chemical Building, St. Louis, Mo.
- District No. 10, 742 Metropolitan Bank Building, Minneapolis, Minn.
- District No. 11, 317 Exchange Building, Denver, Col.
- District No. 12, 997 Monadnock Building, San Francisco, Cal.
- District No. 13, 539 Central Building, Seattle, Wash.
- District No. 14, 810 Western Indemnity Building, 1000 Main Street, Dallas, Tex."

If the physicians or social workers are in need of additional information concerning the status of soldiers and sailors discharged and men rejected from service on account of tuberculosis, they may

apply to the American Red Cross Department of Civilian Relief, the Bureau of War Risk Insurance, the Federal Board for Vocational Education, or the Office of the Surgeon General of the United States Army, all located in Washington, D. C., and also to the National Tuberculosis Association, 381 Fourth avenue, New York city.

What is tuberculosis, particularly the most common type known as pulmonary tuberculosis, or consumption?

It is the most prevalent of all diseases and is chronic, infectious, communicable, preventable, and curable. All these terms are selfexplanatory, except perhaps the word communicable, which I prefer to the word "contagious." To illustrate the difference between the words "communicable" and "contagious," let us take the two diseases smallpox and consumption as examples. Smallpox is a highly contagious disease, the word contagious coming from the Latin *contingere*, to touch. No matter how clean or conscientious the smallpox patient may be, no matter how well conducted the smallpox hospital, it is most dangerous to touch the smallpox patient, and it is most unsafe to visit a smallpox hospital unless you have been vaccinated or revaccinated recently. On the other hand, the honest and conscientious tuberculous patient, who takes care of his expectoration in the manner which will be described later on, can be associated with and touched without any danger of contracting the disease. The sanatorium or tuberculosis hospital, where all precautions concerning the proper disposal of infectious

spittle or expectoration are religiously observed and the patients taught to be conscientious, is the safest place not to contract consumption.

What is the direct cause of tuberculosis?



FIG. 6.—Showing movement of shoulders in deep breathing exercises.

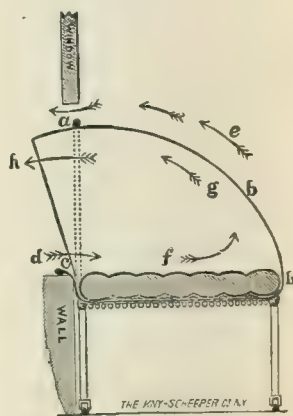


FIG. 7.—Diagram showing ventilation of window of tent.

The direct cause of tuberculosis, or consumption, is always the bacillus of tuberculosis, which is a microscopic organism found in the affected part of the body. Pulmonary tuberculosis, or tuberculosis of the lung, is the type of tuberculosis most fre-

quently found and the type with which the majority of our tuberculous soldiers are afflicted; but all other organs of the body (bones, intestines, etc.) can become affected by tuberculosis.

Tuberculous disease is locally characterized by

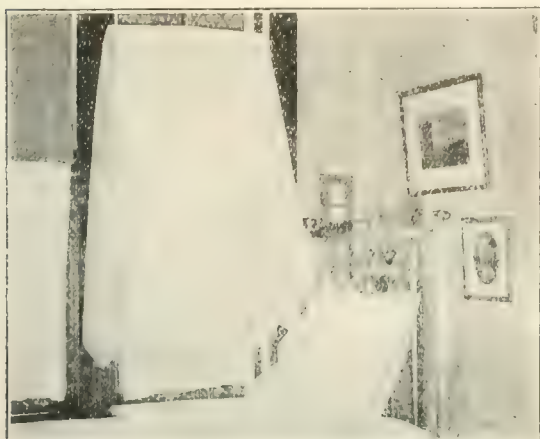


FIG. 8.—Window tent raised when not in use.

countless tubercles, that is to say, small rounded bodies, visible to the naked eye. The bacilli, lodged in these tubercles, of which they cause the formation, are parasites belonging to the lowest scale of vegetable life and must be considered as the specific cause of all tuberculous diseases. This parasite, so small that it can only be seen with the aid of a powerful microscope, not only gradually destroys the lung substance through ulcerative processes, but at the same time gives off certain poisonous substances called toxins, which cause various, and often serious, symptoms. In the secretions or expectorations coming from an affected lung millions of bacilli can often be found.

What are the early symptoms of pulmonary tuberculosis which can be recognized by the layman?

The important earlier symptoms of pulmonary tuberculosis are long continued cough with or without expectoration or hoarseness, loss of flesh, flushes or pallor in the face, feverish sensation in the afternoon, occasional night sweats, chilly sensation in the morning, loss of appetite, sometimes a little streak of blood in the expectoration, loss of strength manifesting itself in easy tiring, frequent colds, a perceptible quickening of the heartbeats after slight exertion, a little change in disposition such as an increased irritability or a feeling of depression, a disinclination to pursue certain kinds of work which used to be agreeable, or even a distaste for pleasures which were formerly enjoyed.

The knowledge of the early symptoms of tuberculosis may enable the one time tuberculous soldier or sailor to save many lives on returning to civil life, not only in his own family but among his fellow workers, neighbors, and friends. Of course he should not frighten any one by making an immediate diagnosis of tuberculosis on discovering any of these symptoms. Some of them may be present, and on examination no tuberculosis may be found. It is then all the better for the patient; but when some of these symptoms are present, or persist at

all, they should be considered a warning sign. In such a case it is always best to consult a physician. It cannot be said too often that the earlier the tuberculous patient submits himself to proper treatment, the greater are his chances for recovery.

Other types of tuberculosis, such as tuberculosis of the glands, bones or joints, are more frequently observed in children than in adults. The local symptoms of these forms are swelling of the neck and other glands, lameness of the joints, and localized pains; the general symptoms are paleness, frequent catarrhs, and easy tiring.

One more point regarding early symptoms of tuberculosis in adults as well as in children must be mentioned, namely that cough is not, as is often considered by laymen, an ever present symptom in early tuberculosis. It may be entirely absent in the beginning.

What are the methods whereby tuberculosis is communicated from one human being to another, or from animal to man?

The three methods by which the germ may enter the human system are by inhalation, ingestion, and inoculation. The tuberculous sputum, when dried and pulverized and mingled with the dust of the air, may be inhaled. Tuberculous meat and milk taken as food is prone to produce tuberculosis, particularly in children. Inoculation may take place when an open wound or abrasion of the skin comes in contact with tuberculous substance.

How can these methods be prevented and the germs destroyed?

The main method of contracting tuberculosis is by inhalation. Whoever coughs and expectorates, whether it be in living rooms, work rooms, or public assembly rooms, barracks, armories, or other confined places, should endeavor not to deposit the sputum where it has a chance to dry up. Prolonged exposure to direct sunlight will render it harmless. When one coughs let him always hold his hand or handkerchief before his mouth. He will thereby avoid inhalation infection and also spray infection or droplet infection, if he should happen to be afflicted with tuberculosis, influenza, or even an



FIG. 9.—Window tent in use, with the patient in bed looking through the celluloid window into the room but breathing outdoor air only.

ordinary cold. By droplet infection is understood that manner of conveying the disease by the spray of small particles (droplets) of infectious saliva during the so-called dry cough or when sneezing, and in some individuals during excited speaking.

When in ordinary places of human habitation, public halls, theatres, barracks, tents, armories, in workshops, living rooms, or sleeping rooms, whether one expectorates only because of a simple cold, influenza, measles, or whooping cough, he should never do so on the floor or anywhere but in some kind of receptacle where he is sure the contents can not dry and become pulverized. When a receptacle, such as a spittoon placed on the floor (Figs. 1 and 2), is used it should be covered so that flies cannot have access to it and carry the germs of the disease on to food or whatever they may alight on. Spittle from pocket spittoons (Figs. 3, 4, and 5), or fixed spittoons (Figs. 1 and 2), should either be poured into the watercloset or rendered harmless by some antiseptic fluid (five per cent. carbolic acid solution). Pieces of cloth used to receive sputum should be burned and paper spitcups with their contents should be disposed of in the same way. It must be remembered that even the germs of ordinary colds may prove quite serious, particularly when inhaled by one whose general health has been undermined by

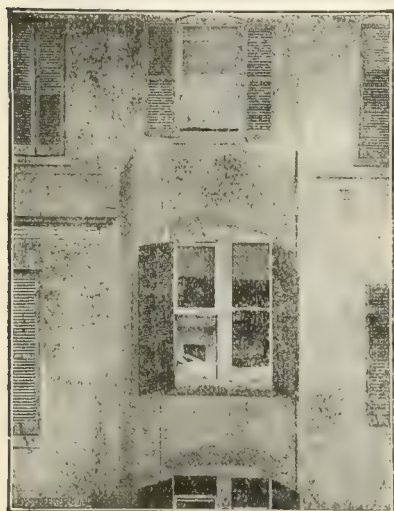


FIG. 10.—View of window tent and patient taken from outside.

fatigue, privation of sleep, want of food, etc. These precautions with the expectoration should be especially adhered to where there are children, who, by the way, should never be kissed on the mouth. For infectious respiratory diseases may be conveyed through kissing.

Against the danger from tuberculous food

in the form of infected milk or meat, sterilizing or boiling the milk and thoroughly cooking or boiling the meat, suffice for all practical purposes. It is also well to form the habit of washing the hands before touching food whenever this is possible. To protect oneself against tuberculous inoculation from any skin wound or scratch it is best to let the wound bleed freely so as to wash away infectious substances and then use a clean piece of cheesecloth or muslin, steeped in hot water, alcohol, or some antiseptic solution, if such is at hand, and tie up the wound until surgical aid can be obtained.

What protects the healthy individual against contracting tuberculosis?

It should be known to all those who fear to contract tuberculosis because they have been in contact with a tuberculous patient and believe they have inhaled some bacilli, that a healthy individual need not fear to become tuberculous unless he is constantly exposed to the inhalation of the germs. In health, when the human system is in good condition, it is provided with many means of defense

against the accidental inhalation of bacilli. First of all, there is the mucous membrane of the nose, the secretions of which have what is known as bactericidal, that is to say, germ killing properties. In the nose a fine growth of hair offers a hindrance to the entrance of the coarser particles of dust, while the throat is lined with very fine hairlike bodies known as ciliae, which, by an upward waving motion, prevent the finer dust particles and germs from entering the deeper respiratory tract. Lastly, in the blood itself, the white blood corpuscles are active in destroying the bacteria. Similar powers are also ascribed to the secretions of the stomach. Besides these four sources of defense there exist probably in most of us in our circulatory system what is known as antibodies, which likewise counteract the invasion of tuberculosis germs. Thus, any one possessing average good health need not be afraid of becoming tuberculous even though he may from time to time come in contact with a patient who is not overcareful.

In order that tuberculosis may be contracted from the occasional inhalation of tuberculosis germs or even the ingestion of tuberculous food there must exist the conditions in which the tuberculosis germs can grow; in other words, the subject must be predisposed either by heredity or acquisition. This predisposition may be accounted for by the subject never having possessed or having lost the power of natural resistance to the germs. When an individual has never been robust and has never possessed the power of natural resistance to tuberculosis he has probably inherited this predisposition.

Because of the still very prevalent belief in hereditary tuberculosis and the idea that an individual once tuberculous should never marry because he would surely beget tuberculous children, it would seem particularly apropos to say a few words for the comfort and consolation, I may even say for the encouragement of the cured tuberculous soldier. If he leads a careful life and obeys the laws of health in general he can safely marry a healthy woman without fear of transmitting tuberculosis to the offspring. The children of such a union will not inherit tuberculosis, nor probably even a predisposition. What is often considered hereditary tuberculosis has been really the result of an early postnatal (after birth) infection, which may take place when a tuberculous mother is careless with her expectoration, kisses and carelessly coughs over the child, or by other close contact. Aside from such direct infection it is of course also possible that a tuberculous mother, even if she is careful not to infect her child, may have transmitted to it the so-called hereditary predisposition to tuberculosis, that is to say, a weakened system, which is more ready to become infected by tuberculosis from outside sources. Such cases are often mistakenly considered as direct tuberculous heredity.

However, for the comfort of those who may have a tuberculous parent let me say that when good care has been bestowed upon the child many such a boy or girl has grown up strong and remained well. We know that in this world war many a young man in our own and the allied armies, whose father or mother had been tuberculous, was found to be as

strong and vigorous as any. These young men entered the army, did their duty in camp or field, often performed deeds of valor requiring great physical strength, and they returned home stronger and healthier because of their military experience. Captain Georges Guynemer, who was strongly predisposed and perhaps even slightly tuberculous when he entered the French aviation corps, fought 800 battles and brought down seventy-four enemy airplanes, of which fifty-four are officially recorded, and thus he became the famous "ace of aces" before his death in action over the German lines.

Aside from heredity there are of course many ways in which a predisposition or loss of natural resistance, producing the ready soil for the growth of the tubercle bacillus, may be acquired. First of all, there are certain diseases which often leave the system in a weakened condition, among which are measles, whooping cough, typhus and typhoid fever, grippe, chronic bronchitis, pleurisy, pneumonia, and all venereal diseases. Privation, want of food, lack of air and sunlight, insufficient clothing, and the prolonged inhalation of irritating substances, as well as overfatigue and lack of sleep, may also render the system susceptible to tuberculosis. Excessive smoking, especially of cigarettes, when the smoke is inhaled, is apt to injure the respiratory system and make it more susceptible to disease, to weaken the action of the heart, impair the function of the nervous system, and lessen the general efficiency. One who has never smoked had better not acquire the habit. One of the greatest predisposing causes of tuberculosis is the excessive use and abuse of alcoholic drink. When the individual who is addicted to the use of strong alcoholic drink contracts tuberculosis the outlook for a cure is not nearly as favorable as in a man of temperate habits. Patients recovering from the above mentioned diseases should be particularly careful to avoid prolonged contact with tuberculous individuals.

What is a sanatorium and where are the Federal sanatoria located?

We use the word sanatorium in preference to the word sanitarium. The word sanatorium comes from the Latin *sanare*, to heal, and means a healing institution, and this name has been officially recognized by the United States Government to designate its institutions for tuberculous patients. The word sanitarium comes from the Latin *sanitas*, health, and is usually employed in English speaking countries to designate an institution for convalescent patients or an institution for the treatment of nervous and mental diseases.

A modern sanatorium must be situated in a healthful locality, preferably at a somewhat moderate altitude, where it is relatively free from dust and traffic. Only patients suffering from tuberculosis are received. The greatest care is exercised everywhere, in buildings and surroundings, to avoid the possible transmission of the disease to employees, visitors, or the neighbors of the institution, and equally great care is exercised to prevent a reinfection of the patients themselves. All the precautions which provide for the proper disposal and destruction of the infectious expectoration are carried out with the utmost rigor in the sanatorium.

A voluntary violation of rules, relating to the disposal of the expectoration, is followed by immediate dismissal of the offender.

The hygienic and preventive measures in these modern sanatoria are so thorough that it may be said one is in less danger of becoming infected with the germs of consumption there than anywhere else. It is of the rarest occurrence that any of the physicians, nurses, or employees in such an institution contract tuberculosis. It seems to us that this is a very good proof of how easily infection can be avoided when physician and patient work together to combat the tubercle bacillus, this great foe of mankind.

In localities where sanatoria for consumptives are situated, the mortality from consumption among the inhabitants of the respective villages has markedly decreased since the establishment of the institution. The splendid hygienic and preventive measures instituted in the sanatoria have been voluntarily or unconsciously imitated by the villagers, and as a result the mortality from pulmonary tuberculosis among the inhabitants has gradually decreased.

Our Federal Government has done and is doing its utmost to provide for all tuberculous soldiers and sailors in need of treatment. Thanks to the foresight of Surgeon General Gorgas and his successor, Surgeon General Ireland, eight sanatoria have already been established with a capacity for 8,000 patients. These institutions are located at New Haven, Conn.; Otisville, N. Y.; Markleton, Pa.; Azalea, N. C.; Waynesville, N. C.; Denver, Colo.; Fort Bayard, N. M.; and Prescott, Ariz. Under the direction of Surgeon General Braisted, of the Navy, an excellent institution for tuberculous sailors is in operation at Las Animas, Colo., and the United States Public Health Service operates an institution for several hundred patients at Fort Bayard, N. M. To provide for additional numbers of tuberculous soldiers and sailors whose disease is already diagnosed as tuberculous or may be on their return home, Surgeon General Blue, of the United States Public Health Service, is contemplating a chain of tuberculosis hospitals all over the country. The sum of \$7,000,000 has already been appropriated by Congress for that purpose. It is planned to erect the hospitals on Government property in the following cities: Boston, Mass.; Hill, Mass.; Chicago, Ill.; Cleveland, Ohio; Detroit, Mich.; Evansville, Ind.; Louisville, Ky.; Norfolk, Va.; New Orleans, La.; San Francisco, Cal.; Seattle, Wash.; St. Louis, Mo.; Wilmington, N. C.; Fort Slocum, Mo., (*Journal of the American Public Health Association*, February, 1919).

What is the modern method of treating tuberculosis?

Those who have passed through a Federal or private sanatorium will know all about this by personal experience, but those who may have remained in the sanatorium but a very short time, being discharged because their relatives were "able to furnish adequate care and treatment and promised to do so," or those who for one reason or another had no opportunity to receive institutional care and treatment, should never forget the following: Consumption is

not cured by quacks, by patent medicines, nostrums, or other secret remedies, but solely and exclusively by scientific and judicious use of fresh air, sunshine, water, abundant and good food (milk, eggs, meat, vegetables, fruit), and the help of certain medicinal substances when the just mentioned hygienic and dietetic means do not suffice in themselves to combat the disease.

The thorough and constant supervision of the pulmonary invalid, the immediate intervention when new symptoms manifest themselves or old ones become aggravated or do not disappear rapidly enough, the prescribing of proper food and drink, can only be done by the thoroughly trained physician. Not the most beautiful climate nor the most delightful resort can cure the consumptive patient if he is not wisely guided in his treatment. It is more important how the tuberculous invalid lives than where he lives.

Those former soldiers or sailors, not inmates of a sanatorium, who for financial or other reasons cannot avail themselves of the advice of a private physician, may receive information concerning the location of the nearest tuberculosis dispensary, hospital, or sanatorium, and where to apply for counsel and guidance, by writing to the National Tuberculosis Association, 381 Fourth Avenue, New York.

How can the tuberculous soldier or sailor prevent a relapse after the disease has been arrested?

The more natural, regular, and orderly a life the onetime tuberculous patient leads, the more certain will he be not to relapse, that is to say, to become tuberculous again. Sobriety, refraining absolutely from strong liquors and excesses of all kinds, are of primary importance. He should take his meals at regular times, keep his body clean, have a sufficient amount of sleep and recreation, and should avoid overfatigue. He should keep his bowels in good condition and drink plenty of good, pure water. He should also try to clean his teeth after each meal whenever this is possible. He should dress according to the season. In winter he should dress warmly, wearing tightly woven rather than too heavy garments which would hinder his movements or cause him to perspire easily. What the onetime tuberculous patient should be particularly careful about is to avoid becoming chilled. In this connection I would like to call attention to the rather foolish way men dress in general. We wear double breasted overcoats, a double breasted sack coat, and even a double breasted vest, while the covering of the back consists of the thin lining of the vest and the two single layers of covering furnished by coat and overcoat. The layers of cloth and lining of the military field uniform are not quite so foolishly distributed, inasmuch as instead of the vest a woolen shirt is worn and the coat is single breasted. Only the overcoat is double breasted. The muscular and bony layers protecting our lungs in the back are not any thicker, if as thick, as those of the anterior portion of the chest. In most animals, and particularly the fur bearing animals, the hair on the back is much longer and thicker than on the breast. When a man contracts a chill, he usually feels the chilly sensation first in the back, and yet it is there that our civilian gar-

ments offer the least protection. If the man in civil life wishes to guard himself against being chilled in the back, let him have his vest lined by a layer of woolen material in the back. To be able to wear the vest in warm weather the lining could be made removable and attached by snappers or buttons. I have recommended this extra lining of the vest to many of my patients and they assure me that it has been a great comfort to them in cold weather.

What the former tuberculous invalid has to fear most is frequent colds caused by a lowered resistance to microbic infections of his respiratory system. In some institutions for the cure of the tuberculous the physicians teach their patients the use of cold water, such as an ablution or bath so as to heighten their resistance and make them less susceptible to colds. There are some institutions, however, where little is thought of this valuable aid in the rehabilitation of the one time tuberculous patient. I believe there is nothing which will help to overcome a susceptibility to so called colds and to atmospheric changes so much as the judicious, regular and careful application of cold water. But supposing the individual has never used cold water on his body, what is the best way to train him to it so as to be sure of reaction, that is to say, so that he feels warm and comfortable after the bath? What is the simplest apparatus necessary to apply the cold water?

The most important precaution in such a case is to see that the individual does not get chilled. As a beginning, cold water application should be made in the form of an ablution, either in the morning when the patient arises from his bed or in the evening after he has been in bed for about ten to fifteen minutes and has become thoroughly warm. If necessary, the bed can be warmed with the aid of a hot water bag which may remain at the feet of the patient. It is also well to have the arrangement for the application of cold water as near the bed as possible. It is very practical to use a circular English bathtub, about three feet in diameter and ten inches high. Place this near the bed and pour into it about five inches of warm water at a temperature of about 105° F. The second part of this simple hydrotherapeutic arrangement consists of a wash basin full of cold water and a large sponge. The temperature of the cold water can vary from 85° to 40° F.; 40° to 45° is usually the temperature of the water coming out of the faucet. It is best to begin with the cold water at a temperature of 85° and then go down gradually 5° every four or five days until a temperature of 45° is reached and borne comfortably. It is always well to have the windows closed and the room warm while the patient is taking his cold water application.

If there is a bathroom immediately adjoining the bedroom of the patient, of course it is not necessary to have a portable tub for the hot water; nor is there any need of the wash basin for the cold water if the fixed wash basin, usually found in modern bathrooms, is convenient for the patient or attendant to reach to make the cold water application, while the patient is standing in about five inches of

water at the desired temperature in the tub. The one essential thing in the entire arrangement is to have the time between the drying of the patient and his return to the warm bed as short as possible, so as not to expose him to the danger of getting chilled. If, in spite of all precautions, the patient should fail to react, the cold baths must be discontinued.

The ablution is applied in the following way: The patient stands in the warm water and at the beginning the orderly in attendance, and later on the patient himself, takes a sponge soaked in the cold water and squeezes it out first over the back of the neck, then in front over his throat, then over the left shoulder, then over the right, so that the entire body has been bathed with cold water. The patient then dries himself quickly, not necessarily very thoroughly, with the aid of a large rough towel and returns immediately to the bed. Under the warm cover he will feel warm and the little moisture left on his body will soon dry. In this way, reaction is assured and the patient rarely fails to feel comfortable and enjoys the cold water application. If the head should get wet accidentally, he should dry it thoroughly. This is a precaution every one should take whenever the head is washed. Later on when the system has become accustomed to the water used in this way, the individual can safely resort to the application of a needle or shower bath, or can take a dip into the water as cold as it comes out of the faucet, providing he reacts favorably.

Another method of strengthening the system and preventing relapses in one time tuberculous individuals is the practice of breathing exercises. No matter what occupation the recovered invalid has taken up after his discharge from service, he should seek for an opportunity as often as possible during the day to take a few deep breaths in the fresh air, and of course he should do this whenever he is out of doors and on his way to and from work.

The simplest of the breathing exercises is to inhale deeply, raising his shoulders during the act of inhalation, moving them backward and remaining in that position, retaining the air for about five or six seconds, then exhale a trifle more quickly while moving the shoulders forward and downward. The accompanying illustration (Fig. 6) will help to explain this exercise. Repeat this exercise six to eight times and, if convenient, repeat it every half hour or hour. Breathing exercises, valuable as they are, should however not be undertaken by the tuberculous without permission from and under the direction of a physician.

How should the one time tuberculous soldier or sailor decide on an occupation after being cured, and what should be his mode of life at home?

By applying to the Federal Board of Vocational Education he will receive advice concerning what particular occupation he may take up with reasonable assurance of no relapse following at least for a while until a subsequent examination can determine whether or not the choice was an absolutely correct one. To this end, a follow up service will be at the disposal of the former tuberculous invalid, which can be had by applying to any of the many local antituberculosis agencies throughout the United

States, such as local tuberculosis sanatoria, hospitals or dispensaries, antituberculosis associations, public health nurses, Red Cross home service workers, or the visiting nurses' associations. If none of these agencies seem to be available, he should address himself directly to the National Tuberculosis Association, 381 Fourth Avenue, New York.

In his home the one time tuberculous patient should, as far as practicable, continue the sanatorium régime. He should be as hopeful and cheerful as possible and show a cheerful attitude to others. He should not worry about the fact that he has been tuberculous, for thousands of others have been tuberculous, have recovered, remained well, and lived a useful life to a good old age. When indoors at home he should remain in the sunniest and best ventilated room and should never sleep nor stay in a hot room. Sixty-five degrees is a temperature in which one can be perfectly comfortable. If he cannot sleep out of doors, that is to say, on a veranda or covered roof, which is rarely feasible in a city, he may move his bed near the window, which he should keep open all night.

That the room may not be too cold in cold weather and to secure outdoor air and still be indoors, I have devised a simple window tent for tuberculous patients who live in the city and have no porch or piazza to sleep on. This indoor window tent consists of an awning, which, instead of being placed outside of the window, is attached on the inside of the room. It is so constructed that the air from the room cannot enter or mix with the air in the tent. The patient lying in the bed, which is placed parallel with the window, has his head and shoulders resting in the tent (Fig. 7). By following the description (Figs. 8, 9, 10) closely, it will be seen that the ventilation is as nearly perfect as can be produced with so simple a device. The tent is attached to the frame of an American window, but it does not quite fill the lower half. A space of about three inches is left for the escape of the warm air in the room. By lowering the window, this space can be reduced to one inch or less, according to need. On extremely cold and windy nights there need not be left any open space at all above the tent frame. The patient's breath will rise to the top of the tent, the form of which aids in the ventilation. The tent is constructed of a series of four frames, made of Bessemer rod suitably formed and finished with hinged terminals; the hinges operate on a stout pin at each end with suitable circular washers interposed to insure independent and easy action in folding the tent. The frame is covered with extra thick yacht sail twill, properly fitted, and having elongated ends to admit of their being tucked in under and around the bedding to prevent the cold air from entering the room.

A piece of transparent celluloid is placed in the front of the tent to serve as an observation window for a nurse or members of the family to watch the patient if this is necessary. It also serves to make the patient feel less outdoors and more in contact with his family, as he can, if he desires to, see what is going on in the room. If the bed must be placed at a right angle to the window, the observation glass can be put in on either side. It

goes without saying that, as a rule, patients should not smoke; when, in exceptional cases, this can be allowed, the danger of the celluloid window becoming ignited must be impressed upon them and the proper caution urged. I prefer celluloid to glass because there is no danger of its breaking when the tent is raised or lowered.

If it is necessary to raise the bed to the height of the window sill, this can be done with little expense. If the bed is of iron, a few additional inches of iron piping can be attached to the legs by any plumber or one handy with tools; raising a wooden bed can be accomplished with equal facility.

Of course, in the case of the cured tuberculous soldier the window tent will only be needed during the night. The tent can be pulled up and the bed moved away from the window during the day, and the window closed; or the tent can be taken from the hooks and put out of the way. The window tent is of greatest service in winter; in warm weather when all windows can be opened the tent will hardly be necessary.

Any soldier or sailor discharged from service on account of tuberculosis, by applying to the National Tuberculosis Association, 381 Fourth Avenue, New York, will receive free of charge a pamphlet giving instructions with numerous illustrations how to arrange cheap and practical outdoor sleeping devices, which he may be able to construct himself.

Whatever calling, trade, or profession the onetime tuberculous soldier or sailor may follow in civil life, it is well for him to obey the laws of health, not only in regard to his personal hygiene, of which we have already spoken, and the hygiene of his family, but also, as far as it is in his power, the hygiene of his workshop, factory, or office. What he himself has learned and what he is practicing regarding cleanliness, regular life, love for fresh air, use of cold water, he should try to make those with whom he comes in contact practise as well.

Another wise practice is to have an annual or semiannual examination by his family physician to ascertain the condition of his health and the health of his family. This may mean the timely discovery of an insidious disease and the saving of many valuable lives. In his dealing with the outer world, and particularly with his fellow workers in shop, factory, or office, let the onetime tuberculous soldier or sailor consider himself an apostle of health.

All that was learned in military life of precision, neatness, sobriety, and devotion to high ideals, must be carried into civil life. The knowledge of the prevention of disease and the danger from promiscuous spitting and sneezing, the value of a regular, hopeful, cheerful, and Godfearing life, will make the onetime tuberculous soldier or sailor not only a model citizen but a great asset to the community. He will serve his country in time of peace as well and bravely as he did when he answered the call of duty to defend his country against an insolent, cruel, and overbearing enemy whose defeat has brought back the time of peace and good-will on earth.

16 WEST NINETY-FIFTH STREET.

NONSPECIFIC HEMOPROTEIN ANTIGEN FOR THE TREATMENT OF ARTHRITIS.

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AND

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The present note concerns the use of protein for the treatment of acute and chronic arthritis. The results of the treatment are very good indeed, and indicate that we have a valuable remedy for this malady. The protein used was prepared by Brooks (1) for the purpose of combating streptococcus infections. It is a protein prepared from ox-blood fibrin by peptic and hydrochloric acid digestion, the products of this digestion being fractionated by precipitation with ammonium sulphate, the first fractions being rejected and the lower ones used. The protein is prepared in a dry state and kept in hermetically sealed glass ampoules. These ampoules are sterilized by heat. When used, the dry sterile powdered protein is dissolved in sterile 0.9 per cent. sodium chloride solution and used at once by intravenous injection with aseptic technic. In some cases intramuscular injections were made.

It has been noted that old rheumatic cases have cleared up after injections of typhoid serum (2). Nonspecific protein treatment of other diseases has been more or less successful (3). These matters and the literature may not be discussed fully in the present note. One disadvantage of the typhoid serum treatment is that it often brings on a rather violent reaction with rigors and high fever, depression and other distressing and even alarming and dangerous symptoms. In the use of our protein no unpleasant reaction has been observed at any time. At first we were inclined to doubt the efficacy of the protein because there was no reaction; but it seems that this depressing phase of the process is not an essential feature of antigen action. We have also found that it must be used immediately after dissolving it in salt solution, for in those instances where there was a delay of an hour or more after dissolving the protein in the salt solution before the injection was made, the protein produced no beneficial effects and sometimes produced a slight inflammatory reaction at the point of injection when the injection was made intramuscularly. This was never found to occur where the protein was injected promptly after solution. We believe that the intravenous method is the logical method to use. There seems to be no danger from its use. A large number of tests on animals in various doses showed no untoward results whatever. Afterward it was used on patients with similar results. However, many patients object to intravenous medication, but will readily agree to intramuscular injections. In such cases we used double and triple or even quadruple the intravenous dose. It seems from the results that the practical results are about the same. However, there might be some cases encountered which would respond favorably to the intravenous treatment, but would not to the intramuscular treatment, though we have not yet found this to be the case. Further-

more, the matter of dosage does not seem to be very definite. Anywhere from ten to sixty milligrams seems to do equally well. We use ordinarily twenty or twenty-five milligrams intravenously and about thirty or forty or more intramuscularly.

Below is a series of condensed protocols of cases in which the protein has been used. These cases are not selected, but are given serially just as they were encountered in private practice by Stanton.

CASE I.—Mrs. K., aged forty-one, does her housework and is employed at a soda fountain; complains of rheumatism in hands and feet; gives a history of having had frequent sore throats since childhood; has had pains in joints for past two years; pain has been very distressing with some loss of function for four months; no menstrual disturbances; constipated; no disturbance of the urinary tract.

Physical examination shows a woman of robust appearance; joints of fingers slightly enlarged and tender; teeth in good repair; tonsils hypertrophied and crypts are filled with caseous deposit; nasal cavities show septum deviated to the left and slightly hypertrophied left turbinate; larynx clear; thyroid palpable but not large; lungs show no abnormalities; heart irregular but has no murmurs; abdomen and pelvis negative; joints of left knee and ankle swollen and tender. Both wrists and hands slightly red, swollen and tender. The elbows tender but not swollen. Pain on active and passive motion of afflicted parts. Present trouble began four months ago. Blood count shows hemoglobin eighty-five per cent.; leucocytes 8,000. Urine, no albumen, no sugar. Specific gravity 1028. Blood pressure 130; temperature 99.4; pulse 80.

Treatment.—An injection of twelve mg. of the protein dissolved in ten minims of sterile .9 per cent. saline solution was given intramuscularly. Second day patient reports that pain disappeared in three hours after injection; that there had been no return of this pain and that she had noted no reaction or fever. Examination showed that the soreness and swelling had disappeared. There had been slight recurrences during the following six months when she had been at work at the soda fountain. This patient had been under treatment with sodium salicylate and stock vaccine for three months previous to the injection of the protein, but with very slight benefit.

CASE II.—Mr. W. S. C., aged twenty-six; salesman; had been under treatment for seven months suffering from advanced pulmonary tuberculosis, which involved both lungs. Was called to his home on the 24th of July and found him suffering from acute arthritis in the left wrist; temperature 103, pulse 98. He had been unable to sit up for three weeks.

Treatment.—Gave the patient intravenous injection of twelve milligrams of the protein dissolved in sterile .9 per cent. saline. Twelve hours later the pain had disappeared and in twenty-four hours the soreness and swelling had practically gone. Three days later the patient had no remaining signs of arthritis, but still carried a temperature of 102, pulse 96, which was doubtless due to pulmonary tuberculosis. Patient died about six months later. Due to absence from the city, was unable to follow

this patient up to the time of his death, but his wife states that the patient had no return of the arthritis.

CASE III.—Mrs. G. W., aged seventy-four; admitted July 23d complaining of severe pain and tenderness in the right knee. The patient gave a history of having had several attacks of tonsillitis earlier in life. She has been subject to rheumatism for the past ten years. Present symptoms appeared suddenly; there was no fever; blood count normal, bowels regular, no urinary symptoms, urine negative as to albumin and sugar. Specific gravity 1.022, blood pressure 180; marked arcus senilis. Heart gives slight diastolic mitral murmur. Patient was given twelve mg. secondary proteose dissolved in normal saline intramuscularly. This was followed by no rise in temperature nor any other reaction. Pain and tenderness in the knee were not relieved in any degree. This injection of secondary proteose was repeated two days later with no beneficial results. She refused intravenous injection, x ray and hospital treatment. From September 15th to January 1st this patient was treated by a chiropractor. She stated later she had received no benefit from his treatment, but that the symptoms had gradually subsided. She was seen again in May, 1918, at which time she was suffering from lumbago and had not been able to walk without crutches since she was seen the previous July. Injected twenty mg. secondary proteose dissolved in normal saline into the lumbar muscles. This gave practically no relief. Since that date the patient has been treated with sodium salicylate and eliminants. The results have been very unsatisfactory. This is probably a case of myositis instead of a pure arthritis. In such cases the protein has not been beneficial.

CASE IV.—Miss A. C., aged thirty-six; came into the office January 19, 1918, complaining of a severe pain over the lower cervical vertebral region. There was slightly limited motion of head due to pain. Patient had been suffering for several years from incipient pulmonary tuberculosis. X rays of the neck showed no lesion of the bony structures. There was slight tenderness to palpation over the right side of the three lower cervical vertebrae. Blood count showed 6,000 leucocytes, urine negative, blood pressure 100, average afternoon temperature 98.8, pulse 78. On January 26th she was given an injection of twelve mg. of secondary proteose. The following day the blood pressure was 110, leucocytes 6,300 and there was marked improvement in the neck symptoms. These injections were repeated at three day intervals until ten injections of ten mg. each had been given intramuscularly. The symptoms in the neck had entirely disappeared and there has been no recurrence. No ill effects or unpleasant reactions were noted.

CASE V.—Mr. W. L. C., on March 10th, complained of pain and swelling in the left foot. He has had similar attacks during the past three years. He gives a history of having had frequent attacks of tonsillitis, which were usually followed by rheumatism in varying degrees of severity. In this case there is no history of a sprain, the pain and soreness having appeared the day before. Physical ex-

amination shows a healthy looking young man, teeth well kept, tonsils hypertrophied; no glandular enlargement in the neck; left foot and ankle swollen, tender and caused pain upon active and passive motion. Temperature 98.8, pulse 80, bowels moving freely, no evidence of gonorrheal infection. Injected twenty mg. secondary proteose dissolved in sterile saline solution intramuscularly. Twenty-four hours later the patient was much improved, but the parts were still tender. March 15th again injected twenty mg. nonspecific protein. Twelve hours after the injection there was a complete disappearance of the symptoms.

CASE VI.—Mrs. G. M. S., aged fifty-two, was seen at her residence on March 26th. She complained of rheumatism in hands, shoulders, and feet. About one month ago patient had recovered from an attack of typhoid fever. Present attack of rheumatism came on gradually during the past week. Suffering was so severe as to keep her from resting at night. There is swelling and tenderness of the parts; both active and passive motion cause pain. Patient has chronic hypertrophy of the tonsils and a slight mitral murmur and transmitted diastolic in time. Blood count 8,200 leucocytes; blood pressure 185; constipated; no urinary disturbance. On March 27th twenty mg. of the protein was injected intramuscularly. On March 29th twenty mg. of the protein again injected intramuscularly; this was followed by a slight improvement. April 2d twenty mg. secondary proteose injected intramuscularly; twenty-four hours later the symptoms had disappeared. Two months later there had been no recurrence.

CASE VII.—Mrs. S. B. N., aged fifty-nine, was examined February 17, 1918. She complained of rheumatism in shoulder and hand on the right side; has had tonsillitis several times during her life and has frequently had swelling of the feet and ankles during the past year. Examination shows slightly inflamed and cryptic tonsils; heart normal. Left shoulder stiff; right shoulder painful to active and passive motion. Blood count normal. Urine, trace of albumen; specific gravity 1.018. Patient was given six injections of the protein of twelve mg. each on every third day. This was followed by marked improvement. No recurrence.

CASE VIII.—Miss A. C., aged thirty. Complained of rheumatism in left ankle, profuse vaginal discharge; patient denies having had tonsillitis, sore throat, and also denies venereal disease. Physical examination shows nothing abnormal in throat; heart apparently normal; abdomen smooth, no striae; no diastasis; slight panniculus. Vaginal examination show a mass size of a lemon in left annexa. Smears taken from urethra show gonococci in great numbers. Left ankle swollen; active and passive motion cause slight pain. Was given an intramuscular injection of twenty mg. of the protein dissolved in sterile saline. Forty-eight hours later the pain and tenderness in the ankle had disappeared and there was marked disappearance in the pelvic tenderness. Patient seen three weeks later, reports that she has had no recurrence of the pain in ankle, and suffers no distress in the pelvis.

CASE IX.—Mrs. F. L. P., aged forty-nine, weight

250 pounds. Swelling in knees and ankles. Pain on active and passive motion. Quinsy September, 1917. Tonsillitis frequently. Painful knees for several years. Ankles have been swollen and painful for one month. No temperature; blood pressure 170. Given three injections of the protein of twenty mg. each at five days' intervals. Complete disappearance of symptoms in ankles. Knees not much improved.

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THE ROLE OF FOCAL INFECTIONS IN THE PSYCHOSES.*

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(Concluded from page 404.)

GROUP II.

In the next series of cases we can show that the infection in each case was of a mild character and the mental symptoms were correspondingly mild and should be classified as hypomanic. The patients recovered rapidly when the source of the infection was removed.

CASE V.—*History*.—C. J., a married man, aged forty-three, did not have any evidence of nervous heredity, and was without constitutional peculiarities. He was well educated and for many years had been cashier of a large bank and a trusted and respected citizen. He did not drink and was considered a conservative business man, and there was no conjugal disharmony as far as could be learned. His first attack occurred in February, 1915, and lasted until September. He spent three weeks at one time and two weeks later in a private hospital, and was able to continue his work, although he was continually depressed and constantly complaining of his physical condition. He improved and was quite normal until his second attack in February, 1916. He was very nervous and irritable and went South for three weeks. He was much depressed, but gradually became better. About the middle of March, 1917, his wife noticed a recurrence of his nervousness and irritability. He began to speculate and became expansive in his conversation and very extravagant in his expenditures, in fact, exhibited all the clinical features of an early paretic. He soon lost his position, as the bank recognized that he was mentally abnormal. His habits changed and he did many things which from his training as a banker he had consistently condemned, such as giving checks

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when he had no deposit in the bank, and he did not realize the seriousness of his conduct. He was egotistical and domineering in his family relations and would not listen to the counsel of his wife or his friends, of whom he had a large number. He had expansive ideas and talked of the big deals he was "about to pull off." Because his friends remonstrated with him he thought they were all against him and soon would not have anything to do with them. He was worse in the morning than at any other time, and spent a great deal of time away from his home and never gave any account of his trips. He would buy foolish and useless things, such as two major's uniforms, for which he had no possible use. He was very restless and constantly on the go. He would sleep but little and remained in his home but for a very short time. As soon as he came in and had his meals he was off again. He was able to control himself to some extent in the company of strangers, but was not tidy or particular about his personal appearance. He drank more than usual, but was never under the influence of alcohol. He was very profane and often obscene, which was contrary to his usual habit. He had a general feeling of well being and would not consult a physician as he felt perfectly well. I knew him personally for over a year and finally his wife induced him to take a trip to Camp Dix, ostensibly to see the camp, but in reality to have me look him over.

Examination and Treatment.—He talked as described and told how well he was, and it was with difficulty that I prevailed on him to submit to a blood examination and a lumbar puncture. His actions suggested paresis, but the physical examination revealed no signs of it. I argued with him in vain to come to Mercer Hospital and have his teeth radiographed, as I found that he had many capped teeth and considerable bridge work. He was pleasant to me but angry with his wife for her conspiracy in getting him to me, and for a month he would not hear of me. I saw him later in his home city and had to go to many places as he avoided me and would not keep an appointment made with his family physician. We finally found him and I induced him to go to a physician to have his teeth radiographed, and, when the pictures were found to show apical abscesses, he came to Mercer Hospital and had a dentist extract several teeth. He was still very restless and would remain in the hospital only long enough for the dental work and then left to attend to his "big deals." He came back later, a few days after the infected teeth were extracted, and was much quieter and more reasonable. Cultures from the alveolar abscesses gave pure Connellan-King, and this organism was found in the urine. There was also a mild nephritis which cleared up after giving the vaccine. He soon lost his restlessness, was perfectly willing to submit to treatment and spent two months in the hospital without complaint, which was quite a contrast to his attitude a short time before. We isolated the Connellan-King diplococcus from his tooth cavities and also found the same organism in his urine. He was given an autogenous vaccine of Connellan-King, and in this case I am of the opinion that the

vaccine had some value in clearing up the acute nephritis of a mild type. The cultures from the stool were negative.

Results.—The rapid disappearance of the manic symptoms, after the extraction of the teeth is noteworthy, as he was becoming worse and more difficult to manage, and his commitment to an insane hospital was seriously considered. He developed good insight into his conduct and willingly took advice as to his future movements and showed considerable remorse for his previous conduct. He became a little depressed later and a letter from his wife a few days ago stated that he was now about normal and anxious to get to work and support his family. The relation of the focal infection to the psychosis in this case cannot be questioned, as the immediate effect of eliminating the source of infection was a rapid clearing up of his manic symptoms, followed by a mild depressive reaction which is now disappearing. He is solicitous for his wife and has lost all his former irritability and perverse conduct.

CASE VI.—History.—The patient, V. C. L., was a married man, aged forty-nine, with two children. There is nothing of interest in his family history. He was a successful business man and no constitutional peculiarities were present in his case except a rather jovial disposition and an optimistic temperament, which was in no wise abnormal. He was the manager of a large business and his position was one of considerable responsibility. He had many friends and was ready to help any one that needed help. He was known personally to me for some years and I did not observe any marked peculiarities. He was a model husband and fond of his family. No conjugal disharmony is known of. His first attack occurred four years ago and was characterized by a mild exhilaration. He went to a private sanitarium and in a few weeks returned to his work. His wife states that since then he has been rather variable in his moods. In the summer he was inclined to be exhilarated, and in the winter months he was more or less depressed, but never to the extent that his efficiency was impaired. The present attack began in the summer of 1917. He became exhilarated, overbearing and extremely talkative, mainly along expansive lines. He was unable to attend to his business and was given a vacation for several months. He went to a private sanitarium, and from his extremely expansive ideas and the fact that his blood was positive to the Wassermann reaction a diagnosis of paresis was made and the family advised that he would never be well, but they were also advised to consult me for specific treatment. He resembled the case just cited and clinically had many features of paresis but no physical signs of that disease. The examination of the spinal fluid definitely ruled out paresis, much to the relief of the family. We also found a positive Wassermann reaction in the blood, but there was no history of syphilis and no evidence whatever of that disease. The positive Wassermann test can be explained only by the fact that in certain infectious conditions the Wassermann reaction is occasionally positive and may be misleading. I have seen this phenomenon in several cases and have treated such cases with intravenous injections of arsphenamine

(salvarsan), but without results. Of course, the teeth were radiographed and we were somewhat disappointed when no abscesses were discovered, but we will see later that we depended too much on the röntgen rays in this case. The feces were examined by Mr. Connellan and revealed evidences of a chronic infection. The following is a copy of his report:

Laboratory Report.—Feces examination: Color, dark brown. Odor, offensive. Appearance, mushy mass. Reaction, acid. Concretions, negative. Bile pigment, negative. Tests for hydrobilirubin, positive. Ampelopsin, present. Trypsin, present. Indol, plus XXXX. Skatol, plus XXX. Food residue: many large meat fibres showing no digestion. Starch, negative. Fats, negative. Other forms, small amount of vegetable residue. Blood: No red blood cells. Blood coloring matter, positive (plus XXXX). Pus, negative. Epithelium, occasional large flat. Crystals, negative. Mucus, few unstained masses. Ova, negative. Parasites, negative. Bacteria, almost totally gram positive. A pathological, unusual coccus was found.

Remarks.—The findings show a toxic stool with many large meat fibres, showing no proteid digestion, heavy blood coloring reactions and the bacteria almost totally gram positive. We found the Connellan-King diplococcus in the stool and urine, and at first we were inclined to pay very little attention to this, but from later experiences, we now believe that such findings are of some importance. When cultures are made from the stool and urine these organisms frequently occur.

Treatment.—Because of the highly acid stool the patient was given alkaline rectal injections and placed on an alkaline diet. He was also made to take a modified rest treatment somewhat against his will, and steadily improved. His intestinal infection cleared up rapidly, under daily irrigations of anhydrous sodium carbonate. His hypomanic symptoms disappeared, and he soon developed insight and worried about money, whereas formerly he gave no thought of these matters, but spent it extravagantly. He entered Mercer Hospital in November, 1917, and remained there three months, at first under protest, but after three weeks he was quiet and cooperated with the treatment. After leaving the hospital he spent several weeks in the country with his wife and was apparently in a normal mental condition. He soon resumed work and for some months appeared normal, but gradually became a little depressed. This was not so marked as in previous attacks, and he was perfectly able to attend to business. He did not care to go out evenings, but preferred to remain at home. He was reexamined several months later and a rather pronounced infection of the duodenum with the *Bacillus coli* was found, although the stomach was normal and free from infection. There was no evidence of any other infection.

Comment.—It is stated in the foregoing that the röntgenograms did not reveal any apical abscesses, but from our experience with other cases of this type we were convinced that the intestinal infection present in this case had its origin in the teeth, although the röntgenograms were not positive. About

three months after the patient left the hospital, and had been entirely normal mentally, we examined his teeth, and from the condition of the mucous membranes of his mouth and gums we decided that several molars should be extracted. When extracted these teeth were found to have eroded roots with large granulomas around the roots just below the crown, the cultures were positive for the Connellan-King diplococcus. He had recovered from his mental attack without the removal of the infection, but the probabilities are that had the infection remained it would only be a matter of time when he would have had a recurrence.

These two cases are so similar that one would expect a similar infection, which was the case, only in one the intestinal infection was worse than in the other. They were both treated in the general hospital without a nurse and very much against their wills, but the physical features of their disease were emphasized and not the mental features. And further, in both cases the condition was becoming progressively worse, so that confinement in an institution was considered as the next step. They reacted to treatment designed to remove the source of infection. The facts are here given and cannot be entirely disregarded even if our interpretation is not accepted.

CASE VII.—History.—The third case of this group is that of an Irish woman, single, of previous good mental health, and nothing extraordinary is found in her family history. She was the youngest of seven children and the other members of the family are normal and earning a good livelihood, but not of a very intellectual type. In the winter of 1916 the patient had an attack of pneumonia and was taken to St. Francis Hospital, where she made a good recovery. About a week after this attack of pneumonia and while convalescing, she suddenly developed a typical manic attack. She was in bed, with a nurse in attendance, and became exhilarated, laughing, talkative, with typical flight of ideas, rhyming and distractibility. There was marked psychomotor restlessness, but she would remain in bed when told to by the nurse. She talked continuously and her productions could not be interrupted. She refused to answer questions, but often showed that she heard them and gave willfully misleading answers in a playful manner. She would not recognize the physician, but made rhymes with his name. At no time was she delirious, but gave evidence that she was well oriented for place and persons, if not for time. The neurological examination was negative, and the blood and spinal fluid were normal. Lumbar puncture was made several times, as it was recognized that the case was a toxic one due to the toxemia of the pneumococcus. We adopted this method, as in children we had seen after pneumonia several cases of toxemia resembling meningitis clear up rapidly after such puncture. The case was extremely grave and for a time it looked as if she would have to be sent to the State Hospital, but in about two weeks she cleared up. Her manic symptoms were much more profound than in the other two cases in this group, as there was present more psychomotor restlessness, continual productiveness with irrelevancy and dis-

tractibility. We are not prepared to say that the lumbar punctures were the cause of her rapid recovery, as we know that the toxemia of pneumonia is rather transitory and disappears soon after the pneumococcus ceases to be effective. She recovered fully and since that time, over two years ago, she has been steadily employed.

These cases are of a mild type, but the manic symptoms were unmistakable and they promptly recovered when treated as toxic conditions. They may be called our pioneer cases and certainly pointed the way for our future consideration of this group as well as the more depressed types. Another case may be mentioned briefly as it added further evidence of the infectious nature of this group.

The case was one of a young woman with an acute manic condition following childbirth. She had definite symptoms of infection, rather high temperature, etc. A member of our staff, Dr. James P. Sands, on his own initiative, gave her several doses of antistreptococcic serum and she promptly recovered and left the hospital in a short time.

GROUP III.

In this group we have taken, as examples, types with a more profound psychosis of longer duration and much more resistant to treatment. The usual type is one of depression and we all know these types are apt to run a much longer course than the manic type, and tend to become chronic, especially in the later years of life.

CASE VIII.—History.—O. W., a single girl, aged twenty-five, had good mental endowment, although the family history is bad from one point of view. Her father committed suicide ten years before, although he was considered normal and a successful business man. Her mother was somewhat oversolicitous about the girl, her only child. She had been sheltered and treated as a child even at this late date, but apparently she did not resent this when normal. Her early life was uneventful. She was an exceptional student, learned easily and was much interested in her studies. She graduated from the normal school and in 1913 traveled abroad, spending the greater part of her time in Germany and learned German with the intention of teaching this language when she returned to America. Her mother accompanied her abroad. She was not a robust girl and was inclined to be anemic, and as her mother had had tuberculosis she necessarily was anxious in regard to her daughter. In the fall of 1915 she accepted a position in a school in the northern part of the State to teach German, and was very much elated and proud of the fact that she was about to realize her ambition. During the summer she had not been so well as usual and the doctor told her she had malaria, but it was a questionable diagnosis, as she had no chills, but some fever and malaise. She started to teach in October and did very well for a time, but she was kept very busy with her work and spent considerable time preparing the lessons after school hours and at night. She had a heavy cold or "grippe," and her temperature was never normal in the evening. At first she did well, but soon her mother noticed that she seemed to be under constant nervous tension. She found that she could not concentrate her mind

on her work and that the discipline was getting beyond her. She had to give up her work and two weeks later came to Trenton. She talked continually of her work and at first had mild self-accusatory ideas which became much more prominent later on. She realized that she was not right, claimed that she had lost her memory and all that she had learned. She had a very poor appetite and lost ten pounds in a very short time. She was extremely nervous and had frequent vomiting spells and other gastrointestinal symptoms. She had expressed ideas of suicide, but her mother had not taken them seriously. She was much depressed and thought that she was no more good in the world and for this reason she wanted to do away with herself and relieve her mother of the burden of caring for her. She was staying at a house in Trenton near the railroad, and her physician, Dr. William A. Clark, had made an appointment for a consultation with the writer for 10 o'clock. At 8 o'clock she slipped from the house, ran to the bridge, threw herself over and fell about twenty feet, landing on the track, and sustained serious bruises, but no injury. She was immediately taken to Mercer Hospital and I saw her a few hours later. She was very much confused and agitated. She had very pronounced ideas of selfaccusation and negation. She thought she was no more good, had lost her training, and was only a burden. She recovered from the effects of her fall, but her mental condition grew steadily worse and she had to be constantly watched to prevent her from committing suicide.

Examination.—Nothing was found in the physical examination except an extremely rapid pulse and a slight rise of temperature in the afternoon. She was much under weight and presented the appearance of a seriously sick person. She was admitted to the Mercer Hospital November 10, 1915, and remained there until April, 1916. Her blood was negative to the fixation tests, and the Abderhalden reaction was positive for the thymus gland. Treatment was instituted along the lines recommended by Doctor Ludlum, who saw her in consultation. She was given five grains of pituitary extract daily and daily readings of the blood pressure were made. She did not respond to this treatment and after a thorough trial it was discontinued. From the marked tachycardia and the slight rise of temperature I came to the conclusion that her condition could be better explained on the basis of an infectious process, although this was the first case in which I had come to any such conclusion. She was growing worse instead of better, and it looked like a possible chronic type. She had persistent nihilistic ideas and a feeling that she would never be any good and wanted to die, and only by the closest watching was she prevented from carrying out her suicidal desires.

Treatment and Results.—We began to give her colonic irrigations daily and cultures of the Bulgarian bacillus, as an examination of the feces showed evidence of intestinal intoxication and a streptococcus was isolated that belonged to the viridans group and was present in much larger amounts than normal. She was given an injection

of antistreptococcus serum and had a severe reaction, developing a rash that looked like the rash in serum disease, so it was not continued. After this eliminative treatment was given for some time she seemed to improve gradually and was able to leave the hospital in April, 1916, five months after admission. She went south the following winter and since a short time after leaving the hospital she has been entirely normal, and is living with her mother in perfect harmony and has had no return of her psychoses.

Comment.—I realize that this case may be criticized as not conforming to the rules that would definitely place it in the infectious group, and that the patient might have recovered, as so many do, without any treatment directed to the infection and its elimination. We realize that our methods at the time were very crude and inconclusive, and it was extremely difficult to establish the fact of the infection. Happily, we now are able to demonstrate the infection much more satisfactorily. Her teeth were not examined very carefully, and as caps existed we made the error of not having them radiographed.

CASE IX.—History.—J. H. was a married man of sixty years; he had no children. He was always healthy until six years ago. At that time he became depressed and agitated. He was sleepless and complained of a peculiar sensation in his head as if there were some extreme tension, and when these feelings came over him he would become very much agitated and restless, walking up and down the room. He was unable to concentrate on his work or attend to his business. He had some eye trouble diagnosed as glaucoma, and his condition became worse when he had these attacks. He spent some time in private sanatoriums and became worse instead of better. He was seen in the fall of 1916. At that time he was in a serious condition and had been unable to attend to his work for some months.

Examination.—A complete examination was made and from the laboratory examination it was found that he had a positive fixation test for the viridans in both the blood and spinal fluid. Röntgenographs of the teeth showed many apical abscesses and considerable pyorrhea. He objected to having his teeth extracted at first, as he could see no relation between his infected teeth and his mental condition. He finally consented and cultures made were found to be viridans. He had chronic constipation and we found the viridans in his stool. He did not improve at once and was somewhat annoyed that he had allowed his teeth to be extracted.

Treatment and Results.—A vaccine from the viridans was given him and he was very slow in responding. He soon began to sleep better and did not wake up at three and four o'clock and pace the floor as he had been doing. During the summer he was very little better and went to the seashore. He had some serious business troubles and these worried him considerably. The following fall he came out of his depression and rapidly improved. He lost the worried, careworn expression which had been habitual with him. He was very active, took renewed interest in his business and told everyone

how much he had improved. He is now attending to his business daily and is apparently normal.

Comment.—This case can be considered one in which the psychosis was directly connected with the infection of his teeth, which infection, as is usual in such cases, was of many years' duration and finally the toxemia invaded the nervous system, and to those familiar with the actions of toxins it does not stretch the imagination to assume that the psychosis was the result of the toxemia. There were no obvious psychogenic factors, no conjugal disharmony, and nothing in his constitution which would account for his psychosis.

CASE X.—History.—A. A. was a single woman, aged fifty-six at the time of her admission to the State Hospital in May, 1911; she had a negative family history and uneventful personal history, except an attack of scarlet fever with good recovery at the age of eight. She attended school when she was from six to nineteen years old, graduated second in her class and was considered a good student. Menstruation established at fourteen, and whether connected with this or her father's death, she had violent headaches which lasted two or three months, and also had headaches when at a private school. She worked at sewing for awhile and, after graduating, she taught school for three years. At the end of this period she broke off a friendship with a man in whom she was interested. This sudden change in attitude was a peculiarity of the patient's in her relation with other men. Soon after this her first attack developed. It was preceded by headaches and some stomach trouble. It was apparently an attack of hypomania and lasted from October, 1896, to January, 1897. She resumed teaching, and in 1900 she entered a training school for nurses, graduating in 1903. The following year she was operated on for appendicitis.

Her second attack occurred in August, 1904, and she had her recurrent headaches and was not well. The only psychogenic factor given as the probable cause was that her supplies in the hospital were cut down and she was very much annoyed. She was confused and depressed, and the psychosis lasted one month, after which time she returned to nursing and was successful until the third attack in August, 1908, at which time she had some difficulty with another nurse on a case, and following a near drowning accident she developed severe headaches and gastrointestinal disturbances, which were more severe during this attack and persisted throughout. She had marked physical disturbances during this attack and was in a mixed manic depressive state. She recovered, and in December, 1908, she resumed nursing. The probable etiological factor given was that the patient claimed that the family of the patient whom she was nursing had accused her of making love to him, but here again the profound physical condition is in evidence. The fourth attack occurred in November, 1909, after a good summer, but in the fall she was very irritable and faultfinding. Again there were headaches and stomach disturbances, and she would improve, but only for a short time. She was manic at first, but soon became depressed and stuporous and did not resume her work until October, 1910. On Novem-

ber 7th she again became tired, restless, and soon stuporous, and in this condition was sent to Bloomingdale. A very exhaustive study was made of her case and the history obtained from there is one of the best I have ever read. The personal traits do not show any abnormalities except frequent headaches, sometimes with exciting causes, and at other times not. She remained at Bloomingdale from November 15, 1910, until May 9, 1911, and during that time showed varied symptoms—stupor, manic excitement, and depression—and the diagnosis was "Allied to manic depressive insanity." She had rather long periods of delirium and made frequent attempts at suicide.

Examination.—She was admitted to the New Jersey State Hospital at Trenton, May 9, 1911. At the time of her admission it was extremely difficult to make an examination, because she would answer only a few of the questions asked and usually in a low, sad tone, and in a careless and indifferent manner. Spontaneous speech was limited to a few disconnected sentences. She had a sad, dreamy expression, but appeared to observe what went on about her. She would not eat and had to be spoon-fed. Stream of thought could not be obtained. She was depressed, retarded and at times agitated and apprehensive. Disoriented as to time and place, but oriented for persons. Her attention was difficult to obtain. Memory for the immediate past was not good and retention was defective, as she remembered only the physician's name and nothing else that was told her. She read well, but without grasp.

Course.—Her condition changed but little in the next five years. She continued to have vomiting spells and severe headaches, at irregular intervals, and it was noted that she was suicidal. She spent most of the time sitting in the ward with her head bowed, hands folded, absolutely unoccupied. She was habitually constipated and had to have an enema every few days. For months she would lie in bed flat on her back, indifferent to her surroundings. She had to be fed by spoon, as she refused food for most of this period. Occasionally she would utter impulsively a few expressions of profanity and, at times, would attack her nurses when they attended her. Her condition varied and, at times, she would eat spontaneously, but she seemed to be in the apathetic and impulsive condition so frequently seen in the terminal stages of dementia præcox, and no one had any idea that she would ever recover.

Treatment.—In June, 1916, the resident dentist, in going over all the ward cases, examined her teeth. At first she was so resistive that nothing could be done with her. Later she allowed him to examine her teeth and extract an upper molar, which presented a bad abscess. From that time her improvement was remarkable and steady. She dates the beginning of her recovery at this time, and on October 21, 1916, five years and five months after admission, she was discharged as recovered and has remained normal since that time.

Subsequent History.—She was visited by the fieldworker in April, 1918, at her home and was very cordial in her manner and very willing to talk

over her case. She stated that she has no memory for her stay at this hospital, and no idea of the flight of time. She recalled one incident about a year and a half before she left the hospital, when she heard a nurse say that she, the patient, was forty years old. She resented this and said she was only thirty-six (her age on admission). The next thing she remembered was in June, 1916, and this was after she had had the tooth extracted. She was out walking and picked up a paper with "lunatic asylum" on it and asked the nurse where she was and if she was in such an institution, and was told that this was an insane hospital. From that period she recalls that she became interested in things and was especially interested in the flight of time and could not understand that so many years had passed of which she knew nothing. She has remained normal and has taken an interest in her friends, works at the Red Cross, visits, and her aunt states that, aside from a tendency to be sensitive, she sees nothing wrong with her. She has had several severe mental shocks. A first cousin, of whom she was very fond, died; but she showed a normal reaction to this death. Later a second cousin committed suicide, and last July her brother was called out in the militia, and a few weeks later his first child was born. Through all these times she has exhibited a normal reaction in spite of the severe mental shock these events have been to her. It has not been necessary for her to work and, in view of the fact of her sickness, her aunt has watched her and kept her from overdoing. She had very severe headaches after leaving the hospital every month after her periods, and stomach upsets as well; but these have become less severe. She attributes her mental breakdown to overwork and her physical condition and does not believe that there was any other cause.

Comment.—This case is cited for several reasons. The recurring headaches and gastrointestinal upsets are present previous to or during each attack, and in my opinion are of as much importance as the other factors given as the cause. The reason for her recovery is also of interest. She had no mental treatment; in fact, her environment was the worst possible for any good psychic effect; but in spite of this fact she did recover after her teeth were cleaned up and an infected molar removed. Are we to consider any mental readjustments as possible under the circumstances; or would it be entirely without the realms of possibility to consider that she had some serious intestinal infection coming from an alveolar abscess or other infection, to which she finally established an immunity after the source of the infection was removed, and the toxic effects were gradually lost? The theory that her psychosis was toxic in origin is certainly substantiated in the history and the rapid recovery after seven years. The diagnosis is not clear, for although there were periodical attacks which resembled manic depressive attacks, the last psychosis, by reason of the nature of the psychosis and its chronicity, certainly could be classified in the deterioration group. But the diagnosis is not the essential factor in this case, as we observe many cases of a similar character, that is, with early periodical attacks

but with a tendency toward chronicity. This phenomenon is also observed in many of the chronic infections, such as arthritis, infectious heart lesions, etc., in which after repeated attacks, usually becoming more severe, the patient finally succumbs.

THE ETIOLOGICAL FACTORS IN THE PSYCHOSES.

From a study of the cases reported here, which are only several among many similar types observed in the last three years, we are convinced that chronic or focal infections, with the resulting toxemia, play a very important rôle in the etiology of the psychoses. These particular cases are reported because they were our earlier cases and are of historical interest in the development of our work. Even with the crude methods used at first and the incomplete examination, especially the bacteriological work, certain factors stand out prominently and the results of a proper recognition of these factors has thrown some light on treatment as well as on the cause of death in some of the more obscure psychoses.

While we emphasize the importance of the infectious nature of these psychoses we do not exclude other factors, especially the psychogenic factors, in producing psychoses. But we are of the opinion that the latter factors have been given an undue prominence, to the extent that the physical symptoms of most of the mental diseases have been sadly neglected. We are convinced that heredity and endowment are of the utmost importance as a determining factor in the etiology, when they exist. But in many of our cases these factors do not exist, and therefore they must be eliminated in a certain number of cases. Hence we are inclined to place heredity and constitution in a minor rôle, as determining the individual's reaction to certain toxins, but not determining the psychoses without these extrinsic factors. Meyer (6) has expressed the idea in which I fully concur in this manner. "The study of the constitutional make-up turns very largely on the question of the extent to which various features are determined by heredity and growth and immutable, or determined by heredity and growth and modifiable, and what inside and outside factors can be expected to have a functional and ultimately a structural effect."

By accepting this view of the problem we can harmonize the various factors that at present seem so antagonistic to many. We find no difficulty in giving psychogenic factors their proper etiological rôle when they exist. However, we do not believe that they are essential for the production of the psychosis in all cases. When they exist in the same individual with the infectious conditions the psychogenic factors have a very profound effect. We can best understand the mechanism by which the psychosis is brought forth when we consider both of these factors playing an important rôle. We have been inclined to consider that such mental factors as grief, worry, fright, conjugal disharmony, friction, overwork, and mental strain, materially affect the whole physical being of the individual. Loss of appetite, disturbances of digestion, loss of sleep due to continued worry materially lower the vitality, cause loss of weight, and change the various internal secretions and also lower the immunity

of the individual. It is not unreasonable to suppose that under these circumstances any latent infection, of the type we are considering, would soon become more active and finally virulent. We see so many evidences of these factors that we are inclined to think that this view of the mechanism of the various etiological factors is the correct one.

The various mental factors we have mentioned are as potent in other conditions as they are in the psychoses, for example, in tuberculosis. Therefore those treating tuberculous patients insist on a quiet routine, free from all disturbing mental factors, if arrest of the disease process is to be successful. That infection is present in many psychoses cannot be denied, and any one who makes a special effort will be rewarded. Just how prevalent these infections are will be discussed in another paper, but we believe that they are far more prevalent than one would expect.

CONCLUSIONS.

We could present many more cases that would substantiate our contention in regard to the importance of focal infection, but these examples will have to suffice for the present. From a study of these cases we are justified in concluding as follows:

1. That chronic, masked, or focal infections play a very important rôle in the etiology of the psychoses.
2. That the origin of most chronic streptococcus infections is in blind alveolar, or apical abscesses.
3. That the organisms concerned in this infection, spread from the teeth to other regions, notably the tonsils, stomach, duodenum and lower intestinal tract, and that these infections may therefore persist after the teeth have been extracted.
4. That the organisms concerned in focal infection in our cases belong to the slow growing, non-pus producing type, which are, however, extremely toxic.
5. That the short chain or nonhemolytic streptococcus group (the Connellan-King diplococcus), the *Staphylococcus aureus*, and virulent colon bacillus are the bacteria that are most common in this type of infection.
6. That infected teeth are due to a large extent to (a) faulty dental work, such as gold crowns, caps and pivot teeth; (b) habitual neglect of the teeth, and (c) infection by contact with parents, family, and friends, by kissing, use of common articles and eating utensils.
7. That a thorough search for chronic infections by all the means at our disposal is imperative, and the removal of such infections will clear up certain mental conditions when other means have failed.
8. That prophylaxis in mental diseases should include the education of physicians and the public in regard to the danger and menace to both physical and mental health, of infected teeth and the difficulty in locating such teeth without a complete x-ray examination by a man competent to interpret the radiograms when they are taken.
9. That dentists should be brought to realize the damage they are doing daily by faulty dental work.
10. That many psychoses could be prevented and

chronic psychoses cured if the principles discussed in this paper were followed.

11. That bacteriological examination should be an essential part of the work in every hospital for the insane.*

In concluding, I wish to express my thanks to those who by their timely assistance have made this work possible. The greater part of the work has fallen on the laboratory assistants who have been especially diligent in the task. I am especially indebted to my assistant, Dr. W. W. Stevenson, who, as clinical pathologist, has had charge of collecting specimens from the patients and correlating the laboratory and clinical work. To the members of the staff, I am indebted for valuable assistance in many ways, particularly in relieving me of the many details of hospital management, and thus allowing me to devote time to this study; to Dr. T. W. Hastings for his continued advice and assistance. To Dr. J. W. Draper, Dr. G. Reese Satterlee, Dr. J. J. King, Dr. F. S. Bird, and Dr. F. W. Bird, I wish to express my thanks for many courtesies and valuable help. I am indebted to Dr. E. P. Corson-White for her help two years ago, who at my suggestion inaugurated the use of the newer laboratory methods in our hospital, and to Dr. Adolf Meyer for his valuable help, friendly criticism, and encouragement in bringing this work to a successful conclusion.

6. ADOLF MEYER: *The Approach to the Investigation of Dementia Præcox*, *Chicago Medical Recorder*, 1917, 39, 441

CHRONIC DISCHARGING EAR.*

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The chronic discharging ear is a subject of the greatest importance from a military point of view. My services as a member of the medical advisory board at the New York Eye and Ear Infirmary prompts me to speak of a dangerous disease that is quite prevalent among men in the adolescent stage of life who ordinarily are considered eligible for military duties. In the 357 cases referred to us by the local boards, 187 of these were refused active service because of a chronic suppurative otitis media. The men whose ears had perforated drums, but were perfectly dry at the time of the examination were classified in the limited class service. The experience has been that the latter type of cases were especially susceptible to gas, the gas coming in contact with the middle ear often causing an acute exacerbation. In others it passed through the Eustachian tube into the pharynx with ill effects. For years the insurance companies have refused to take patients with chronic suppurative ears as a risk, except in instances where the radical mastoid operation had been performed. The army and navy also refused to accept these cases for military service. These two national organizations recognize the dangers of a chronic otorrhea and do not accept them.

It impresses me with the fact that these cases may be made better fit for life's battle, if properly advised and treated in civil life by the family physician and the consulting otologist. The advice of the average physician is that the patient will outgrow it. He knows very well that when he makes this statement it is an untruth. It is simply a case of "passing the buck" to the poor patient, and not until one of the serious, almost surely fatal complications occur does he realize its dangers. We all know the results of an abscess in the appendix, tonsil, or tooth. There is no hesitancy in its removal. Surely a foci of pus adjacent to the brain, lateral sinus, or facial nerve is just as ravaging. Otitic meningitis, brain abscess, or sinus thrombosis are practically beyond the redemption of surgical interference. The cases that have been reported as recovered from otitic meningitis are classified as the serous type or those in which the microorganism has not been found in the cerebrospinal fluid. Where surgical intervention has been resorted to in brain abscess cases the percentage of recoveries are about one in every four. The statistics of the New York Eye and Ear Infirmary show about fifty per cent. of patients there recover, following the jugular resection and extirpation for sinus thrombosis. Of course these figures do not take in consideration the great number of patients who are not operated on.

Several years ago Doctor Dench reported a series of 33,000 suppurative cases admitted to this hospital. One in every eighty-five cases suffered from some intracranial lesion. Microorganisms are always present in a chronic suppurative otitis media. Even the spirillum of Vincent has been found in the mastoid secretions. This organism is commonly found in the pharynx and undoubtedly makes its ascent via the Eustachian tube. Without doubt this does prove that if the menstruum is suitable any virulent bacteria may invade the mastoid by way of the Eustachian tube, tympanum, antrum to the mastoid cells and in turn attacking the meninges, lateral sinus or facial nerve. If the individual vitality is lowered he is more susceptible to the invasion.

Frequently the exciting cause is due to a fall or blow which disturbs the continuity of the bone and introduces the apparently dormant infection into the adjacent tissues. A chronic discharging ear is one which arbitrarily speaking has been suppurating three months or more, it follows a neglected simple otitis, one of the exanthematous fevers as measles or scarlet fever, and a tuberculous or luetic process. The tympanic membrane is always perforated and very often completely obliterated and the ossicles necrosed. Sometimes the cavum tympanum is filled with granulations or polyp tissue. The discharge is usually foul and quite offensive especially if cholesteatomatous in character.

The cases may be classified into three groups according to their response to treatment. First, those that are more amenable to our efforts. The discharge being tubal in origin, the infection coming from the nasopharynx, probably being due to adenoids, hypertrophied tonsils, sinus disease, or some form of nasal obstruction with the history of catarrh and frequent colds. Removal of tonsils and adenoids especially in children affords almost

*Read before the Base Hospital Medical Society of Camp Wheeler, December 7, 1918.

immediate relief. In adults the most frequent cause is a deflected septum which causes improper drainage and ventilation of the postnasal space. A submucous resection obviates this condition in many cases. Secondly, those due to some lesion within the cavum tympanum, such as a foreign body, granulations, polyp tissue, or an exostosis. The granulations and polyp tissue are quite easily removed by curettage or snare under local anesthesia and kept down by applications of caustics and astringents. The danger of removing polyp tissue lies in the fact that it may originate from the meninges. Because of this it is necessary to perform this little operation under strictly aseptic precautions as meningitis may ensue. And finally, patients who resist treatment most stubbornly and require more radical surgery. The discharge comes from the mastoid cells and is inaccessible to local treatment. All of these patients, should be kept under frequent observation and palliative treatment for several months before resorting to the more radical procedure.

Just a word in regard to the x ray as a factor in the diagnosis of the latter type. Unless the case is one of a tuberculous process it affords very little aid in showing the amount of bone necrosis. The bone is almost always dense, sclerotic and limited to the antrum and one or two cells which are not visible in a radiograph. I shall not go into detail as to the technic of the radical mastoid operation which is indicated in the last group, except to state its purpose. The mastoid cells are exenterated and every vestige of disease is completely removed. The posterior canal wall or facial ridge and bridge is lowered and removed. This converts the antrum and the tympanum into one cavity which is quite accessible to postoperative treatment. There are dangers and undesirable complications in this operation, the most dreaded one being a facial paralysis, for we like to have our patients able to smile with both sides of the face. In a series of thirty-five radical mastoid operations that I have performed, one of these presented itself with all the fulminating symptoms of a ninth hour chronic suppurative otitis media.

Female, thirty-two years of age, gave a history of a discharge since childhood, temperature, pain, and unable to sleep for the past few days. The same side of her face was paralyzed. She had, a few days previously, been confined to her bed because of the pronounced vertigo and ataxia. In testing I found that the static labyrinth or the organ of equilibrium failed to react to the caloric or turning test. In testing with the noise apparatus I found this ear totally deaf. Obviously the auditory and static functions were completely destroyed. A slight rigidity of the neck was also perceptible which made me suspect an incipient otitic meningitis. The spinal fluid showed positive findings. I subsequently performed a radical mastoid operation followed two days later by a labyrinthine drainage operation and a decompression. But true to these cases when seen too late the efforts are in vain. I know of numerous similar cases but recite this as a typical one of meningeal complication.

Only one of the series resulted in a paralysis. A boy seven years old with a discharge since his sec-

ond year. He was anemic, rachitic and under sized. His mother gave a history of his having two mastoid operations at another hospital. On examination I found him to have a totally deaf left ear and inactive static labyrinth. The discharge was extremely foul and profuse. The drum was destroyed and the middle ear was filled with dense granulations.

In performing the radical mastoid operation I found the facial ridge and bridge necrosed and the facial nerve exposed by disease. In using the probe I found a fistula leading into what was evidently internal ear. At a subsequent operation five days later a large loose sequestrum was found which involved almost the whole of the petrous portion of the temporal bone. In removing the sequestrum the facial nerve was severed but this was deemed wiser than to have a later meningeal infection with fatal result. I have said nothing as to the hearing in these cases following radical mastoid since I consider the removal of diseased bone of primary importance. The prevailing opinion is that the hearing is more impaired. My observation of the patients operated upon leads me to believe that this is an erroneous conclusion. I have in mind a boy that I saw just a few months ago. He was fourteen years of age. His mother had sent a note requesting a certificate to allow her boy to enter the public school since he had recovered his hearing. This boy had been a pupil at the Deaf and Dumb Institute. Nine months before Doctor Dench, my chief of the otological service at St. Luke's Hospital, had performed a radical mastoid with a skin graft on one side and about two months later I operated on the other side in the same manner. In testing him on his return I found he heard a moderate whisper with both ears, at a distance of eighteen feet, twenty feet being the normal distance. This boy had been very deaf.

The average hearing in chronic suppuration before operation is five to seven feet for moderate voice. This of course is one of very marked improvement. It is my opinion that the aftertreatment has an important influence on the preservation or the increase in hearing. If the granulations are kept down in the postoperative case so as to prevent the formation of the thick pad of tissue over the round and oval windows of the sound perceptive organ, the hearing will be favored. When a skin graft is done the results are far better and the resolution is much shorter. I have tried to put before you in these brief remarks my position as to this disease which I feel is far more elusive and serious than the average physician believes it to be. A large number of these cases are amenable to the routine treatment of the otologist, especially of Groups 1 and 2 as described. Group 3, however, usually resists all local treatment and I believe we can save a number of lives if we insist upon operative measures before it is too late.

Over fifty years ago Doctor Wilde (the father of Oscar Wilde) said of the chronic suppurative ear, "it is impossible to say how, when or where it might end," and the truth of this saying still remains. It is like a charge of dynamite liable to explode at any time.

ACUTE POSTERIOR URETHRITIS.

Its Seriousness and Its Proper Management.

By A. STRACHSTEIN, M. D.,
New York.

The serious consequences which frequently follow gonorrheal infection of the posterior urethra are of such great importance that we are obliged to consider this malady far more than a mere involvement of a given part of the urethra. It is granted that the posterior urethra is not as richly supplied with mucous glands as the anterior urethra, therefore the gonococcus is given less chance to become intrenched. Nevertheless, one realizes the strategic importance of this part of the urethra when he bears in mind that it stands in direct communication with such vital genital glands as the prostate and testes, as well as the seminal vesicles and epididymi.

Recent investigations have shown that the auto-intoxication due to chronic prostatitis is responsible for a wide and varied list of obscure symptoms with which the internist is frequently confronted. Likewise it has been established that chronic involvement of the seminal vesicles, following posterior urethritis, is responsible for many cases of chronic deforming arthritis. Furthermore, sterility in the male following acute epididymitis has such far reaching and disastrous effects upon society at large, that we are once more compelled to consider this lesion more than a mere involvement of the posterior urethra. Yet, the complications mentioned above seldom occur unless the gonorrhea spreads beyond the compressor urethræ muscle.

Etiology.—The frequency of posterior urethritis has been variously estimated by different authorities. Some proclaim its existence in every case of acute gonorrhea, while others of wide experience claim its existence in seventy to eighty per cent. of cases. In my own experience, data collected from a series of 377 cases, the condition was found prevalent in 39.5 per cent. of the patients (1). The causes for posterior urethritis are variously given by urologists. Luys states that it is principally due to the habit of treating acute anterior urethritis by the hand syringe method. This statement, however, is far fetched. My own experience with the hand syringe in several thousand cases has convinced me that it is a simple and effective method when judiciously used, especially when no contraindications exist against its use in the individual case. Acute posterior urethritis, however, may appear spontaneously before therapeutic measures were instituted. In most of these cases there is a definite cause for its existence. Thus, excessive venery at the time of exposure, especially when liquor has been indulged in, will bring that about. Then it may follow acute anterior urethritis when the patient is too active or indulges in long walks, dancing or other physical strain. It may also occur on account of a narrow meatus interfering with the perfect drainage of the profuse discharge; or, from the use of strong and irritating solutions, and finally, from general debility.

Types.—Clinically, two distinct types are observed. The first one does not differ from that of an anterior urethritis, except that the last portion of

urine is equally as turbid as the first. The second type is more serious, and presents classical symptoms which may be enumerated as follows: 1. A given case that may have had a profuse purulent discharge, suddenly shows a marked diminution, or the discharge may cease. The patient often erroneously considers this a favorable omen. 2. While the last portion of the urine in the two or three glass test was formerly clear, it is now equally as turbid as the first. 3. Frequent and urgent urination causing considerable annoyance. While formerly the patient did not find it necessary to urinate oftener than three to five times during the day, he now must do so from every fifteen minutes to every hour, and when the impulse arises it is most urgent. 4. Pain and tenesmus at the end of urination are characteristic. Although the bladder has been emptied, there is nevertheless a desire to repeat the act, bringing on tenesmus, and in the severer cases, even causing terminal hematuria.

Treatment.—The local treatment of acute posterior urethritis differs in accordance with the type of case. In the first of the types mentioned above the patient generally recovers when handled in the same manner as an acute anterior urethritis. There are, however, many cases in type one that will show a persistent second cloudy urine, although the patient is free from subjective symptoms. In these, we must devise a method of injection whereby we can instillate into the posterior urethra a few drops of nonirritating concentrated solution of one of the organic silver salts, in conjunction with the treatment of the anterior urethra. This, however, must be accomplished with the minimum amount of traumatism to the already inflamed urethra. Theoretically, all instrumentation in acute urethritis is contraindicated. I have nevertheless found that the method I am about to speak of is a valuable aid in clearing up the posterior urethra. The Keys-Ultzmann instillation for this purpose is objectionable for two reasons: The tip of the instillator is rather sharp and has an acute curve, so that even when one is an expert in directing its insertion, it is bound to cause pain as well as traumatism; the syringe is not large enough to contain a sufficient amount of the solution for the entire urethra. I have therefore substituted for this use an ordinary all glass syringe of five c. c. capacity, fitted up with a slipon needle of large calibre upon which is tightly slipped on a silk woven flexible catheter of 12 F. But before doing so, the proximal end of the catheter is shortened so that it does not measure more than seven inches in its entirety. When this is introduced into the urethra, its flexibility adapts it to the natural curves of the urethral canal, thus avoiding traumatism, while it possesses sufficient stiffness to enable us to insert it in the same manner as a Keys-Ultzmann instillator.

Technic.—After the patient has emptied his bladder he rests on the flat of his back on the treatment table. The catheter instillator is filled with a freshly prepared solution of twenty per cent. of argyrol, or any similar preparation in proportionate strength. This is slowly inserted so that when the catheter is completely inserted its tip just about

passes the cut off muscle. Then the piston of the syringe is pressed so that about one c. c. of the solution bathes the posterior urethra. Now, the instrument is pulled slowly outward at the same time the piston is slowly and steadily pressed so as to leave a deposit drop by drop in the anterior urethra before the instillator is entirely removed. The thumb and index finger of the left hand is utilized at the same time to compress the meatus on the catheter as the latter is withdrawn, so as to avoid the escape of the solution. The solution is now retained for about fifteen minutes either by a penis clamp, or by the patient's thumb and index finger. The instillations are repeated every second day, beside the more frequent anterior injections with a weaker solution. This mode of treatment is continued until the condition in the posterior urethra clears up, then the ordinary hand injections are followed up essentially the same as in anterior urethritis.

The local treatment of group two, can be summarized in two words, namely—hands off! As long as there exists urgent frequent painful urination, we must abstain from any local treatment, with the exception of the application of heat. In these cases we must, instead, resort to all means at our disposal to overcome the distressing and urgent symptoms, enumerated above, and not until this is accomplished is it safe to use instillations. Since posterior urethritis so frequently spreads to the prostate, although there may be no objective signs, it behooves us to investigate this gland in due time. The urine having cleared up except for some occasional shreds, we now explore the prostate not only by a rectal examination, but by a microscopic examination of the prostatic secretion in search of pus and organisms. No dependence is to be placed upon rectal palpation only. The presence of clumps of pus cells in the prostatic secretion with or without demonstrable bacteria, is a most reliable sign of chronic prostatitis. The mode of further treatment will of course depend upon the prostatic findings.

The general treatment in acute posterior urethritis, is far more important than in the anterior variety. For purposes of convenient consideration, we may subdivide this into: a, Absolute rest, if possible, thus avoiding all forms of physical strain; b, mouth medications; c, external agencies, and d, diet. The purpose of the mouth medication is primarily to overcome the frequency, strangury and tenesmus. The tincture of hyoscyamus, in drachm doses three times daily, ranks above all other drugs. To this is added potassium citrate in normal doses to make the urine bland. Then sandalwood oil may be given, either in the form of an emulsion with the two drugs named above, or it may be given separately. Urinary antiseptics such as urotropin, salol or others are of little or no value. Urotropin is especially useless when given with alkalis. If for some reason medication cannot be administered by mouth, a suppository may be inserted into the rectum, three times a day, consisting of one grain each of powdered opium and extract of belladonna.

Patients with acute posterior urethritis frequently suffer from painful nocturnal erections. This not only disturbs their sleep, but also ag-

gravates the condition. When such is the case it may be controlled by administering before bedtime one dose of twenty grains of sodium bromide with 1/150 grain hyoscyne hydrobromate.

Among the external agencies a hot sitz bath taken from one to three times in twenty-four hours is of great help in relieving the strangury in urination. When in bed, a hot water bag applied to the perineum is gratifying. A hot rectal irrigation is helpful only when carried out properly, i. e., if it is done so as to avoid frequent desire to expel the irrigation from the rectum, and only when a slow constant flow under low pressure is maintained.

The diet, as in other forms of acute urethritis or cystitis, must be mild, nonirritating, leaving out all highly seasoned and spicy foods; liquor and ginger are included. Patient is instructed to drink at least one tumbler of water every two or three hours.

In conclusion, one should bear in mind that when any mode of local treatment aggravates the existing condition, that mode of local treatment should be discontinued. Some days should elapse before any other form of local treatment is instituted.

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17 EAST THIRTY-EIGHTH STREET.

A RAPID METHOD FOR DETERMINING THE TYPE OF MENINGOCOCCUS INFECTION.

BY GEORGE H. ROBINSON, Ph. D.,
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Development of the types of pneumococci gave the use of the antipneumococcus serum a new impetus and places its use upon a theoretically sound basis. By recent improvements in technic the diagnosis of the type of pneumococcus infection is a matter of a few hours. The determination of the type is of value in indicating both the proper serum treatment and the prognosis of the disease. Recent reports would seem to indicate that the same conditions exist among the meningococci as among the pneumococci. Gordon and his associates have shown that there are four serologically distinct groups of meningococci. These groups can be demonstrated by animal protection tests, and patients infected with one type of coccus respond best to the homologous type of serum. It may be found after a more systematic study along this line that certain types of meningococci cause a more severe form of the disease than others.

At present the method of determining the type of meningococcus infection is to isolate the organism and then to perform the agglutination or absorption tests. This requires two or more days. As the early administration of serum in cerebrospinal meningitis is just as necessary as in pneumonia a rapid method of determining the type of infection is of great value. A precipitin test has given very encouraging results. The method in brief is as follows: The spinal fluid from the patient is centri-

fuged until clear; one half cubic centimetre of this fluid is added to an equal amount of each of the four type sera; the tubes are thoroughly shaken and warmed to 37° C. in a water bath. If a positive reaction is obtained a distinct flocculent precipitate forms in a few minutes.

We have not been able to obtain fluids from patients known to be in the early stages of the disease. The fluids tested were from patients who had been sick from one to two weeks. We could not secure treatment in all cases with type serum. In the two cases in which type sera were used a prompt and distinct improvement followed. In the record of tests which follows the typing of the cultures was accomplished by agglutination and absorption tests.

Fluid 1. Patient had shown no response to polyvalent serum. Fluid gave Type I precipitin test. Patient was treated with Type I serum and showed immediate improvement. Died of pneumonia. Culture was Type I. Fluid 2. Precipitin test was positive for Type I; no culture was obtained. Fluid 3. Precipitin test was positive for Type II; no culture was obtained. Fluid 4. Precipitin test was positive for Type I; patient recovered after treatment with Type I serum; no culture could be obtained. Fluid 5. Precipitin test was positive for Type I; culture was Type I. Fluid 6. Precipitin test was positive for Type III; culture was Type III. Fluid 7. Precipitin test was positive for Type III; duplicate fluid two days later gave the same result; no culture could be obtained. Fluid 8. Fulminating case; fluid was removed at autopsy; precipitin test was positive for Type II; culture was Type II. Fluid 9. Precipitin test was negative; culture absorbs agglutinins slightly from Type I serum. Fluid 10. Precipitin test was slight for Type III; culture absorbs agglutinins slightly from Type III serum. Fluid 11. Precipitin test was positive for both Types I and III, but stronger for III; culture absorbs agglutinins from both Types I and III. Fluid 12. Precipitin test was positive for both Types I and III, but stronger with Type I; culture absorbs agglutinins from Type I serum only.

ENVENOMIZATION SUGGESTED AS ETIOLOGY OF HYDROPHOBIA, YELLOW FEVER, ROCKY MOUNTAIN SPOTTED FEVER, AND COWPOX.

BY ANNE YOUNG, M. D., DR. P. H., D. T. M.,
Hamburg, Pa.

During a recent study of venomous animals the striking parallelism between the symptoms and pathology produced by bites of venomous animals and hydrophobia was noted. The failure to demonstrate bacteria or protozoa in hydrophobia may be due to the fact that they are not the causative factors. All the symptoms and pathological changes could easily follow the introduction of an animal venom. A dog manifesting rabies need not necessarily mean that the dog is suffering as a result of a bite from a rabid animal. There is a possibility that the dog may have eaten an animal dying or dead from the bite of a venomous animal and as a

result has developed rabies. In England the muzzling of dogs has practically wiped out human hydrophobia. Naturally the fact that human beings are not bitten is given credit for this result, forgetting that the muzzled dog is unable to eat flesh of other animals; is unable to nose and come in contact with envenomized animals salivating as a result of viper bite, for example. Australia, Central and South Africa are practically free from hydrophobia. They also are free of viper.

Cases are reported of human beings that have been poisoned by eating the flesh of cattle which had been poisoned by eating blister beetles. Birds are not killed by blister beetles, but their flesh is rendered poisonous for the person eating it. Infantile paralysis and beriberi are possible results of a neurotoxic venom. Yellow fever, cowpox, and Rocky Mountain spotted fever are possible results of a hemolytic venom. In the case of yellow fever a sick stegomyia may not inoculate bacteria or protozoa, but a venomous digestive substance, which is a feasible explanation of infected eggs. In the preparation of the Pasteur treatment for rabies the virus is fixed by the passage through successive rabbits, sixteen to fifty. Outside of the laboratory the same procedure may take place but not necessarily through rabbits. In the investigation of all obscure diseases envenomization is worthy of elimination. This suggestion may be fanciful; on the other hand it may be founded on fact.

RECENT GLEANINGS RELATIVE TO THE PROPHYLAXIS AND TREATMENT OF INFLUENZA.

BY LOUIS T. DE M. SAJOUS, B. S., M. D.,
Philadelphia.

(Continued from page 417.)

In one of the army units referred to by Lynch and Cumming, 1918, as illustrating the importance of the hands and of indirect mouth contact in the transmission of influenza, the portion of the unit using tableware washed in the kitchen, showed a continuously low daily rate of incidence of the disease, while the remaining force of men, washing their mess kits by the old line method, showed on certain days an extremely high rate of incidence to which the writers apply the term "explosive." The wash water for the kits in the line system, while hot at first is usually permitted to cool as the successive men wash their kits in it, thereby losing its germicidal influence and actually affording a good vehicle, at an optimum temperature, for the transmission of infection. The mouth being touched by the hand many times daily, the hand, as well as the kit itself, is held responsible for the contamination of the wash water. The infected wash water, in turn, serves as intermediary in the transmission to other hands, and hence to other mouths. This is believed to account for the explosive character at times shown by the influenza outbreak in the Embarkation Camp at Newport News, this character being dependent on simultaneous reception of the infective agent in massive doses by a large group of individuals. All those who washed their kits in the

contaminated water were exposed, not a single time, but three times a day over a period of perhaps several days.

Various other items of evidence are presented by Lynch and Cumming which, taken in the aggregate, seem to demonstrate that the explanation of wholesale transmission they offer is sound. In a unit at Camp Morrison in which all the troops were housed in barracks, but some used mess kits and others tableware, the ratio of incidence in these two groups was as 415 is to 147, respectively, though, apart from the method of eating, there was extensive intermingling between the two groups. Again, among a group of men whose mess kits were at first washed by the line method, but after a certain date regularly turned in to the kitchen to be boiled, the curve of incidence rather promptly dropped from a high peak to practically no cases, although in this group the epidemic had not as yet completed its usual course. Combination of all the statistics obtained, covering 22,084 men, showed respective incidence rates of 41.1 and 207.1 for those using tableware and those using mess kits washed by the line method. In this series it was found impossible to attribute the explosiveness of the epidemic to overcrowding; the outstanding difference between the groups with a high incidence rate and those with a low rate lay in the method of messing.

From the evidence collected by Lynch and Cumming one may easily accept as well founded, under certain circumstances at least, their conclusion that direct routes of transmission of respiratory diseases, as by actual body contact or droplet inspiration, are subsidiary to the indirect modes of propagation, in particular the taking up of infection by the hands through contact with contaminated inanimate objects. While one may not be disposed to follow these observers in the belief that the virus is only "to a very limited extent" conveyed by direct contact or droplet infection, it seems probable that, among the civil population, transmission from door knobs, street car hangers, hand rails, telephone receivers, pencils, pens, backs of chairs, toilet articles, towels, etc., is deserving of serious consideration as a factor in the spread of the disease.

Prophylaxis of influenza in the home should obviously take into account these indirect modes of transmission, apart from the avoidance of direct contact with patients and of inhalation of infected droplets. Lynch and Cumming deem it likely that even in civil life dish washing accounts to a large extent for transmission of the disease in families in which the infection has once been introduced. The simplest measure for interrupting indirect transmission is naturally the avoidance of all contact of possibly contaminated hands with the face. Whatever effectiveness the face mask has shown in reducing influenza incidence may be ascribed in part, it is said, to the fact that it excludes the hands from the face. Since, however, it is often difficult to insure complete avoidance of such contact, auxiliary measures are also advisable, viz., washing of the hands with soap at short intervals, the use of separate towels, and the removal, by means of germicides, of infection from the various inanimate

objects, such as doorknobs, toilet articles, and telephone receivers, most frequently acting as transmission intermediaries. In this connection it is well to bear in mind that there occur unrecognized mild cases of influenza, that there are probably also "carriers" of the influenza virus, and that the indirect transmission may involve not only this particular virus, nonfatal *per se*, but also the lethal secondary germs, such as the pneumococcus, hemolytic streptococcus, and Streptococcus viridans.

The paramount importance, in the prophylaxis of influenza in the home, of isolation of the individual patient requires no emphasis. While instances have been reported in which all precautions failed to prevent transmission—to the attendants at least—numerous clear cut examples of successful arrest of the spread of epidemic influenza by isolation are also on record. Thus, Jensen, 1918, has reported the instance of a town having a population of about 1,000, with small and frequently overcrowded houses, in which strict isolation of every person with influenza was established from the onset. Masks and overgarments were used by the attendants. Although eight cases had been imported into this town, only two additional cases developed, these concluding the epidemic in the locality referred to.

In the succeeding issue brief reference will be made to nasal, oral, and vaccine prophylaxis, after which recent views on the treatment of the established disease will be summarized.

(To be continued.)

A New Incision for Appendectomy.—Leigh F. Watson, reports (*Annals of Surgery*, October, 1918), that the number of incisions that have been brought forward for appendectomy from time to time, show that no one incision is adapted to all cases. Many writers have noted that in the cadaver the base of the appendix is found at McBurney's point, while in the living subject it is below this point, usually on a level with the centre of Poupart's ligament. A number of operators have called attention to the ease with which the appendix can be removed when operating for right inguinal hernia. He has used the new incision, since 1910, with its centre over the base of the appendix, and he believes that in many cases it is an improvement over those in general use. A point one and one half inches from the right anterior superior spine, on a level with a line connecting the two superior spines, is selected for the beginning of a vertical incision which extends directly downward for two to three inches to a point just above, and to the inner side of the internal abdominal ring. Traction to expose the appendix is avoided, because this incision, in the external oblique and its aponeurosis, the most resistant structures, is directly over the base of the appendix. It can be enlarged without weakening the abdominal wall. The iliohypogastric and ilioinguinal nerves are not injured because the incision lies between them. Because this incision is made over the cecum, the small intestines do not crowd into the wound as they do when the McBurney and lateral rectus incisions are used.

Editorial Notes and Comments

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DIRECT AND REFLEX NEUROMOTOR DYSPNEA.

Experimental physiology has reproduced all the various types of dyspnea, the neurotic, humoral, and mechanical. To produce an experimental dyspnea the pneumogastric is cut just below the point of the emergence of the superior laryngeal and then the central end is stimulated by an electric current. If the current is passed exclusively by the superior laryngeal nerve the respiration ceases from relaxation of the diaphragm, and, although more difficult, the same effect can be obtained by acting on the peripheral sensory nerves; the excitation reaches the centre and reflects on the motor nerves.

There are, therefore, three means of producing a change in the respiratory rhythm, but in the three preceding experiments an excitation of the bulb must always take place. It is, consequently, important to consider the fourth means, which is entirely different, since the same result occurs without acting on the bulb by irritation of the centrifugal tract. We refer to excitation of the peripheral end of the vagus, which has been considered as the motor nerve of the bronchi.

If this is the case a spasm of the unstriped bronchial muscles will result, producing the phenomenon often invoked to explain the cause of a paroxysm of asthma. Unfortunately this motor action is as yet not evident, so that a rigid

analysis becomes necessary. If the pneumogastric is cut in the cervical region the respiration is always considerably diminished, while, on the contrary, there is a marked acceleration of the heart beats. The respiration becomes very labored and assumes a cadent rhythm. The dyspnea is produced by the small number and diminution in the amplitude of the respirations. Therefore, section of the pneumogastric is in itself sufficient to modify the respiratory rhythm, and if one recalls this paralysis a better understanding of the effects of excitation of the central end of the nerve will be obtained.

If the central end of the nerve, whose section itself slows the respiration, be forcibly stimulated by a galvanic current, respiration ceases in the stage of inspiration. All the inspiratory muscles can be put in movement by excitation of the vagus. Not only does the respiration become accelerated, but it may end by a sort of permanent tetanic contraction. It is to be noted that the excitability varies with the different groups of inspiratory muscles; the diaphragm is the muscle upon which the action of the pneumogastric is the most energetic, and then come the intercostals, the scaleni, and serratus magnus. Now, it is in progressively increasing pathological dyspneas that this order is followed by the muscles participating in the act of respiration. From another standpoint, it is known that paralysis of the superior laryngeal nerves produces disturbances of breathing, but these are of relatively secondary importance. When the cricothyroid is paralyzed the vocal cords are no longer tense, and nevertheless the phonetic disturbances are especially evident. But the respiration itself is not influenced as far as the rhythm is concerned. The superior laryngeal has more than a purely motor action, and is to be considered as the antagonist of the pneumogastric, and therefore it arrests the respiration.

This is, briefly, what is known of the mechanism of the various types of dyspnea, but there is a type of dyspnea of great interest, namely, dyspnea from bronchial spasm, which has been invoked and is still invoked as the causal factor in the majority of asthmatic paroxysms. Not only does centripetal excitation of the vagus and superior laryngeal nerves result in dyspnea, but centrifugal stimulation of the pneumogastric is transmitted to the motor nerves of the bronchi, which can also produce spasm of

the muscles of Reisseissen, and, consequently, dyspnea.

Physiology shows that paralysis of the lung is a misnomer and also that the lung retracts and expands from the action of the thorax, so that there are no other paralyses than those of the inspiratory and expiratory muscles. It now remains to ascertain what phenomena contraction of Reisseissen's muscles can produce.

In the first place the contractility of the bronchi must be demonstrated, likewise its relation to the nervous system and its effect on the respiration. Stimuli have been successively applied to the lungs and bronchi after section and to the vagus, which animates the muscular fasciculi. The membranous bronchi contract very distinctly when the electric current is transmitted by needles to the bronchial walls. The smaller bronchi of a quarter of a millimetre in diameter become occluded, and when the pole is removed the unstriped fibres relax, the bronchus dilates, and then again slowly contracts; in other words, the ordinary contraction of unstriped muscle is observed.

More distinctly, in appearance at least, can contractility of the bronchi be demonstrated by stimulating their motor nerves. Thus the important fact of their contractility has been shown, since a permanent contraction of Reisseissen's muscles results in an asthmatic paroxysm.

THE TRAVELS OF THE SOUL.

The whereabouts of the soul—of the essence of life—of its controlling force, has always been a source of profound interest. In the infancy, or say, the earlier infancy, of the race, it was believed that the soul and the shadow cast by the body were one. To explain why the soul should disappear on cloudy days and in the dark would try the ingenuity of the modern mind, but the primitive man finds such a problem easy.

A far more satisfactory, later discovered, residence for the soul was the breath. The race is not so very old, and though we may smile at the notion that Adam became a "living soul" when the "breath of life" was breathed into his body, we still use the word "expire" to signify the passing of life. It was not until the middle of the seventeenth century that there was any real understanding of the nature of respiration, but long before that time the soul had removed its dwelling from the breath.

Among many primitive peoples the blood was considered the seat of vitality and the home of the soul, and the eating of blood was on this account often tabooed.

A very satisfactory mansion for the soul was for

a long time found in the liver. Its great size and central location alone made it seem of the greatest importance. The soothsayers and diviners examined carefully the liver of sacrificial animals and noted any prophetic peculiarity of size or shape, believing that these were caused by the temporary presence and mood of the soul of the deity to whom the animal had been sacrificed. The modern practice of blaming the liver with all the ills of the flesh can be traced back to the supreme importance placed upon this organ by our ancestors, as the seat and centre of existence.

From the liver the soul removed its residence to the heart, and its sojourn in that organ has been so recent that our everyday speech is thoroughly tinged with allusions based on this old belief. A man is "hard" or "soft hearted"; our "hearts go out" to others; we are "faint" or "strong" of heart.

Pythagoras and probably earlier Greek thinkers located the soul in the brain. A Jewish philosopher of the tenth century reasoned that, since the dwelling of God was in the heavenly blue arching over the earth and its vaporous envelope the residence of the soul was in the meninges arching over the brain and its watery covering of cerebrospinal fluid.

In the seventeenth century Descartes advanced the idea that the union of soul and body took place in the pineal gland, since this was a single structure lying at the centre of the brain. A century and a half later Gall partitioned the brain as the seat of various activities of mind and soul into thirty-five regions and established thereon his "science" of phrenology.

At the beginning of the twentieth century the soul is as evanescent and elusive as was the shadow of our primitive parents. There are those who deny the existence of any such phenomenon, all psychophysical changes being to them the result of mechanistic changes, started somehow in protoplasm and continuing, somehow, from generation to generation. There are others who find a soul, or at least a guiding influence in every cell, giving it intelligence and causing it to carry out its part in communal relationship.

If consciousness of mental activity constitutes the soul (and that we believe is the common acceptance of the term) it is certainly conditioned by if it does not live in every part of the body. It is helped or hindered by "good" or "bad" blood, by a "strong" or "feeble" heart, by a competent or incompetent liver, by the working of the ductless glands, by the well or ill functioning of the kidneys, etc. For present practical purposes the home of the "soul" is the entire body and the more perfect that body the less cramped and hindered is the "soul" in all of its operations.

THE SURGEON DURING THE REVOLUTIONARY WAR.

Colonel William O. Owen has done a great service to medicine in the preparation of a series of articles on The Legislative and Administrative History of the Medical Department of the United States Army During the Revolutionary Period, the third section of which appears in No. 4 of vol. i of the *Annals of Medical History*. The excerpts presented from the journal of the Continental Congress from 1774 to 1783 give a graphic picture of the struggle of the medical department for recognition, which has gone on ever since the army was first organized. How far this struggle has been successful may be realized when we read the statement of the Director General, Dr. W. Shippen, that the deputy quartermaster "will not supply our department with any more forage unless he is authorized to do so by an order of Congress." But the Congress of that time was mindful of its obligations, for on September 22, 1780, a resolution was introduced and subsequently adopted providing that the officers of the medical department shall have certain provisions of land such as had been already made for officers of the line. "The director to have the same quantity as a brigadier general. Chief physicians and surgeons and apothecary the same as colonel. Physicians, surgeons and apothecary the same as lieutenant colonel. Regimental surgeons and assistants to the purveyor and apothecary the same as major. Hospital and regimental surgeon's mates the same as captain." This was amended to include half pay, the same as officers of the line, but the amendment was stricken out and again reinstated a year later.

Our own Congress still hesitates to make any general provisions for either officers or men who are dismissed without furlough, their pay ceasing on dismissal. How abrupt the dismissal has been in some cases is probably not generally known. For instance, members of the medical corps, not in the regular army, who were over fifty years of age, were dismissed by telegraph, the discharge to take effect on the receipt of the telegraphic order. In civil life even an office boy is not dismissed in so summary a manner.

It is of interest to observe that in those days the apothecary was recognized and given commensurate commissioned rank. The apothecaries continued to receive this recognition until all the apothecaries and even all the regimental surgeons were dismissed in 1821, when the army was cut down to ten regiments. The surgeons have been restored and have been given higher and positive

military rank, but the apothecary has never been recognized again since that time, though no adequate reason has ever been put forward for failure to reinstate him as a commissioned officer. It is true that commissions have been granted to a few pharmacists in the medical supply service, but not as pharmacists. They are members of that nondescript body, the sanitary corps, which is the "omnium gatherum" for all the officers in the medical department who are not graduates in medicine.

The administrative organization of the hospitals is set forth by Colonel Owen in considerable detail. A purveyor and assistant were provided for each hospital, whose duties were similar to those of our present quartermasters, as they kept the accounts of the hospitals and provided and issued stores on requisitions from surgeons. An apothecary and an assistant were also provided for each hospital, whose duty it was to receive, prepare and deliver medicines, instruments, and dressings, and other articles of the medical department.

In the matter of pay our surgeons are much better off than their professional ancestors. The director received but \$150 a month, chief physicians and surgeons \$140, purveyor and apothecary \$130 each, physicians and surgeons \$120, assistant purveyors and apothecaries \$75, regimental surgeons \$65, and surgeon's mates \$45. All received rations in addition. Our surgeon general receives \$666 a month, and commutation for quarters. A regimental surgeon, a major, now receives \$250 monthly, besides commutation for quarters. Even when the greater purchasing power of the dollar in those days is taken into account, the present day surgeon is very much better off as to both pay and rank than the surgeon of the revolutionary army.

MAINTENANCE OF GOOD HEALTH.

Reconstruction of every kind will follow the war. Among other means, it is obvious that the reconstruction of the machinery for preventing disease and for maintaining good health will not be neglected. Life is now more valuable than ever before, and the greatest asset of a nation is the sound health of its individual members. The war has taught plainly two lessons. First, that a very large number of diseases and abnormal conditions are preventable, and, second, that preventable conditions of ill health and physical defects of many kinds are extremely frequent. The severe analysis of the army medical examination has revealed the truth in all its nakedness that

the ordinary man is far from physical perfection. At the same time, it is now a matter of common knowledge that perhaps the majority of these imperfections can be rectified without much difficulty and that a great deal of disease and many defects can be absolutely prevented.

The people must not only demand health as their inalienable right, but must give effect to this demand. Therefore, the population at large must receive education on health matters, and an important department of a national board of health should be that of propaganda. Prove to the masses the inherent and essential value of scientific preventive medicine and they will clamor for it. It has also been suggested that in the formation of a Ministry of Health in England a Central Imperial Bureau should be included, not in order to control the health affairs of outlying parts of the empire, or even of Scotland or Ireland, but a bureau which should act as a sort of clearing house for the exchange of ideas.

While science should know no frontiers, it is literally true that disease knows none. It might be necessary, or, at any rate, of the greatest value in times of epidemics, to spread information rapidly, to transport supplies, to lend skilled help. The recent pandemic of influenza is a case in point. The central bureau, then, would deal in an advisory way with research into disease. It would make suggestions, it would offer help, it would gather and disseminate information. It might, possibly, be able to recommend changes in teaching in accordance with the spirit of the times. The real executive power would lie with the National Health Council, which would thus form the second tier in the structure. The third tier would be the local health area. The plan referred to above promises well, and, if its execution is only fairly thorough, will mark a very long step in advance of preventive medicine. The progress of the Ministry of Health Bill in Great Britain will be watched with the greatest interest by the medical profession of this country.

REFORM OF MEDICAL NOMENCLATURE.

Mankind insists on classifying his world in great groups, and the individual who happens to fall into an unpopular category is doomed to a certain amount of ostracism. Perhaps those who suffer most from this generic vagueness are those styled "lunatics," though the old belief of the insane being particularly affected by the moon has long ceased to exist, and, at a recent conference of asylum authorities in London, it was decided that this word and some others, equally indefinite, yet which cast a slur on the people so designated, should be aban-

doned. Long ago, we find Dr. Benjamin Rush suggesting the term "bettering house" for mad-house, because of its social and psychic effect on the patient and his family. To have a relation "put away" was, until quite recently, regarded as a serious misfortune, even disgrace. A glance at the most recent neurological works shows the remarkable increase in classification of every form of insanity and its allied conditions. For some time the laity held the field in expressive though somewhat vulgar terms, though there was a certain aptness evinced in "a little bit off," "not quite all there," "a bit touched," "funny (!) in his head," "a screw loose," etc., yet "balmy in the crumpeet," "mad as a March hare," and "mad as a hatter" are rather difficult to explain. In proposing a national council of mental institutions one member of the asylums board urged the deletion of the words "lunatic," "lunacy," "asylum" and "pauper" and a drastic reform of the lunacy laws. Another member emphasized the importance of special mental hospitals being established by local authorities for incipient mental cases without applying the word "lunacy," and a resolution was carried for the formation of the proposed council which is to consist of all the governing bodies of all institutions, public and private.

THE HISTORY OF INFLUENZA.

It seems probable that influenza existed even before man began to make historical records, for among the earliest recorded observations of disease occur references which describe a malady with many of the symptoms. Hirsch, in his *Handbook of Geographical and Historical Pathology*, places the first clearly recognizable epidemic of this malady as having occurred in Italy, Germany, and England in 1173 and between that date and 1875 records 299 epidemics, many of which were purely local in character. The more widely spread pandemics occurred in 1510, confined to Europe; 1557, Asia and Southern Europe; 1580, throughout the world; 1627, North America, and South America as far as Chile; 1675, Europe; 1688, Great Britain; 1709 to 1712, widespread but of low mortality; 1729 to 1733, entire world; 1743, Europe; 1757 to 1767, America first, then spread to Europe; 1781 to 1782, the entire world, beginning in China and India; 1788 to 1790, whole world, beginning in Russia; 1799 to 1803, a series of epidemics beginning in Russia and spreading to the remainder of the world; 1827, Russia; 1830 to 1833, the world suffered from an epidemic in two or three waves; 1836 to 1837, whole world beginning in Australia; 1847, Europe and South America; 1889 to 1890, the most widespread of pandemics, originating in Turkestan and spreading with great rapidity.

As pointed out in *The Practitioner* (February, 1919, p. 107) the disease has been given a wide variety of names. La grippe first came into use in France in 1712. The Italian name influenza was first used in England in 1729 and came into general use in the epidemic of 1775 having been formally adopted by the London College of Physicians.

News Items.

Personal.—Captain Theodore W. Richards, Medical Corps, U. S. Navy, will command the new naval hospital which is being erected on Ward's Island, New York. He is at present on duty there in connection with the construction and equipment of the hospital.

Mild Scarlet Fever Epidemic.—There were 151 new cases of scarlet fever reported in Baltimore last week and the Health Department has issued a bulletin warning parents and school children, stating that there had been a marked increase in scarlet fever for the past month and recommending immediate segregation for the children.

Quarantine at Sing Sing.—A special quarantine has been declared at the death house in Sing Sing to prevent the fourteen men who are there awaiting death from contracting diphtheria. Two murderers from up State are to die next Monday and it is feared that an extension of the epidemic to the death house would cause a postponement of the execution. There have been no fatal cases among the sixty-five who contracted the disease.

Battle Casualties 240,197.—Battle casualties of the American Army in France, as shown by revised divisional records, announced by General March, total 240,197. There will probably be a further slight revision as final reports are received. The second division showed the greatest losses with a list of 24,429. The first division followed with 23,973. The battle casualty figures now announced include in the total wounded some which were not included in the tables of major casualties recently made public by the War Department.

Strange Sleeping Disease in Chicago.—Health Commissioner Robertson, of Chicago, has announced that the first death which was attributed lethargic encephalitis has been reported. He instructed all physicians to report all cases with observations on the course of the disease. The commissioner said that the disease resembled that of the sleeping sickness of Africa. The death was that of a man of forty years. A case has been reported in Evanston of a young woman who has been in a state of coma for eighteen days.

A City Hospital on Washington Heights.—At a mass meeting of physicians of the Washington Heights section of New York, held on Monday evening, March 10th, the temporary campaign committee for a city hospital on Washington Heights was made a permanent organization and called the Washington Heights Physicians' League. The purpose of the organization is to secure a city hospital for that section of the city where facilities for caring for the sick are wholly inadequate. The officers are: Dr. M. Joseph Mandelbaum, president; Dr. Henry G. McAdam, vice-president; Dr. Lesser B. Groeschel, secretary, and Dr. W. F. Bender, treasurer. The plan has the sanction of all local civic bodies, the Health Department, and the Department of Charities, and it is believed that the hospital is practically assured. A committee will be appointed soon to secure a site for the new institution.

Plans Eugenics Memorial.—The Eugenics Research Association of Cold Springs Harbor, L. I., proposes that a "Roosevelt Institute of American Family Life" be organized and developed in connection with the eugenics record office of the Carnegie Institution of Washington. The association, which owns eighty acres in the precinct in which Colonel Roosevelt used to vote, suggests that the institute be situated at Oyster Bay, where, it is proposed, the institute "will strive to advance those ideas of responsible and patriotic parenthood for which Theodore Roosevelt so valiantly battled."

Policemen to Be Vaccinated for Pneumonia.—A warning has been issued by the New York Board of Health to the policemen of New York city. Large placards have been posted in every police station warning the men to avoid pneumonia by becoming vaccinated. Health Commissioner Copeland stated that the vaccination would not be compulsory but it was hoped that the warning would be heeded. Experiments have shown, he said, that in the cases of men living the outdoor life of policemen, the number of cases of pneumonia and the percentage of mortality are greatly reduced by vaccination.

Medical Association of the Greater City of New York.—A stated meeting of the association will be held in Du Bois Hall, New York Academy of Medicine, Monday evening, March 17th, under the presidency of Dr. Edward E. Cornwall. The topic chosen for discussion is intestinal toxemia. Dr. A. A. Rutz will present some clinical observations on chronic intestinal toxemia, and Dr. J. G. Dwyer will discuss the rôle of intestinal toxemia in producing focal infections. Among those who will take part in the general discussion are Dr. E. Libman, Dr. Helen Baldwin, and Dr. Henry F. Graham.

Clinical Society of Lenox Hill Hospital.—At a meeting of the society, held Friday evening, March 14th, a symposium on streptococcus empyema was presented. Major De Witt Stetten, Medical Corps, U. S. Army, president of the society, presented the subject from the surgical viewpoint, illustrating his address with lantern slides. Captain A. Garbat, Medical Corps, U. S. Army, dealt with the subject from the medical and laboratory viewpoints, and the disease was discussed by Dr. G. L. Rohdenburg from the viewpoint of the pathologist. Dr. R. Denig demonstrated a case of canis præsenilis.

Health Conditions in the Navy.—The health of the United States Navy continues excellent, according to reports from the Bureau of Medicine and Surgery, Navy Department. Death from all causes in the week ending February 15th, totaled 103, of which ninety were in the navy, and thirteen in the Marine Corps. Influenza and pneumonia caused fifty-three deaths, drownings, accidents, etc., twenty-seven. The annual admission rate per 1,000 for communicable diseases, week ending February 8th, show: Cerebrospinal fever, .050; diphtheria, 1.80; malaria, 3.20; measles, 2.70; pneumonia, 8.90; scarlet fever, 1; influenza, 147.40; tuberculosis, 3.

Colonel Lyster Retires.—Lieutenant Colonel Theodore C. Lyster, Medical Corps, U. S. Army, has been retired from active service upon his own application, with the rank of colonel, to take effect February 28, 1919. Colonel Lyster during the present war was appointed a temporary brigadier general in the Medical Corps. He was born in Kansas, July 10, 1875, and entered the army as a private in the Hospital Corps June 22, 1898. He served during the war with Spain in the 2d Kentucky Volunteer Infantry and was appointed an assistant surgeon in the Regular Army in 1900 and is a graduate of the University of Michigan. He was last on duty in Washington.

Sleeping Sickness Follows Influenza.—Numerous cases of sleeping sickness have been reported in Kansas City and it is believed by some physicians to be an aftermath of influenza. Among noteworthy cases in Kansas City are Miriam Johnson, aged fourteen, who has been sleeping for five months; Adelaide Oswood has been asleep for fifty-seven days, and a master mechanic on the Sante Fe Railroad who has been unconscious for 120 days. Only one death has been reported. The symptoms are extreme nervousness and a profound sleep. Patients may be roused to a semiconscious state and will partake of nourishment, only to slip back into coma in a few minutes.

World Health Conference Called by Red Cross.—Colonel William H. Welch, director of the School of Hygiene and Public Health, established by the Rockefeller Foundation in connection with the Johns Hopkins University, has sailed for Cannes, France, to attend a health conference called by the International Red Cross, at which the allied nations will be represented. This conference is preliminary to a general conference of the International Red Cross which will be held at Berne, Switzerland, one month after the peace negotiations have been finally consummated. At the Cannes conference delegates from only the United States, England, France, Italy and Japan are likely to attend.

Prohibition and Drug Addiction.—Health Commissioner Copeland asserts that the advent of prohibition will surely be followed by a tremendous increase in the number of drug addicts in New York city. He believes that when prohibition goes into effect, there will be a great increase in the number of drug users. He stated that one person in every thirty in New York today was addicted to the use of some sort of a drug and that he estimated the number of drug users to be 200,000 in the entire city. The scarcity of liquor has already had its effect upon the drug market and the amount of cocaine which was used during December and January was greater than for the ten preceding months, and in February the increase was so great that the wholesalers had to put a limit upon the sale. He urged that some steps be taken to meet the coming situation and told of the defects of the law regarding the sale of narcotics. Commissioner Copeland intends to do something for the treatment of those addicted to the use of drugs and to make it harder for unauthorized persons to obtain it.

Deaths from Influenza and Pneumonia.—Reports received by the Public Health Service, Washington, D. C., from the health authorities of forty-six of the large cities of the United States, for the four weeks ending March 8th, show that during this period there were 3,868 deaths from influenza and 5,891 deaths from pneumonia.

Scholarship for Nurses.—An appropriation of \$100,000 as a scholarship fund to induce graduate nurses released from the army and navy nurse corps to train for public health nursing is announced by the American Red Cross. A maximum scholarship of \$600 will be granted for an eight months' course of training and \$300 for a four months' course. The fund will be administered by the Red Cross Department of Nursing, and scholarships will be granted on the recommendation of Red Cross division directors of public health nursing.

Bronx County Medical Society.—A meeting of this society will be held in the Knights of Pythias Hall, 149th Street and Walton Avenue, New York, Wednesday evening, March 19th, under the presidency of Dr. Isaac M. Heller. The programme arranged for this meeting includes the following papers: Reconstruction and Public Health, by Dr. Royal S. Copeland, commissioner of health; Diphtheria; Intubation and Tracheotomy, by Dr. Joseph Dillenberg; A Few Notes on Hookworm, with exhibition of specimens, by Dr. William Woyschin. The discussion will be opened by Dr. William H. Park and Dr. I. H. Goldberger.

Woman Physician on the Staff of Harvard Medical School.—Dr. Alice Hamilton, of Chicago, has been appointed assistant professor of industrial medicine in the Harvard Medical School, the first woman to hold a position on the Harvard University Faculty. Doctor Hamilton obtained her degree in medicine from the University of Michigan in 1893, was professor of pathology at the Woman's Medical College of Northwestern University for three years, and served as bacteriologist to the Memorial Institute for Infectious Diseases in Chicago for eight years. Since 1910 she has been engaged in investigating industrial poisons for the Federal Department of Labor.

Meetings of Local Medical Societies.—The following medical societies will hold meetings in New York during the coming week:

MONDAY, March 17th.—New York Academy of Medicine (Section in Ophthalmology); Medical Association of the Greater City of New York; Psychiatric Society of Ward's Island; Yorkville Medical Society.

TUESDAY, March 18th.—New York Academy of Medicine (Section in Medicine); Federation of Medical Economic Leagues of New York.

WEDNESDAY, March 19th.—New York Academy of Medicine (Section in Genitourinary Diseases); Medicolegal Society; Northwestern Medical and Surgical Society of New York; Women's Medical Association of New York City; Alumni Association of City Hospital.

THURSDAY, March 20th.—New York Academy of Medicine (stated meeting); New York Celtic Medical Society.

FRIDAY, March 21st.—New York Academy of Medicine (Section in Orthopedic Surgery); Clinical Society of the New York Postgraduate Medical School and Hospital; New York Microscopical Society; Alumni Association of Roosevelt Hospital; Brooklyn Medical Society.

SATURDAY, March 22d.—Lenox Medical and Surgical Society; New York Medical and Surgical Society; West End Medical Society.

Miscellany from Home and Foreign Journals

Accidental Hemorrhage in Connection with Eclampsism.—William Smyly (*Lancet*, January 25, 1919) agrees with Schmorl that eclampsia is a definite disease of pregnant women and their infants, characterized especially by vascular thromboses, cellular necrosis, and hemorrhages. The so called preeclamptic toxemia is undoubtedly essentially the same disease and the term "eclampsism" has been suggested to cover all of the cases in which convulsions have not occurred. While the hemorrhagic tendency is most commonly manifested in multiple petechial extravasations, nevertheless severe and even fatal hemorrhages occasionally occur in various locations such as the brain and peritoneal cavity. An association which has only very recently been recognized, however, is that of accidental hemorrhage with eclampsia or eclampsism. Three cases of this type are cited from the author's personal experience and it is pointed out from these and a study of the literature, including the results of animal experiments, that the cause of the detachment of the placenta and the bleeding is the occurrence of thrombosis of the veins of the placental site. This thrombosis is the result of the toxemia of eclampsism. Accidental hemorrhage, therefore, is but one of the manifestations of eclampsism. The pathological findings in the uterus and the evidences of involvement of the kidneys are precisely similar in cases of true eclampsia and in those of accidental hemorrhage in which a casual examination of the patient fails to reveal any obvious evidences of the eclamptic state.

The Extension of Eclampsia.—W. Gessner (*Gynäkologische Rundschau*, 1917) believes that the question of the kidney of pregnancy and gravidic eclampsia is above all a question of diet, because the fatty condition of these patients can only be influenced by proper feeding. The collections of fat, in these subjects, is caused by an overconsumption of steatogenous substances, as fats, sugars, pastry, etc. In northern countries, where the people have a greater need for fat, eclampsia is more common than in the warmer countries. For the same reason the same opposite ratio of eclampsia cases present themselves in winter and summer. In Germany the predisposition to obesity is favored by the great consumption of steatogenous substances, for they have an enormous pig and potato production. People who take a great deal of exercise do not have an excessive fat accumulation, as is shown by the condition of the workers in the country. In these districts eclampsia is uncommon; while in the city, where the life is more sedentary, eclampsia increases in proportion. England, being a country where the consumption of fat is limited, the people eating mostly lean meats, and where there are a great many sporting activities, shows the smallest number of eclampsia cases. The thinness so characteristic among the English peoples is also found among the Swiss, who are obliged, from the nature of their country, to indulge in intense physical exercise, and as a result eclampsia is rare. (The number of

eclampsia cases in the Obstetrical Clinic of Basel for the past nineteen years did not reach the figures of the Berlin Gynecological Clinic for three years, in spite of the fact that they had the same number of annual births. The figures were 156 against 177 cases). The same phenomena are found in veterinary obstetrics. In Germany, where the farmers keep their cattle in barns, without exercise in order to obtain more milk and feed them liberally with flour, barley, etc., eclampsia in young cows is more frequent. The animals which have their liberty do not develop eclampsia. Gessner is opposed to the idea of putting women to bed when there is a possibility of eclampsia, as in the cases of pale, corpulent primiparæ with renal symptoms. He orders exercise principally in the form of scrubbing floors. The fact that the proportion of eclampsia cases has decreased considerably during the war tends to confirm the author's theories.

Painless Childbirth.—Henry Schwarz (*American Journal of Obstetrics*, January, 1919) notes that, of 1,000 patients delivered at the Barnes Hospital, St. Louis, 103 received no anesthetic. Chloroform exclusively was given in 377 cases; ether exclusively, in fifty-four cases, mostly patients with toxemia and eclampsia. Nitrous oxide oxygen analgesia was used in only sixty-nine cases, but the author considers it the safest and one of the most effective means of abolishing a certain amount of the pain. It is particularly suited to multiparous women, and requires the constant bedside attendance of the obstetrician, even more than does twilight sleep. At the oncoming of each pain the patient is requested to take four to six deep inhalations, and the gas is then shut off before the uterine contraction has reached its height; the patient remains conscious at all times. At the end of the second stage of labor, the analgesia is readily deepened to anesthesia by constant breathing of the gas. Scopolamine narcophine semianarcosis was employed in 393 cases. In using this method the patient's ears are stuffed with cotton soaked in olive oil and the eyes covered with gauze held by adhesive strips. The initial dose of scopolamine is 1/133 grain; for women weighing less than 120 pounds, 1/200 grain, and for those over 150 pounds, 1/100 grain. Half a grain of narcophine, or one sixth grain of morphine is given along with the first injection. The injections are made subcutaneously. The second injection is usually given forty-five minutes after the first. When the time for this injection approaches, a vaginal examination is made to ascertain the degree of dilatation, and this procedure is repeated after every subsequent injection. When dilatation is found complete or nearly so, all injections of scopolamine are stopped. The memory test is not used. Before the second injection, and before every subsequent injection, the patient is told to put her index finger on the tip of her nose, her eyes remaining covered. If she succeeds promptly, the injection is given; if not, it is omitted, or the dose reduced. After the third

injection of scopolamine most patients remain sufficiently narcotized for two hours or longer. Where the first stage of labor is protracted for many hours, twilight sleep is far preferable to all other methods; the nose test having become negative, the drug is continued in small and infrequent doses to keep the patient in the same condition. The patient must, however, also be kept from crossing the twilight boundary to an unnecessarily deep narcosis. This boundary is reached when, during a labor pain, the pupils no longer show the usual dilatation at the height of the pain, because they are already maximally dilated. In primiparæ, inhalation of very small quantities of chloroform is added as soon as the perineum begins to bulge; ten to fifteen drops usually render the patient completely relaxed and unconscious. The method, in the hands of the author has proved entirely safe.

The Condition of the Ovaries in the Amenorrhea of Wartime.—R. Köhler (*Zentralblatt für Gynäkologie*, Nos. 14, 15, 1918) studied two cases of amenorrhea, macroscopically and microscopically, and found a cystoid degeneration composed of numerous small cysts. This has been affirmed by L. Fränkel. The writer found the ovaries atrophic with a defective maturation of the follicles and a nonformation of the corpus luteum, for the latter causes the premenstrual transformation of the uterine mucosa and brings about the hemorrhage by its disappearance. The reason for the nonmaturity of the follicles should be looked for in the overwork and the psychic excitement. It should be noted that the number of cases of amenorrhea coming to the Wieden Hospital at Vienna for treatment have notably decreased during the last few months.

Change of Positive Wassermann to Negative at the Termination of Pregnancy.—M. L. Menten (*American Journal of Obstetrics*, October, 1918), among 357 consecutive cases of Wassermann test of mother's blood at the Magee Hospital, Pittsburgh, observed positive results in forty-eight instances, or 13.45 per cent. In twenty-six of these cases of positive reaction during pregnancy, the blood was subsequently again examined after an interval of from one day to two weeks after parturition. In twelve serums no appreciable change in the quality of the positive reaction could be detected, but in the other fourteen negative results were obtained. The blood remained negative when these patients left the hospital two weeks after delivery. In eight of the fourteen cases evidence of previous syphilitic infection existed, but not in the remaining six. Study of the series revealed no factor other than parturition that might have influenced the reaction. No woman who has given birth to a macerated fetus should be considered nonsyphilitic because the Wassermann test on the postpartum blood is negative. Selection of a woman with a similar Wassermann finding as a wet nurse would appear to be attended with risk. Probably some of the discrepancies among various investigators regarding the value of the Wassermann in pregnancy may be attributed to the circumstances referred to. The diagnostic value of the Wassermann test in pregnancy is undoubtedly much greater in antepartum than in postpartum blood.

Amenorrhea of Prolonged Duration in Diabetes.—Gessner (*Zentralblatt für Gynäkologie*, Nos. 14, 15, 1918) reports the case of a corpulent female who had diabetes and pruritus. All of these symptoms disappeared following the food restrictions entailed by the war. On account of the limited war diet labor has become easier, while the nephritis of pregnancy and eclampsia are less common. For this reason the writer is opposed to a supplementary diet for pregnant women.

The Operative Treatment of Rectal and Genital Prolapses.—A. Mayer (*Zentralblatt für Gynäkologie*, Nos. 14, 15, 1918) obtained good results in three cases of rectogenital prolapse, by first reconstructing the perineal floor and freshening the sphincter ani. A flap of fascia is removed from the thigh and when Sellheim's plastic operation has been done the band of fascia is sutured around the sphincter, then the ring of fascia which is obtained is tightened. The writer recommends this procedure on account of the good results which he has obtained.

A New Treatment for Leucorrhea with Birch Tar.—W. Linnartz (*Gynäkologische Rundschau*, Nos. 21, 22, 1917) has had some excellent results by using the following treatment: The vagina is thoroughly cleaned and dried and a glass speculum is introduced. The cervix and cervical canal are then cauterized with a silver nitrate stick. Then a long handled artist's brush, which has been dipped in ol. rusci, is introduced and held against the cervix. Care should be taken not to touch the edge of the speculum with the brush. The speculum is taken out after a few minutes and the walls of the vagina are vigorously rubbed with birch tar. The brush is then withdrawn and a tampon is introduced in order to protect the linen. The treatment should be given daily for the first three days. At the beginning of each subsequent treatment the lumps of dried tar are removed by dry rubbing. When there has been an improvement manifested the treatment is carried out once a week until a cure is obtained. The tar adheres strongly to the mucosa no matter how moist it may be. It acts as a strong bactericidal and has a favorable effect upon the inflammation. It protects the mucosa from the irritating secretions from the cervical canal. The hindrance to coitus is useful particularly in cases of gonorrhea.

The Cerebellar Gait.—I. Leon Meyers (*Journal of Nervous and Mental Disease*, January, 1919) through a pedographic study conducted on dogs has arrived at the following conclusions: There is no asthenia in the muscles affected by the cerebellar lesion. There is no arrhythmia in the sense of an unsteadiness or tremor in each single contraction of the affected muscles. There is no difference from the normal in the force with which the flexed and advancing limb is, in returning to the vertical, deposited on the ground. The primary, the essential effect of a cerebellar lesion is a change in the rhythm of the affected limb with relation to the corresponding limb on the normal side, the change exhibiting itself in a hyperactivity of the extensors, so that the former limb extends and initiates the step too early.

Differential Diagnosis of Amebic and Bacillary Dysentery from the Blood.—G. Marshall Findlay (*Lancet*, January 25, 1919), says that, taken in conjunction, the iodine reaction of the polynuclear leucocytes and the production of nuclear pseudopodia in the polynuclears permit a rapid and differential diagnosis between bacillary and amebic dysentery. The occurrence of a well marked iodine reaction and the absence of nuclear pseudopodia indicate bacillary infection, while the exact reverse is indicative of an amebic infection. A mixed infection would be indicated by the presence of positive reactions to both tests. The application of these two tests gives correct results in at least ninety per cent. of early cases. The iodine test is performed by incubating a drop of blood between a slide and coverglass for one hour to obtain adherent polynuclears, which are washed clean with a little normal saline. The two films of white cells are then mounted in one per cent. iodine in potassium iodide and the proportion of cells containing mauve colored droplets is determined, the size of the droplets being also noted. In bacillary infections from sixty to eighty per cent. of the cells will give the reaction, as compared with about fifty per cent. for normal persons. In some of the long standing cases of amebic dysentery, in which there is marked ulceration and secondary bacillary infection, the iodine reaction will be found positive and in such cases the diagnostic value of the test is much impaired.

Emphysema of the Mediastinum.—C. Achard and L. Binet (*Bulletin de l'Académie de médecine*, December 17, 1918) report experiments performed on dogs and human cadavers to elucidate the mediastinal emphysema frequently observed in war surgery among chest wounds. Injection of air into the inlet of the thorax in anesthetized dogs caused asphyxia and death, and at the autopsy there was found gaseous infiltration of the entire mediastinum, especially about the esophagus, trachea, and great vessels. Above, the distention passed into the neck, and below, into the retroperitoneal tissues and even into the pelvis. Similar results were obtained in human cadavers. Clinically, such a direct mediastinal insufflation is met with in cases of injury of the trachea or a large bronchus that "blow into their mediastinum." Insufflation into the lung may induce an indirect interstitial emphysema of the mediastinum through the hilum. Insufflation into the pleural cavity, if sufficiently pronounced, causes a mediastinal emphysema accompanied by cervical and abdominal emphysema. These experiments substantiate mediastinal emphysema as a complication of pulmonary or pleural injury. Air injected under the skin of the thorax or abdomen does not cause deep emphysema, but injection in the neck brings about deep emphysema about the trachea and esophagus, spreading toward the mediastinum. Subcutaneous injection in the perineal region causes pelvic and posterior abdominal emphysema. Hence, injection of oxygen gas near the cervical or perineal region should be avoided. Obliteration of the trachea, coupled with a cervical wound, is capable, in the presence of powerful asphyxial inspirations, of inducing mediastinal emphysema through aspiration of air.

Formation of a Leg Stump for the Application of a Short Prosthesis.—F. Oelecker (*Zentralblatt für Chirurgie*, Nos. 14, 15, 1918) shows that in certain cases of amputation of the leg, it is advisable to form a club shaped end for the stump, which offers the advantage of requiring a prosthesis shaped like a shoe. To obtain this the writer fractures the end of the fibula and utilizes a flap of the tibial periosteum for an osteoplastic covering. In order to maintain the diastasis of the fibula a bit of the bone may be employed. As soon as the stump is formed a furrow develops in the soft parts and the straps of the prosthesis are fixed in this furrow.

Formation of an Oculonasal Lacrymal Duct.—V. von Hacker (*Zentralblatt für Chirurgie*, Nos. 14, 15, 1918), in the case of a face wound following a plastic operation on the nose and cheek finding that epiphora persisted, resorted to the following procedure: A silk thread was introduced into the lower end of the lacrymal duct and drawn through the cicatrized mass of the left nostril. The thread was first soaked in an epithelial paste, which was obtained by scraping the epidermis. The thread was left *in situ* for several weeks and frequently drawn up and down. This simple treatment was perfectly successful and is warmly recommended by the writer.

Cure of Ischemic Paralysis of the Forearm by Periarterial Sympathectomy.—Barthélemy and Tuffier (*Presse médicale*, December 19, 1918) refer to a case of complete paralysis of the forearm and hand, with disappearance of the radial pulse, following prolonged compression of the shoulder in a landslide. After a month Volkmann's contracture was beginning to occur, and it was decided to practise periarterial sympathectomy. The artery was found to be of the size of the lead in a pencil, white, and apparently empty. Cautious denudation of the vessel for a distance of ten centimetres, followed by irrigation with hot saline solution, resulted in return of the radial pulse and of warmth of the forearm and hand within a few hours. Soon slight movements of the hand reappeared, and in ten weeks after the operation the limb had completely recovered its warmth and motility.

Influenza in Bombay.—E. Selby Phipson (*Indian Medical Gazette*, December, 1918) gives an account of previous epidemics of influenza in Bombay, followed by a study of the genesis, incidence, clinical features, bacteriology, and mortality of the disease, and the problem of prevention. The difficulties of the latter he sums up in the following words: "The influenza epidemic of 1918 lasted in Bombay for barely four weeks. In that short period of time the epidemic cost Bombay over 1,600 lives, at least a million working days, an inconceivable amount of discomfort, expense and inconvenience. The virus is such that it is practically impossible to prevent its entrance or to control its spread. No country and no city, which has lain in the natural path of influenza in its pandemic form, has ever succeeded in avoiding its incidence, and in the present state of our knowledge there is no prospect of doing so, except by the imposition of restrictions of such severity that no community could be expected to tolerate them. With a dis-

ease of low mortality like influenza, the public prefer to take their chance, and preventive measures on a large scale in Bombay or any other Eastern city demand a degree of public enlightenment and cooperation which is not likely to be realized before the millenium. The situation is admittedly unsatisfactory, but there is some comfort in the reflection that by the time Bombay is devastated by the next epidemic of influenza, the visitation of 1918 will, in all probability, be almost forgotten, and the disease will be hailed once more as 'The Mystery Fever.'

Staphylococcus Aureus Septicemia.—Adam Patrick (*Lancet*, January 25, 1919) found secondary infection with the *Staphylococcus aureus* to be not uncommon in the more severe cases of influenza and bronchopneumonia. Such cases, as described in a note by A. Garrod, present a definite clinical picture different from that of the ordinary influenzal bronchopneumonia. The temperature rises after the short primary fever and the patient's condition becomes suddenly grave; there is some cyanosis, the respiration is very rapid—forty to sixty per minute—and coma and delirium rapidly follow. The whole clinical picture is one of gradual suffocation. If the patient recovers there is a rapid lysis on the eighth or ninth day of the secondary fever with rapid subsidence of the general symptoms. Among fifty patients with influenzal bronchopneumonia nine died, seven of them having shown *Staphylococcus aureus* in the sputum, while nine others, who also showed this organism, recovered. Eleven fatal cases were examined post mortem and nine showed staphylococcus septicemia and lobular pneumonia. This organism is a rare invader of the respiratory tract and ordinarily is not very virulent, but under certain circumstances in which there is a lowered bodily resistance it becomes an organism of great virulence.

Epidemic Catarrhal Fever.—William L. Somers (*Archives of Diagnosis*, October, 1918) believes there is much to be said in support of the view that any one may carry about the infective agent or agents of epidemic influenza for any length of time without any sign of illness and consequently may, under changed conditions, come down with the disease without, at the time, having acquired it from anybody. He classifies influenza cases into eight groups. The first shows a rise of temperature with chills, malaise, and headache, but no other symptoms; these cases are usually mild and of short duration, but exceptionally the fever persist for two or three weeks. A second group shows fever with pain, which usually lasts one week and may be very severe. The third group exhibits fever with disproportionate physical and mental depression, and the fourth, fever with catarrhal inflammation of the eyes, nose, pharynx, tonsils, and larynx. The great majority of cases in the late epidemic belonged in this group. The laryngitis may produce hoarseness persisting for weeks. In the fifth group there is rise of temperature with bronchitis, sometimes accompanied by the conditions found in the fourth; the bronchitis may come on early or late, and may be general or strictly localized in one lung or lobe. The sixth group exhibits pneumonia, more

frequently lobular than lobar. Severe pain is common, often along the sternum. The seventh group is characterized by acute catarrhal gastritis or colitis, with vomiting or abdominal pain. The last group is that showing erythema. The rash may be general or localized, uniform or morbilliform. The location and duration of these rashes usually renders them easily distinguishable from those of scarlet fever, or measles. They bear no relation to the severity of the case.

Simple Culture Media for the Influenza Bacillus.—Alexander Fleming (*Lancet*, January 25, 1919) mentions the difficulty of obtaining good growths of the *Bacillus influenzae* on ordinary media and the elaborate and time consuming technic required for the preparation of suitable media. His experiments show that both difficulties can be overcome by the use of one of the several media which can be prepared with ease and expedition. Perfectly suitable media include blood boiled in agar, agar containing the clear colorless fluid resulting from boiling blood in water, and agar containing blood which has been broken down by the action of strong mineral acids. If a small quantity of brilliant green be added to these media they become actively selective for the influenza bacillus by inhibiting the growth of pneumococci, streptococci, and staphylococci. The technic of preparing these media is given in detail. The author also cites a series of his experiments which show that the blood serum from influenza patients agglutinate the organism in dilutions ranging from one in eight to one in 1,000, while the serum from normal persons fails to agglutinate the organism even in a one to four dilution. This fact seems to lend support to the belief that the influenza bacillus is either the cause of the disease, or is an extremely common secondary invader.

Postinfluenzal Hemoptysis.—Horace Wilson (*Lancet*, January 25, 1919) says that there is a large group of cases of influenza in which hemoptysis occurs, usually toward the end of the illness when there is slight cough, an increasing weight, and no tendency to wasting. The sputum is stained bright red and does not appear rusty as in pneumonia. It contains pneumococci as the predominant organism and tubercle bacilli are absent. The characteristic physical signs are distributed posteriorly and are bilateral. In both suprascapular areas the breath sounds are faint, and moist, granular adventitious sounds are abundant. The percussion note is somewhat impaired but there is no bronchial breathing. The bases of both lungs show congestive crepitation. Otherwise the lungs are clear. The temperature is irregular, but the pulse is not so rapid as it would be in a tuberculous toxemia with similar physical signs. Observation of such cases will show the gradual subsidence of both the temperature and the physical signs within a few weeks. Such cases as these are often very difficult to differentiate from those in which an attack of influenza insensibly runs into acute pulmonary tuberculosis, but the differentiation can usually be made by the careful examination of the chest, the bacteriology of the sputum, and the progress of improvement.

Differential Bacteriological Diagnosis of Syphilitic Chancre and of Ulcerations of the Type of Vincent's Angina.—Payenneville (*Presse médicale*, December 19, 1918) points out that ulcers due to spirochetes and fusiform bacilli are by no means restricted to the throat, as in Vincent's angina, but may occur in other portions of the body, particularly on the genital organs. While the ultramicroscope suffices in distinguishing between chancrous and fusospirillar discharges, the author prefers Harrison's modification of the Burri method in the laboratory diagnosis. Unless due care is taken, the infection of an ulcer with syphilitic spirochetes is apt to be overlooked where the fusospirillar infection coexists, with possible unfortunate results to the patients owing to insufficient treatment. The laboratory procedure favored by the author consists in placing on a clean slide one drop of a solution of collargol in distilled water—0.05 gram in ten mls of water—and mixing with it one or two drops of serous discharge from the ulcer, obtained with a sterile pipette. The mixed drops are spread out thinly upon a coverglass, allowed to dry, and examined with the oil immersion objective. The two forms of spirochetes and the fusiform bacilli are seen as thin, white threads on the light mahogany background afforded by the collargol particles.

Incidence of Albuminuria and Casts in Soldiers in Training.—H. Maclean (*British Medical Journal*, January 25, 1919) conducted a systematic examination of the urine in five consecutive groups of 10,000 men each who had just completed military training. The results of the several groups agreed very closely. Among the whole 50,000 men some degree of albuminuria was found in 6.48 per cent. When allowance was made for the presence in the urine of pus, spermatozoa, etc., this figure fell to 5.62 per cent. Among the whole group 2.19 per cent. showed gross albuminuria—that is five or more milligrams per 100 mls, excluding those in which the urine showed pus, etc. Every albuminous urine was examined for casts after sedimentation and centrifugation. The casts commonly found were epithelial and hyaline, or hyaline with more or less granulation. Very few blood casts were discovered. Epithelial casts were commonly accompanied by hyaline casts, while hyaline casts not infrequently were found alone. Casts were not confined to the urine showing large amounts of albumin. Casts were found in 1.87 per cent. of the entire 50,000 men; 0.84 per cent. showing definite epithelial casts and 1.03 per cent. hyaline. The proportion of cases with casts was fairly constant among the five different groups. Among the entire series 1.1 per cent. showed casts present in large numbers, the epithelial and hyaline being almost equally divided. From these observations it seemed that about 1.1 per cent. of the men in the active army forces had inefficient kidneys and were suffering from some degree of kidney disease. The examinations also showed with certainty that not over two per cent. of the men in active service showed any indication whatever of active kidney disease—casts or albumin, or both. Investigations were also made to determine the influence of training and of its duration

upon the incidence of evidences of active kidney disturbance and they showed conclusively that even the long and very rigorous courses of training given to new recruits had no influence whatever upon the incidence, and had no tendency to cause albuminuria to become more marked. Similarly, training did not tend to reduce the incidence or degree of albuminuria. Of the whole 50,000 men examined only 161 were returned from active service with the diagnosis of possible nephritis, and of these the diagnosis was finally confirmed in only 132. Of these men so returned—that is of the total 161—only twenty-eight had suffered from albuminuria just before going to the front, and of these seven had shown both epithelial and hyaline casts and eight had had hyaline casts only. It was therefore certain that the great majority of cases returned from the front as suffering from war nephritis had not shown albuminuria shortly before contracting the disease. Previous albuminuria would seem, therefore, to play little or no part in the etiology of war nephritis, but it seems that the disease is one which arises *de novo*.

Sympathetic Disturbances in the Upper Extremities Due to Concussion of the Cervical Cord.

—Paul Sollier and Paul Courbon (*Presse médicale*, December 19, 1918) point out that edema limited to a certain segment of a limb must not be considered as inevitably due to malingering. Segmental edema may also occur as the chief objective sign in certain cases of trauma of the cervical spinal column. They have recently met with four wound cases in which, following bullet injuries of the neck, edema of the hand and fingers developed so circumscribed as to suggest previous application of a constricting band around the limb. In the first case a quadriplegia which passed off in two weeks was at first noted. Upon examination six weeks after the injury, the patient's hands showed a pale pink swollen condition, rather tense, slightly hot, with sausagelike fingers, and the skin of the palms dry and cracked. There were no motor nor superficial sensory disturbances and the electrical reactions proved normal. Further examination, however, revealed mydriasis, especially marked on the right side; loss of deep sensibility of the fingers, astereognosis, and ataxia of the hands when the eyes were blindfolded; slight ataxia of the lower extremities, and exaggeration of all the osteotendinous reflexes in the limbs. These conditions definitely indicated a disturbance of the long radicular fibres of the posterior column of the cord rather than an injury of the sympathetic chain or rami communicantes. The therapeutic results likewise bore out this conclusion, weekly x ray exposures over the nerve cells of the sympathetic system of the upper extremity, viz., from the eighth cervical to the eighth dorsal, almost completely dispelling the disturbances in seven sittings. The authors recognize, however, that such disturbances may result from involvement of either the intraspinal nuclei of the sympathetic or of the radicular pathways of the latter. The actual pathological condition is believed to be a hematorachis slightly compressing the posterior aspect of the spinal cord or the nerve roots.

Severe Chronic Diarrhea.—M. Duering (*Correspondenz-Blatt für Schweizer Aerzte*, December 21, 1918) says that as in diabetes mellitus all carbohydrates have to be banished from the food, as well as articles containing cellulose. The diet should consist of lean meat, fish, eggs, cheese, and cane sugar, coffee, and tea with cream. Milk should be forbidden because of its content of milk sugar. Milk that has been fermented by the Kefir bacilli, in which the milk sugar has been changed into alcohol and carbonic acid, is very useful, and is better when warmed. In very bad cases albumin milk may have to be resorted to. He begins his treatment, as a rule, with a purge, gives the patient black tea exclusively, and for two or three days only fluid nourishment. He warns particularly against the administration of gruel, which is badly borne. Generally the fluid stools cease in a short time, and then meat and eggs promptly promote the multiplication of putrefactive bacteria. In a few days the stools become formed and alkaline. In some very obstinate cases calcium chloride may be needed to bring about this result. The appetite soon improves and the quantities of food may be rapidly increased. After some weeks zwieback and puddings may be cautiously given. Even after noodles, grits, and rice can be taken without trouble an intolerance to potatoes persists for a long time. Foods containing cellulose also must be avoided by the patient for a long time after his recovery. Medicinal treatment is of little use in this disease, further than that opium and morphine may be useful in checking an exaggerated peristalsis and in quieting the patient.

Periodic Fever with Tibialgia.—J. Bourcart and H. Laugier (*Presse médicale*, December 9, 1918) write concerning an epidemic met with in a battalion of the French army in the Balkans in the spring of 1918. The febrile paroxysms superficially resembled those of malaria, with chills and sweating, but differed from them in the lower temperature—generally between 38° and 39° C.—the duration of the paroxysm—two to three days, and the longer and variable intervals between paroxysms, viz., four to seven days. As a rule there occurred a series of from three to six or seven paroxysms. The later attacks were milder than the first, and came at intervals one or two days longer. The most salient feature of the condition was the occurrence of violent tibial bone pains, most intense at night, and subject to spontaneous temporary exacerbations, with pains radiating to the root of the thigh. Even the lightest pressure of the finger on the crest or internal aspect of the tibia induced violent paroxysms of pain. These bone pains seldom occurred at the time of the initial febrile attack, appearing usually in the middle or even at the close of the series. They became sharpest during apyrexia and often persisted, with temporary remissions, for fifteen to twenty days after complete defervescence. Accustomed to febrile attacks, the men often failed to apply for treatment until tormented by the bone pains. In nearly all patients the symptoms mentioned were accompanied by a mild, temporary bronchitis. No patient showed splenic or hepatic enlargement. In the two patients in whom

the bone pains had been most violent furunculosis developed on the lower extremities. In the treatment, large doses of quinine were given intramuscularly, but apparently without effect. The bone pains resisted all measures save aspirin, which brought relief seldom exceeding two hours in duration. The patients all recovered completely without sequelæ. The disease seemed to be allied to that described in 1917 by German authors under the name "five day fever," Volhynian fever, or febris tibialgica. The battalion affected occupied shelters previously in part constructed or used by Russians.

Disinfection of Wounds by Antiseptic Gas Currents.—Lavenant (*Presse médicale*, December 19, 1918) reports good results from a new procedure of wound disinfection devised by Le Faguays, which consists in passing over the wound a gaseous current laden with antiseptic vapors. Thus, the gaseous current may consist of air laden with ether vapor, to which may be added volatile antiseptics such as phenol, camphor, and oil of geranium. In some instances Le Faguays used a mixture of air and oxygen in equal parts saturated with ether vapor. Usually, air is passed through a flask containing ether and a few volatile antiseptics. A Nelaton catheter introduced to the deepest part of the wound is connected with the rubber tube supplying the air and ether vapor. The gaseous injection is kept up both day and night. Results appear very promptly. As a rule, infected wounds are completely transformed in twenty-four to forty-eight hours, even where the ordinary treatments had been employed without avail. The average time of treatment, exclusively in cases rebellious to other procedures, was about ten days. The outlay involved was very small, and the annoyance to the wounded of having their bedclothes repeatedly wet through, as occurs in the treatment by continuous irrigation, was obviated.

Metabolic Studies in Gas Gangrene.—Marquis, Clogue, and Didier (*Presse médicale*, December 5, 1918) made a chemical study of the blood and urine in gas gangrene with a view to ascertaining which factors counteract or favor toxemia of anaerobic origin. In heavily infected gangrene cases a marked hypoalkalinity of the blood was always found. The hypoalkalinity was proportionate to the intensity of the infection; the lower the alkalinity the more unfavorable the prognosis. Oliguria was regularly noted, and in certain cases terminating fatally, anuria. The urine showed slight hyperacidity. The ureogenic coefficient averaged twice as high as normal, indicating clearly an acid intoxication due to hepatic insufficiency; there was also an excess of ammonia, and generally, an intense urobilinuria, showing a degenerative process in the liver parenchyma. These observations are held to prove an important rôle on the part of the liver in the defense of the system against the gangrenous condition. In some instances the toxemia is so intense that hepatic protection does not have time to become established and death ensues within a few hours. In another group of patients, the hepatic insufficiency is progressive, the organ gradually degenerating and becoming unable to oppose the toxemia.

Proceedings of National and Local Societies

NEW YORK NEUROLOGICAL SOCIETY.

The Three Hundred and Sixty-seventh Regular Meeting, Held at the Academy of Medicine, November 12, 1918.

The President, Dr. FREDERICK TILNEY, in the Chair.

Presentation of Clinical Material.—Dr. JOSEPH BYRNE presented a case illustrating the thalamic syndrome and demonstrated all the clinical evidence of this diagnosis. The case was shown primarily on account of the extraordinary sensory findings. Doctor Byrne prefaced his remarks by stating that although he had studied over ten cases of this syndrome, the nearest he got to pathological material was at an operation. The patient was fifty-six years of age; eighteen years ago in the middle of the day she had a stroke of apoplexy, falling to the floor and being unable to rise. There was no loss of consciousness but she could not speak for three years (motor aphasia), though she understood everything that was said to her. She had right homonymous hemianopsia. There was no recurrence of the attack and no convulsions. General physical examination showed normal urine; Wassermann, spinal fluid and blood, negative. Blood pressure was 115/80. The neurological examination on the motor side showed a typical right hemiplegia. The reflexes showed the usual signs accompanying spasticity. The general sensory examination was the one to which the speaker wished to draw attention.

Spontaneous phenomena.—Pains were not a feature except under certain circumstances. For instance, when testing her after a certain amount of excitation the limbs began to move, the right leg was pulled up and down at the hip joint and at the same time the patient complained of pain all over the right side of the body, especially in the foot and about the neck. On questioning, the patient was unable to give any quality to the pain. It was not pain in the ordinary sense but a sense of extreme discomfort which caused inexplicable anguish. Such a paroxysm might last anywhere from a few moments to half an hour, when it quieted down again. Emotional stimuli seemed also to be capable at times of exciting both movement and pain. Doctor Byrne expected later to elaborate the mechanism of these movements and pains.

Elicited phenomena.—There was complete absence of sensibility for all forms of stimulation with the exception of gross affective stimuli over the right half of the body and limbs, with the exception of the mesial aspect of the face and neck. Such affective stimuli as were felt were perceived only as a sense of extreme discomfort. On the mesial aspect of the face the dissociation of sensibility took on quite a different aspect. Sensibility was absent for superficial cortical stimuli while for superficial affective stimuli sensibility was preserved with overreaction, wide radiation, poor localization and inability to name the nature of the stimulus. The interesting features here were the two different types of dissociated sensibility. As perceived by

Doctor Byrne, the obvious inference from these findings was that in their peripheral distribution the sensory system of nerves consisted of the following sets: 1, superficial critical; 2, superficial affective; 3, deep critical, and 4, deep affective. This subdivision of the peripheral nerves was more practical, at least from the clinical standpoint, than Head's division into epicritic, protopathic and deep sensibility. These terms had been most puzzling, not only to students but to teachers, and there was a question whether many of those using them really understood what they meant. The division made by Sherrington into exteroceptive, enteroceptive proprioceptive might have a certain use in the study of anatomy, but from the clinical standpoint were not of much service.

The case further showed that in the thalamus lay the means of segmental sensory representation as manifested by the sensory findings over the mesial part of the face and neck, in addition to the segmental distribution observed in disease of the posterior root ganglia (herpes zoster) and in visceral disease. Another point of interest was the question of the nature of the fifth cranial nerve, i. e., whether it was a splanchnic or somatic nerve. Judging by the kind of musculature supplied by the fifth nerve, namely the muscles of mastication, the fifth nerve was regarded by many authorities as being splanchnic in nature since these muscles were derived from the first gill arch, the gills being viscera, whereas the musculature supplied by somatic nerves proper were all derived from the paraxial mesoderm. As to the mechanism, these two forms of dissociated sensibility could be readily understood from a perusal of a diagram exhibited by Doctor Byrne which showed the relation between the critical and affective paths in the thalamus. The question of consciousness was too big for discussion at this time, but Head and Holmes believed that the cerebral cortex exerted inhibitory controlling power on the essential organ of the thalamus, and in this way prevented over reaction, radiation, etc., which occur in the characteristic dysaesthesia of the thalamic syndrome. There were reasons for doubting the validity of Head and Holmes's views on this point: instead, the view might be suggested that in the thalamus either the main stems or collaterals of the critical pathways reached the so called essential organ and then exerted inhibitory control, and in support of this view one could instance the simple spinal reflexes in which the afferent impulses not only excited one set of muscles to activity in a spinal animal, but inhibited their antagonists. The control of the lower nociceptive reflexes, the lower protective mechanisms, which by the way were primarily activated by affective stimuli, was the first step in the interests of the higher mechanisms of defense, escape, etc.

Dr. H. CLIMENKO was very much interested in these sensory disturbances. He had studied a number of these cases and found that if tested with moist heat at the same temperature as the test tube the patient would recognize the sensation through

the fluid much sooner. Doctor Byrne had spoken of threshold sensation: did he mean the acuity of the stimulus, or the size of the area affected? One might get the same reaction when a large or small area was affected, with a strong stimulus. It would seem that Doctor Byrne's deductions could only be made when one studied a pure thalamic syndrome and this case presented evidence of association with hemiplegia.

Dr. SMITH ELY JELLIFFE said that he had enjoyed Doctor Byrne's presentation very much, but he wondered if he had pathological evidence to support him in elaborating these hypothetical pathways as outlined in his diagram. Secondly, in what sense would he differentiate the affective sensibility from ordinary vegetative arc reflexes? It seemed to the speaker that Head's protopathic sensibility might better be discussed from the vegetative side. Doctor Byrne's suggestions were very interesting because he was following distinctly the phylogenetic point of view and trying to keep the sensorimotor and vegetative series apart, and at the same time synthesize them in the sketch he had given of the thalamus.

Dr. FREDERICK TILNEY thought Doctor Byrne's suggestions were exceptionally good so far as they concerned this new presentation of sensory differentiation. He did not believe one could hold very strongly to Head's distinction of epicritic and protopathic sensibility. As a matter of fact, most of his own followers had put these terms in quotation marks and attempted to give an explanation of what he meant by them. The speaker believed that every type of somæsthetic sensation had an affective pathway by means of which a defense mechanism was provided to protect the tissues. As to whether these hypothetic pathways in Doctor Byrne's diagram were correct, Doctor Tilney felt that they hardly met the conditions. Phylogenetically, the hypothalamus was an archaic structure, while the thalamus proper was a more recent addition. The affective side could much rather be said to belong to the older system, and it was probable that the path for the affective neurons would be found terminating in the hypothalamus and secondarily receiving control of the cerebral cortex. The speaker agreed with Doctor Jelliffe and Doctor Climenko that one should be careful in the designation, for this case presented definitely capsular symptoms and therefore other fibres might have been compromised.

Doctor BYRNE, in replying to Doctor Climenko's comment, reminded him that moisture was a physical condition which influenced conductivity at the point of contact of the stimulus. This was somewhat similar to the effect of the increased activity of the sweat glands in the psychogalvanic test. As regarded the point that this was not a pure thalamic syndrome case but one associated with hemiplegia that was true, but the internal capsule was in very close relation with the thalamus on its ventrolateral aspect where the sensory pathways passed toward the cortex. The thalamus was a large and important organ and not every lesion of the thalamus constituted the thalamic syndrome. Regarding the size of the area stimulated, these things were all taken

into consideration and it was not the size of the area, when testing with gross affective stimuli such as heat and cold, that counted so much as the bulk of the fluid employed and the time during which the stimulus had to be kept in contact with the skin. Replying to Doctor Jelliffe's question in Head and Holmes's series of twenty-seven cases there was only one autopsy and in this, done by Holmes, the lesion was not confined to the thalamus proper by any means. Doctor Byrne had already mentioned that he had not had the opportunity of obtaining pathological material though he had studied more than ten cases which were identical in sensory distribution with the one reported here. In one of these cases, however, operation was performed by Alfred S. Taylor, and a clot and a collection of serum were found in the vicinity of the internal capsule. In regard to Doctor Jelliffe's point about the vegetative arc reflexes, it is well known, of course, that Ranson had shown that in the peripheral nerves unmyelinated fibres existed to a degree that had been hitherto unguessed and these fibres mediated the protopathic sensibility of Head, which was equivalent to the affective sensibility discussed in this case. Compare the modern view of the mechanism of tonus in skeletal muscle in which the tonic element was the result of impulses passing along sympathetic fibres which could be traced to the anisotropic disc, i. e., far beyond the limits of the ordinary end plate. In reply to Doctor Tilney, the affective pathway was par excellence the one concerned in all the lower protective mechanisms, but once the thalamus was reached the protective mechanisms took on a different aspect, and now, instead of withdrawal, other means of defense were invoked through cortical intervention, namely, judgment, memory, etc. Compare the projicient receptor mechanisms, e. g., those of sight and hearing, which with the aid of locomotion enabled an animal to avoid injury without coming into actual contact with the noxious object. The term thalamus included in its broad sense not only the hypothalamus but the epithalamus, and the pathways were not intended to be taken as representing strict anatomical conditions, but were only a suggestion as to the possible way in which lesions of the thalamus effected the dissociations of sensibility encountered. It might be that certain of the effective pathways ended in the hypothalamus, but it was also quite certain that affective pathways concerned in somatic sensibility ended in the thalamus proper.

Multiple Sclerosis with Level Symptoms. Results of Laminectomy.—Dr. HYMAN CLIMENKO presented this case, a married woman, an Austrian of Hebrew parentage, thirty-two years of age, who entered the Montefiore Hospital in July, 1918. Her father died of tuberculosis, a brother is in an insane asylum, and a paternal uncle is suffering from diabetes. The patient had one living child, had had miscarriage, and one child still born. In 1912 she began to complain of numbness and a sensation of pins and needles in the fingers of both hands. Soon she had similar sensations from the waist downward. This was followed by a burning pain in the back of the neck. Shortly afterward she began to

experience stiffness of both lower extremities and would frequently stagger and fall. There was difficulty in starting urination and constipation was present. Six months after onset of these symptoms patient underwent operation for an ischiorectal abscess, and in January, 1918, another operation was performed for a cervical spinal cord tumor. The findings were negative. Soon after this operation, however, patient felt completely relieved. She was up and about; walked with ease and the sphincteric and sensory disturbances also improved. This continued for a few months, when all her symptoms returned quite suddenly. Her present complaint was great difficulty in walking, girdle sensation, and some difficulty in starting urination. The picture the patient presented in July showed the syndrome of spastic paraplegia. No nystagmus, no changes in the optic discs. There was complete loss of deep sensibility in both feet. There was a belt of hyperesthesia corresponding to the fifth, sixth and seventh dorsal segments on the right side. Right abdominal reflexes were absent; present on left. On October 23, 1918, the same spastic condition was noticed. In addition patient suffered from vesical and rectal incontinence. She complained of pain in both lower extremities. The line of hyperalgesia was now at the twelfth segment. The Wassermann of both fluid and serum was negative. Urine negative. Blood pressure 135/85. She had a systolic apical murmur. A point of emphasis was the fact that after presenting for six years a complete picture of an organic paraplegia she practically had no trophic changes in the affected limbs.

Some time ago, Doctor Abrahamson, at a meeting of this society, spoke of the "gentle touch" in multiple sclerosis as compared with pressure symptoms due to a cord tumor. Had this patient been suffering from a tumor at the time of the operation, almost six years after onset, she would have presented distinct trophic changes of muscle and skin with the amount of disability she suffered then. This point had not been sufficiently emphasized in differentiating spinal cord tumors from multiple sclerosis with level symptoms. The changes on the sensory level were also interesting. No doubt at the time of the operation sensory changes corresponding to cervical involvement must have been present, for the incision scar ended at the first dorsal vertebra. A few months later a new level appeared at the fifth and sixth dorsal, and today a distinct level at the twelfth dorsal was present. This illustrated that it was not sufficient to make a diagnosis of a level lesion by sensory changes only. The most important point, however, was the result of the operation. Some time ago results of such operations were current. Attempts were made to show that in multiple sclerosis, where level lesions were present, a mere laminectomy was sufficient to cause an improvement in the course of the disease and probably curtail its progress. The case here presented also showed an improvement for months following laminectomy. The symptoms, however, returned. The question arose, was not the improvement following laminectomy a natural remission peculiar to multiple sclerosis, the cause of which was still not understood?

Doctor JELLIFFE regarded the diagnosis of multiple sclerosis as highly probable. The fact that the syndrome included sensory changes was in no sense to be considered as contradictions. It was very old-fashioned and obsolete to regard multiple sclerosis only as accompanied by motor syndromes. Certain patients with well marked multiple sclerosis might begin with sensory disturbances. This was largely a matter of accident as to the localization of the sclerotic areas. While it was true from a statistical point of view that motor involvement usually preceded and was more prominent, yet it was not a necessary part of the disease considered clinically or pathologically. Doctor Jelliffe said that the pathology of this disorder had interested him greatly. Of recent years he had been attempting to make some psychical correlations. The recent studies of Dawson on the vascular changes had helped him a great deal to gain some insight into the nature of the pathological processes and concerning which he had made a statement in his textbook in the chapter on multiple sclerosis. The character of the exudative phenomena which determined the pathology as well as the symptomatology had a number of analogues to other types of exudative phenomena which were known to have a strong affective basis as one of the many etiological factors. Within the spinal cord the vegetative balance of vascular control was lost with a localized vascular vagotonia, greatly circumscribed for reasons as yet quite unascertainable. The characteristic replacement tissues then came on and the chronic phases of the pathological process ensued. Strong affective disturbances then might be conceived as playing an important rôle in multiple sclerosis etiology. They induced the disturbances in the vegetative metabolic reflex arc. The nature of these effects was always hidden in the unconscious. Patients able to get them out in the open and thus capable of conscious observation escaped the possibilities of the inner affective reaction. So that Cannon's observations on hate, anger, fear, etc., while they showed that the hidebound and orthodox physiologists were discovering a realm in the human machine, known to psychiatrists for centuries, where results could happen from affective reactions which were just as strong and as positive as physical agents, were not yet deep enough and merely lay on the surface. A more penetrating study by means of the concept of the unconscious, as developed by modern psychoanalytical procedures would undoubtedly show that the so called exudative diathesis, which concept included a number of the phenomena related to the subject of discussion, had as a real underlying substratum not only somatic but also psychical characteristics which must be better understood in order to have a dynamic interpretation of the process seen in multiple sclerosis. It should not be forgotten that a multiple or localized erythema of the skin, an exudation in a joint, a serous meningeal exudate, a diarrhea, might all by an essential pathology, be related, but occurring in different tissues this underlying pathology might be confused.

Doctor I. ABRAHAMSON felt that he might add something to support Doctor Jelliffe: the pathology of multiple sclerosis in the period of remission was

the same as during the progress of the disease. The same changes had been found at autopsy. The same held true of general paresis in remission and exacerbation. With present methods of staining tissues, the explanation of clinical pictures on pathological anatomical grounds was still fragmentary and insufficient. Disease was always disturbed physiology with changes in anatomy occupying a secondary and less important position.

Doctor CLIMENKO agreed with Doctor Jelliffe in that he did not see why there should not be sensory disturbances in multiple sclerosis. He had always thought the so called remissions found in multiple sclerosis were probably due to an absorption of some exudate forming around the plaque. Doctor Jelliffe's explanation was extremely interesting.

A Case of Probable Wilson's Type, Progressive Lenticular Degeneration.—Dr. S. PHILIP GOODHART presented a boy fourteen years of age. The case represented the group whose pathology lay within the area comprehending the great central ganglia of the brain. It could not definitely be stated that the boy belonged to the type described originally by Frerichs, later by Gowers and finally definitely classified by Kinnear Wilson in 1912 as progressive lenticular degeneration. The clinical appearance, however, and development of this case would seem to place its pathology in the corpus striatum and its associations with the other centres of coordinate movement. The record of this case gave a negative family and personal history. The boy's illness began at the age of twelve, with irregular movements and difficult speech, the latter due to the same hypertonia causing the irregular movements of the extremities. The condition had been steadily progressive. Objectively there was practically no diminution of muscle power, no distinct disturbance of coordination, equilibratory or nonequilibratory. There were no pathological reflexes present, no Babinski, no Chaddock, Oppenheim, Gordon, or Schaefer. The deep reflexes were not exaggerated and the superficial ones were not modified. There was continuous hyper-tonicity and choreoathetoid movement of all four extremities. There was no pyramidal tract involvement. The speech was dysarthric but not due to supranuclear pseudobulbar or bulbar cranial nerve defect; there was just the hypertone of facial and lingual musculature. There was no appreciable mental enfeeblement but the parents stated that there had been a mental change in the nature of deterioration. Without the demonstration of any liver changes, and these were hardly possible during life, one would scarcely venture an unquestionable diagnosis here of Wilson's disease. One could, indeed, hardly go further than to say that the pathology of this case like many others with now familiar motor syndromes lay within the corpus striatum and its immediate associations. The red nucleus, the corpus striatum and the cerebellum were linked together in their associated activity. The finer differentiation of the syndromes and their association with definite pathological areas within this great terrain remained for further observation and studies of just such cases as were represented by this patient.

Doctor JELLIFFE asked if a radiogram of the abdomen showed any variation of the liver. It seemed to him that the suggestion as to this being a case of Wilson's was plausible. The question of it being one of dystonia musculorum deformans must also be considered. The actual interference of gait and the manner of its performance suggested dystonia. The more extensive syndrome, however, shown here, including choreoathetotic movements and the other features of Wilson's made it not improbable that this case belonged in his category. Other tests of hepatic function might throw some light on the differential diagnosis.

Doctor ABRAHAMSON said that all the diseases situated in that area showed similarity in the clinical syndromes. Double athetosis, Parkinson, the dystonias and Wilson's disease, etc., all probably had similar disturbances of function. If this was a Wilson's the future would show it. A clinical diagnosis was alone possible in these cases. There was the same localization in the brain and the nature of the pathological processes behind the symptoms was the chief factor. Formerly this boy might have been called a Westphal's pseudosclerosis or any one of the whole series of patronymics attached to lesions occurring in this portion of the brain. As far as the question of this being dystonia was concerned, as suggested by Doctor Jelliffe, when Oppenheim showed his first cases of dystonia Ziehen said, "Those are my cases of double athetosis." This boy's mental state had degenerated very markedly within two years. Doctor Goodhart was correct in calling this a disease of the globus pallidus and leaving its nature to be determined later.

A Case of Friedreich's Hereditary Ataxia.—Doctor GOODHART presented this case also. He said that Friedreich described the disease in 1861 as one of a chronic degenerative wasting of the posterior columns of the cord with the conspicuous clinical features of incoordination, first of the lower and then of the upper limbs, the organs of speech being later involved. Since then many similar cases had been described and the clinical features with the morbid anatomy have been developed. Pathologically these conditions were recognized as a sclerosis of the cord with overgrowth of neuroglia and secondary destruction of the nerve elements in the posterointernal, posterolateral, of the dorsal and ventral cerebellar and pyramidal tracts, destruction of the cells of Clark's column, and in some cases apparent atrophy of the cerebellum.

The disease is essentially a familial one, though not hereditary. As in this case before us, it was frequently found in several members of the same family. The disease was essentially one of early life, having its inception as early as the second to as late as the twenty-fourth or twenty-fifth year of life, in the great majority of cases however beginning between the eighth and fourteenth years. A neuropathic family history was common; syphilis seemed to play no etiological rôle. The earliest symptom was usually ataxia of the cerebellar type beginning in the lower extremities. The gait was peculiar, not definitely cerebellar, and less of that type when the posterior columns are involved. In

some cases there was vertigo; nystagmus was not uncommon. A group of cases was described by Marie who claimed a definite pathology for his cases that, so far as most observers could see, were essentially the same as those of Friedreich's. The case here presented in some respects suggested those originally described by Marie in that there was involvement of anatomically higher structures than the cord tracts. One might find gradations from the typical Friedreich cases with chiefly cord symptoms to the Marie type with largely cerebellar changes. Along with the typical manifestations due to cord changes, one might also find disturbances of speech, nystagmus, ocular palsies, etc. The case of this young boy presented characters of both though it might be called a Friedreich. The family history of this boy was relevant to the extent of suggesting the familial element. He had a brother afflicted with the same disease. The personal history of this patient was that of the usual normal child up to the twelfth year of age. He was now sixteen. He then suffered from diphtheria. Some four weeks following recovery it was noticed that he began to fall to one side, and that his gait was unsteady. Gradually both feet changed in contour; the arches seemingly became more concave and gradually, without pain and with only mechanical discomfort, the present very marked symmetrical deformity developed. The feet now showed very marked osseous deformities quite characteristic of this form of hereditary ataxia. Usually there was only a pronounced form of hyperextension of the great toe and pes varus. Here, however, there was a deformity suggesting in appearance club foot. The origin of this symmetrical bony deformity was probably analogous to a trophoneurosis, and was due to a central lesion. The osseous changes of central origin should receive far more attention and offer a wide field for study. The peculiar changes in the bone structures of the feet furnish one of the interesting features of this case. This boy had both cerebellar ataxia, or dyssynergia, and the ataxia due to posterior column involvement. He likewise had facial asymmetry and very pronounced speech disturbance somewhat of the nature of dysarthria. There was ptosis which was variable in intensity. It was difficult anatomically to explain the absence of Achilles phenomenon with the presence of the knee jerk for if the former was due to posterior column degeneration it was peculiar that the degeneration did not affect the higher level also.

Doctor CLIMENKO recollected seeing this patient at Mt. Sinai Hospital and saw also his brother who presented the identical symptoms. The knee jerks were present at that time but the ankle jerks were absent. He considered this a case of Friedreich's combined sclerosis. It was not necessary for this diagnosis to have the knee jerks absent, Friedreich himself said this depended on how much one or the other set of tracts was involved. If there was more pyramidal tract involvement there were more spastic symptoms; on the other hand, larger involvement of dorsal tracts would give absence of ankle jerks and knee jerks together with marked ataxia. This boy had lost ankle jerks, marked symptoms of spinal ataxia, which became apparent

when the eyes were closed, and also well pronounced symptoms of pyramidal tract involvement. If one also bore in mind that the boy had no cerebellar symptoms, the diagnosis of Friedreich's combined sclerosis was evident.

Dr. SAMUEL W. BOORSTEIN thought that the deformity of the foot might be improved by braces. By this means the gait would be corrected. All these cases would be improved by proper orthopedic treatment.

Doctor ABRAHAMSON did not consider this the ordinary pes cavus, or foot deformity one saw in Friedreich's. It was more like a club foot.

Doctor BYRNE asked if there were other stigmata, or evidence of irregular development. They had had several of these cases in the Central Neurological Hospital and they all showed some evidence of malformation such as cryptorchidism, polymastia, etc.

Doctor GOODHART said there was none except the general conformation of the face. The configuration of the face is rather suggestive. There was an asymmetry in the skull and face, an unusual recession of the lower jaw; the eyes were set abnormally close together and the mouth and nose suggested a snoutlike contour. There was considerable evidence of involvement of the joint muscle tendon sense.

As regarded the first case, the discussion had covered its possibilities. Doctor Goodhart did not think, however, that this case could be classed among the dystonias, for conspicuously absent was the tortipelvis, the torsion gait, i. e., the rotation of the trunk on the pelvis, which to some extent characterized the cases described by Oppenheim as dystonia. The character, too, of the hypo, hyper and dystonia and its distribution especially as it affected now this and now that group of muscles, probably bore only a resemblance to what was seen here. Likewise, the speech of this patient was more of the pseudobulbar type. At the Montefiore Hospital there were types of cases that might be said to constitute a group whose pathology lay somewhere in that interesting area of the brain where were situated the corpus striatum, the thalamus, and their connections with the red nucleus and cerebellum. It would take much study in pathology in the future to definitely classify these types with their clinical syndromes. The one type had its pathology in the globus pallidus, the other in the putamen and cordate; another again involved the thalamus and its afferent or efferent associations. This case was simply offered with a tentative diagnosis of progressive lenticular degeneration.

A Case for Diagnosis.—Dr. I. S. WECHSLER presented this case, a girl, sixteen years of age. Onset of the condition occurred in 1917, with dizziness, vomiting before breakfast, diffuse headaches, more severe at night, staggering mainly to the right, double vision on looking down from an upper story window and weakness of the face. The whole condition came on fairly quickly and had not become much worse. There was no history of impaired hearing or even tinnitus, except for the past week. There was some possibility that the patient's mentality had been below par. Physical examina-

tion. The salient features were: gait somewhat static with tendency to reel to the right, the closure of the eyes showing no difference. There is no Romberg, adiadochokinesis or dysmetria. Slight ataxia in finger to nose test, $R > L$. Speech was unaffected. The deep reflexes were lively and equal; all superfcials present. No Babinski or Chaddock.

There were no sensory changes except for diminished corneal sensation on the right. Of the cranials, the optic showed a beginning double papilledema, there was paralysis of the right external rectus, hypesthesia (cornea). R. fifth, paralysis (peripheral type), R. seventh, normal, R. eighth, there was lateral nystagmus, both directions and vertical nystagmus upward. The Barany showed a probable normal vestibular apparatus. All other cranials were normal. Systemic examination, including a Wassermann test, proved negative.

The diagnosis, in view of the involvement of a left pontial third nerve was rather difficult to make. A pontocerebellar angle neoplasm might be considered, though it was hard to see why the eighth had not been involved. The vomiting and papilledema spoke for increased intracranial pressure. One could not well conceive anatomically of a single lesion including also the nuclear third. A basilar meningitis, either tubercular or luetic, might account for the picture, but there was a negative Wassermann, and there was no reason to suspect tuberculosis. An intrapontine lesion, particularly in view of the vertical nystagmus, might well explain all the symptoms except the paralysis of the left inferior rectus. It was possible that a poliomyelitis was the cause of all of the symptoms, a choking off by inflammation of the aqueduct of Sylvius giving an internal hydrocephalus and papilledema, but the whole picture was not altogether in favor of this view. The question of surgical interference came up, but in view of the uncertainty of the diagnosis it would seem advisable to continue this investigation at the present time.

Doctor CLIMENKO said that there was one symptom which Marie brought out that was the peripheral facial palsy. This patient had a peripheral sixth and seventh: she also had nystagmus, dizziness and papillitis and there was only one thing missing and that was evidence of involvement of the eighth nerve. A further examination of the eighth, however, might reveal evidence of involvement. In localizing brain tumor or any brain lesion it should be borne in mind that pressure was able to give distal symptoms. In brain lesion, which produced pressure, the most important symptom was the initial one, and, secondly, the group of symptoms relating to that particular lesion.

Dr. E. D. FRIEDMAN did not consider that there was enough here to justify a diagnosis of cerebellar pontine tumor. The absence of circulatory and vascular involvement on that side and the absence of total involvement of the stem of the fifth made him think this was an intrapontine lesion on the right with possibly a focal hemorrhage in the neulei higher up, a focal necrosis which sometimes occurred some distance away from the site of the lesion. The vertical nystagmus would speak in favor of an intrapontine lesion.

Doctor WECHSLER regarded Doctor Friedman's conclusion the correct one in so far as the localization of the lesion was concerned. But as to the vertical nystagmus, most authorities seemed to agree that this was pathognomonic of pontine lesions. As to the question of hemorrhage, there was no reason why she should have had one. Possibly poliomyelitis might account for the double lesion.

(To be concluded.)

Births, Marriages, and Deaths.

Died.

BRIGGS.—In Schenectady, N. Y., on Sunday, March 2d, Dr. Charles Gilchrist Briggs, Captain, Ambulance Corps, U. S. Army, aged fifty-four years.

CHAMBERLAIN.—In Boston, Mass., on Thursday, February 13th, Dr. Myron Chamberlain, aged seventy-five years.

CONLON.—In Chicago, Ill., on Monday, February 24th, Dr. Andrew Aloysius Conlon, aged fifty-seven years.

COSSON.—In Morristown, Tenn., on Thursday, February 27th, Dr. Samuel E. Cossion, aged seventy-six years.

CURTIS.—In Boston, Mass., on Saturday, March 1st, Dr. Allen B. Curtis, aged forty-five years.

FORD.—In Santa Cruz, Cal., on Friday, February 14th, Dr. James C. Ford, aged eighty years.

HAYNES.—In Clarksville, Tenn., on Wednesday, February 26th, Dr. William P. Haynes, aged sixty years.

HEIGHWAY.—In Ladoga, Ind., on Wednesday, February 19th, Dr. John G. Heighway, aged fifty-four years.

HILDEBRAND.—In Loganville, Pa., on Sunday, February 23d, Dr. Charles G. Hildebrand, aged sixty years.

HOTVEDT.—In Muskegon, Mich., on Monday, February 10th, Dr. Ingvald Martinus J. Hotvedt, aged forty-seven years.

KELLY.—In Philadelphia, Pa., on Munday, March 2d, Dr. Charles F. Kelly, aged seventy-two years.

LEWIS.—In Collinsville, Conn., on Monday, February 24th, Dr. George F. Lewis, aged seventy-eight years.

MITCHELL.—In Providence, R. I., on Thursday, February 27th, Dr. John W. Mitchell, aged seventy-one years.

MOXON.—In New York, on Saturday, March 8th, Dr. Howard Osgood Moxon, aged thirty years.

MYNDERSE.—In Schenectady, N. Y., on Wednesday, March 5th, Dr. Herman Vedder Mynderse, aged fifty-eight years.

MCLEAN.—In Greenwood, Miss., on Monday, February 17th, Dr. James L. McLean, aged sixty-five years.

NEWCOMB.—In Newburg, Me., on Saturday, February 22d, Dr. Edgar C. Newcomb, aged fifty-eight years.

NORCROSS.—In Dorchester, Mass., on Monday, March 3d, Dr. Ernest F. Norcross, aged sixty-eight years.

PAGE.—In Visalia, Calif., on Wednesday, February 26th, Dr. Solomon C. Page.

PEFFER.—In Summit, N. J., on Saturday, March 8th, Dr. Henry Pepper, aged sixty-two years.

PORTER.—In Stuart, Florida, on Monday, February 24th, Dr. George L. Porter, of Bridgeport, Conn., aged eighty-one years.

RONAN.—In Corning, N. Y., on Thursday, February 27th, Dr. John L. Ronan, aged fifty-four years.

SCHUYLEMAN.—In Scottsbluff, Neb., on Saturday, February 22d, Dr. George E. Schuyleman, of Portland, Ore., aged forty years.

SHEPARD.—In Berkeley, Cal., on Monday, February 17th, Dr. Leonard A. Shepard, aged sixty-six years.

TIRYAKIAN.—In New York, N. Y., on Sunday, March 2d, Dr. Haroutyoun Tiryakian, aged seventy-three years.

WARDER.—In Weston, W. Va., on Sunday, February 9th, Dr. John Irvin Warder, aged sixty-three years.

WEIST.—In New York, N. Y., on Thursday, March 6th, Dr. Harry H. Weist, aged fifty-one years.

WHITE.—In Lynn, Mass., on Thursday, February 27th, Dr. Everett White, aged forty-nine years.

WHITON.—At Devils Lake, N. D., on Wednesday, February 26th, Dr. Alpha M. Whiton, aged sixty-five years.

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Original Communications

TUBERCULOSIS IN CHILDREN.*

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The subject of tuberculosis in children is far too large to receive more than the most sketchy consideration on this occasion. It is certain that the incidence of the disease is far greater in early life than had formerly been supposed. That it may even develop congenitally was proved by Schmorl and Birch-Hirschfeld, and a considerable number of cases have since been reported. This occurrence, also, is very possibly more common than has been generally thought. Tuberculosis is, however, exceptional in the first three months of life, but increases rapidly in frequency after this period. Its incidence may be said to vary with the country. Lapage, of Manchester, found a positive von Pirquet reaction in fifty-five per cent. of the children examined up to fourteen years of age, while Veeder, of St. Louis, found it in but twenty-one per cent. It is difficult to say how often the disease is clinically present in children; but in 4,388 school children in the schools of Christiania, Fröhlich tested 2,900 for the von Pirquet reaction, and obtained it in 83.8 per cent.

In the matter of autopsies, Hamburger, in Vienna, found forty per cent. with tuberculous lesions in 848 autopsies in children. In the Children's Hospital of Philadelphia thirty-five per cent. were tuberculous in 332 autopsies. It is noteworthy that, as a rule, according to most statistics, tuberculous lesions are much less often observed in the first year than later. The Paris statistics, as given by Comby, showed 638 cases tuberculous in 1,675 autopsies up to the age of fifteen years; i. e., thirty-eight per cent.; but of the total number of autopsies up to the age of three months, but 1.82 per cent. showed tuberculosis; from three to six months, eighteen per cent.; from six to twelve months, twenty-six per cent.; from one to two years, forty per cent.; from two to five years, sixty per cent.; from five to ten years, sixty-seven per cent.; and from ten to fifteen years, seventy-one per cent. This well illustrates the steadily increasing frequency of tuberculous lesions in childhood as the age increases. All these figures, however, do not mean that the child exhibited clinical symptoms of the disease; but only

that tuberculous lesions were found postmortem. Just how many patients die of tuberculosis in childhood is hard to estimate. In any event, the general experience seems to support the view of Schlossmann and of Hamburger, that tuberculosis is a childhood disease; i. e., that it is acquired in childhood to a very large degree, although it may lie dormant even until adult life.

As regards the exciting cause, it is interesting to observe the difference of opinion regarding the influence of the two types of tubercle bacilli, the human and the bovine. The latter appears to be especially active in Scotland, as shown by the Scotch statistics; but except for these, the consensus of opinion is that the human type of bacillus is the cause in the great majority of children affected by tuberculosis. The exceptions are tuberculous cervical adenitis and abdominal tuberculosis, in both of which the bovine bacillus is equally frequent, or even more frequent than the human type. This has a strong bearing upon the influence of milk from tuberculous cattle. It may be safely stated that such milk is, as a rule, entirely harmless, because it seldom contains bacilli; and even if it does they appear to be rarely active except in the two forms of tuberculosis mentioned. Much more dangerous is the contamination of milk, or of other foods, by the human bacillus.

This brings us naturally to the consideration of the portal of entry—a subject which has been enormously discussed. The general conclusions may be drawn that the usual portal of entry in children, and still more in adults, is the respiratory tract. What part of the body is oftenest affected by the disease in early life? Taking infancy and childhood as a whole, the statistics compiled by Freeman in 2,288 autopsies in tuberculous children, reported by different observers, showed involvement of the lungs in from seventy-one per cent. to 100 per cent.; of the bronchial lymph nodes in from seventy-six per cent. to ninety-nine per cent.; of the intestines from twenty-three per cent. to fifty-five per cent., and of the mesenteric lymph nodes in from sixteen per cent. to forty per cent. In the first three years of life the regions oftenest diseased are the bronchial lymphatic glands and the lungs and pleura. Usually the lesions are those of a tuberculous bronchopneumonia; less often of miliary tuberculosis of the lungs. Large cavities, as seen in phthisis, are uncommon at this period. Involvement of the mesenteric and cervical glands is

*Read before the Southeastern Branch of the Philadelphia County Medical Society, January 21, 1919.

less frequent than that of the bronchial. Tuberculous meningitis is very common, generally in combination with other clinical manifestations. Involvement of the bones is unusual in infancy, and this is true of the peritoneum also, except in the very frequent cases of widespread tuberculosis, which is very often observed at this time of life. In early childhood, from the third to the sixth years inclusive, general tuberculosis is common, meningitis likewise, and involvement of the cervical and mesenteric glands, the intestines, peritoneum and bones, increases in frequency. Tuberculosis of the lungs, however, probably remains the most commonly observed manifestation. In later childhood tuberculous meningitis is less often seen than earlier, while tuberculosis of the cervical glands and of the bones and joints remains common, and tuberculous peritonitis is increasingly often seen. In general there is a predisposition in early life to involvement of the glands, while in adults the mucous membranes are oftener attacked.

The seat of the primary lesion is closely connected with the portal of entry. It may be said that the primary lesion is, as a rule, in the part anatomically most closely connected with the spot through which the germs enter.

As to the lesions oftenest producing death, it by no means follows that these correspond with the lesions oftenest observed. In infancy tuberculous bronchopneumonia is the most frequent cause of death, although in many of these the actual final cause is a general tuberculosis or a tuberculous meningitis. In early and later childhood meningitis secondary to a lesion elsewhere is a common fatal termination. Sherman found this the cause of death in forty-four per cent. of 413 cases of tuberculous disease of various sorts in children.

GENERAL TUBERCULOSIS.

This clinical division consists of a widespread development of tubercles throughout the body. Entrance of large numbers of bacilli into the blood occurs, and the disease is spread rapidly and diffusely in this way. Two clinical forms of this type of tuberculosis are seen:

1. *The typhoid form.*—This is sometimes called acute miliary tuberculosis. It is observed chiefly in infancy and early childhood. The initial symptoms are very vague. There is loss of appetite and weight, and general impairment of health, combined with an irregular and entirely uncharacteristic fever. The case strongly suggests typhoid fever, and I have been repeatedly deceived in this respect. The diagnosis is obscured, too, by the frequent presence of tympanites and enlarged spleen. It is only later, when the time for improvement in typhoid fever would come but does not occur here, and evidences develop of a pneumonia or still more often of a meningitis, that the diagnosis of the typhoid form of acute miliary tuberculosis becomes evident.

2. *The marantic form.*—This is observed not infrequently in infancy. The symptoms consist of progressive wasting and anemia. There is no fever, or at most but occasional elevations, and no respiratory or gastrointestinal disturbances sufficient to ac-

count for the condition. The symptoms can in no way be distinguished from infantile atrophy due to other causes, and the child finally dies of exhaustion. The diagnosis is made only at autopsy. In other instances, a few weeks before the end of life, evidences of bronchopneumonia develop, or other localizing symptoms appear. The diagnosis is always difficult and usually impossible. It rests principally upon the history—which is the presence of continued wasting with the entire absence of any discoverable reason.

TUBERCULOSIS OF SPECIAL REGIONS.

1. *Tuberculosis of the lungs.*—We have several subdivisions. They are:

- a. *Acute miliary tuberculosis of the lungs.*—This is only a form of the general miliary tuberculosis described, in which the localization in the lungs is from the onset the most prominent symptom. It is most common about the age of five years. There is persistent fever, rapid respiration, prostration, rapid pulse, some cough, and sometimes cyanosis. The physical signs are poorly marked. Later the evidences of tuberculosis elsewhere may show themselves, the child dying possibly from meningitis. At autopsy the lungs are found filled with miliary tubercles.

- b. *Acute tuberculous bronchopneumonia.*—This is a very frequent form of tuberculosis, especially in infancy and early childhood. It may be primary in the lungs, or secondary to tuberculous lesions elsewhere. I do not know any certain way of differentiating this from ordinary tuberculous bronchopneumonia. The occurrence of a bronchopneumonia after measles or pertussis is always suggestive that it may be tuberculous in nature; or when it comes after a period of wasting and ill health one suspects tuberculosis as the cause. Suggestive, too, is the prolongation of the attack after the time when a simple bronchopneumonia might be expected to resolve. Sometimes the examination of the sputum will make the diagnosis certain; but I have oftener failed in this than succeeded.

- c. *Chronic pulmonary tuberculosis.*—This, in one form, is the condition which in adult life is called phthisis. It is rarely found in infancy and early childhood, and even in later childhood is uncommon. I have seen it oftenest in colored children, who seem much more disposed to its development than do the white. Statistics vary decidedly, but it is interesting to observe that Sawyer, in a physical examination of 8,000 children under fifteen years of age, found only fifteen in which a diagnosis of phthisis could be made with reasonable certainty. In this there is developed the ordinary large cavity characteristic of phthisis in the adult. It is to be noted that this encapsulated cavity, usually, perhaps, single, is of entirely different nature from the cavities which not infrequently occur in acute tuberculous bronchopneumonia. These latter have not the tendency to become encapsulated, as have those of phthisis. I have seen at autopsy a cavity as large as an ordinary orange, occupying the entire upper right lobe, in a child of seven months suffering from bronchopneumonia. Phthisis is to be distinguished chiefly from chronic bronchiectasis, and I confess

to having made mistakes in the diagnosis in this respect.

Another form of chronic tuberculosis of the lungs is subacute or chronic tuberculous bronchopneumonia. This condition is very prevalent. I have seen a child exhibit only moderate, occasional fever, progressive deterioration in health, and other vague symptoms, and live for five or six months, only gradually exhibiting the physical signs of bronchopneumonia. Still another form is hilus tuberculosis, in which, in combination with the lesions of the lymphatic glands, there is a spread of foci of tuberculosis at the hilus of the lungs and along the course of the bronchial tubes. This may develop at any time in early life, even in infancy. The onset is insidious and the symptoms vague, consisting principally of progressing malaise and debility, with occasional evening rises in temperature, and a positive tuberculin reaction. Radiographic examination shows involvement of the tissues at the hilus, but cannot distinguish the involvement of the lung from that of the bronchial glands. It may be safe to say, that usually the glands also are involved.

The primary pulmonary foci of Ghon constitute a tuberculous condition which has received considerable attention, and is one of great interest. These consist of small lesions up to the size of a hazel nut, occurring generally singly, or but few in number in different parts of one or both lungs, and representing the seat of the primary involvement of the body. There are no characteristic symptoms, the course is prolonged, and several years may pass before an acute tuberculous outbreak occurs, in which the patient may die of a meningitis, acute tuberculous bronchopneumonia, or general tuberculosis.

2. *Tuberculosis of the lymphatic glands.*—First to be noted in this connection is that of the bronchial lymphatic glands. This is very common, but does not present any positive characteristics. There is usually depreciation in health, with more or less fever without discoverable cause. Radiographic examination may show decided thickening of the tissues about the hilus of the lungs, due to disease of the bronchial glands here, and the application of D'Espine's sign; i. e., the altered voice sound in the neighborhood of the seventh cervical and first lumbar vertebræ, is sometimes useful, but cannot, in my experience, be depended upon. Tuberculosis of the mesenteric glands is a common localization, although less so than that of the bronchial. As a rule there are no clinical manifestations apart from those of other portions of the body, especially the intestine. Tuberculous cervical adenitis is by far the most frequent manifestation of tuberculosis in the external glands. It is especially common in early and later childhood. It is often accompanied by other evidences of tuberculosis, but more frequently not. With it may be combined certain other symptoms which formerly gave rise to the title "scrofula." As a matter of fact, scrofula, so far as lesions go, is probably only tuberculosis. Combined with the slow tuberculous process in the glands, with the formation of sinuses of long duration, there is often inflammation of the eyelids, thick nasal secretion, purulent discharge from the

ears, decayed teeth, obstinate cutaneous ulceration perhaps of a tuberculous nature, and other evidences of ill health.

3. *Tuberculosis of the alimentary tract.*—The most frequent form of this variety of tuberculosis is that which is located in the intestine, producing the symptoms of ileocolitis. Usually this is secondary to involvement of the lungs, and it is commonly associated with tuberculosis of the mesenteric glands. The small intestine is the region oftenest involved. The diagnosis from other forms of ileocolitis depends chiefly upon the discovery of the tubercle bacilli in the stools, or the presence of tuberculosis elsewhere in the body.

4. *Tuberculosis of the genitourinary tract.*—This is not a frequent manifestation in childhood. Tuberculosis of the testis is occasionally seen, and more rarely than of the female genitals. The kidney is involved in general tuberculosis, and less often the renal structure and the bladder may suffer from a more chronic form of the disease.

5. *Tuberculosis of the nervous system.*—Apart from involvement of the meninges, the nervous system is not often attacked. Large solitary tubercles are sometimes found in the brain and spinal cord, and may give rise to localizing symptoms, but this is quite uncommon.

6. *Tuberculosis of serous membranes.*—This may occur as one of the manifestations of general tuberculosis, or may predominate in, or be confined to, certain of the serous membranes, especially the meninges, the peritoneum and the pleura. That of the meninges is a frequent cause of death. It is almost invariably secondary to tuberculosis elsewhere, even though without clinical manifestations. It is most frequent in late infancy and early childhood. I will not take time to refer to the clinical symptoms on this occasion. They are well understood. Tuberculosis of the peritoneum in infancy is usually a manifestation of general tuberculosis. After this period it may be limited to the peritoneum, or be at least the chief cause of the symptoms observed. Tuberculous pleurisy with serous or purulent exudate is seen in later childhood; less often before this. Without effusion it is of common occurrence as a symptom of general tuberculosis, or is often dependent upon tuberculosis of the lungs.

DIAGNOSIS.

I must limit myself to a very few remarks. The diagnosis in general rests upon the family and personal history, the discovery of the tubercle bacillus, and the employment of the tuberculin test. As to the history, the predisposition to tuberculosis which may exist, and the possibility of frequent contact with older tuberculous individuals, constitute definite data toward the establishment of a diagnosis. The discovery of tubercle bacilli in the secretions is very valuable when it can be made. I have not, however, had the frequent success in the finding of bacilli in the sputum in the pulmonary cases which has been reported in some quarters. A small piece of muslin may be wrapped around a curved applicator and applied to the region of the glottis, and the sputum which is brought up by the coughing which results may be obtained and examined. As

to the value of tuberculin as applied by the von Pirquet and the intradermal method, there has been a great deal of discussion; but we have settled, I think, to a fairly uniform opinion. The obtaining of a positive reaction is good proof that a tuberculous focus exists somewhere in the body, but is no indication that the symptoms which are present depend upon this disease. In the first three years of life, however, it has a more positive value in this line, due to the fact that at this period tuberculosis seldom lies dormant, and the majority of infants who suffer from tuberculosis at all will go on to a fatal ending with more or less rapidity. In early childhood and in later childhood, the presence of a reaction may, as I said, merely show that there is a focus somewhere, which has nothing to do with the symptoms observed. The obtaining of a negative reaction, especially if the test has been made two or three times, using the intradermal method if that of von Pirquet does not suffice, is a very positive indication that tuberculosis does not exist. An exception to this occurs in the case of acute miliary tuberculosis, and sometimes in tuberculous meningitis, as well as in those cases of advanced tuberculosis of other sorts in which a fatal ending is rapidly approaching, since in all these conditions the organism may have lost the power to react, on account of being overwhelmed by the disease.

PROGNOSIS.

By no means all cases which have shown tuberculosis at autopsy have died of this disease. It may be only a contributory or an accidental matter. The mortality of tuberculosis appears to have diminished in recent years. This is largely due to the active establishment of preventive measures. The prognosis of tuberculosis in children varies with the age and the form of the disease. In the first year there appears to be no power of resistance and the result is nearly always fatal; but as the age advances the power becomes greater, and arrest of the process, permanent or temporary, may take place. Only with the approach of puberty, however, is there a really decided tendency to recovery. Tuberculous bronchopneumonia is practically always fatal, either in the first attack or in the relapses which are likely to occur. Only isolated cases of recovery from tuberculous meningitis have been reported. On the other hand, tuberculous peritonitis frequently terminates favorably with or without operation. Regarding the *treatment* of tuberculosis I cannot now speak. It does not differ from that which is suitable to the management of the disease in adult life.

1810 SPRUCE STREET.

Cane Sugar Injections in Tuberculosis.—Rosenthal (*Presse médicale*, November 11, 1918) reports that he has administered intravenous injections of a strong solution of saccharose in numerous cases of tuberculosis. The procedure exerts a manifest tonic action. It raises the blood pressure, augments the body weight, and indirectly produces a favorable effect on the tuberculous lesions. These results are ascribed by the author to an enhancement of the functions of the liver.

THE VALUE AND LIMITATIONS OF RADIUM IN THE TREATMENT OF CANCER.*

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Skepticism in regard to the value of radium in the treatment of malignancy is rapidly disappearing on account of its extensive use and the brilliant results that have been achieved in many cases, especially in epithelioma, fibroids, and as a palliative measure in inoperable cancer. It is now generally agreed by the surgeons of the largest clinics that radium is a valuable adjunct in the treatment of malignancy. In some places it is used only as a palliative and prophylactic procedure, while in other places it is also being used as an antioperative treatment. Many concede that it is the best routine method in the treatment of epithelioma we possess today, but discretion should always be used.

Several factors have brought radium into disrepute and have given the impression that the claims made were unjustified. Chief among these is allowing patients and the physicians who refer them to us to expect a permanent cure when only palliation and prolongation of life is all any one with ordinary medical intelligence could expect. The patient often cannot receive much palliation from any other method of treatment, but by radium will improve rapidly for a time, or even a clinical cure may be obtained. Finally, on account of the extensive metastases, the patient will die after from six months to three years or more of prolongation of life. Then those who were watching the case, or those who knew that radium had been used, will decide that radium had no value, without remembering or knowing the condition of the patient when radium treatment was started. It is to be remembered that in the past most of the cases, except epithelioma, which were treated by radium, had been considered inoperable and hopeless, and still in the face of this, a number of clinical cures were obtained.

If one is to express an opinion as to the therapeutic value of a remedy, such statements should be guarded unless a study of all factors has been made. The findings should be repeatedly kept up and verified, and the steps and study from which the conclusions have been deduced should be clearly outlined, so that other investigators may follow. And in doing such work one should be without prejudice for or against, as we are all apt to find that for which we are looking. Again, many have either used insufficient quantities of radium, giving inefficient dose, or else on the other hand have overtreated the local growth, without attempting to treat the metastases. No one will deny that, under certain circumstances, radium may be harmful rather than beneficial. If the dose is too small and too long continued, stimulation rather than destruction may take place while, on the other hand, too large a dose may result in irreparable damage

*Read before the Butler County Medical Society, Butler, Pa., February 11, 1919.

to normal tissues. This is quite generally understood in regard to the röntgen rays, but many have been led to believe that not so much experience is required in the employment of radium.

Many are employing both forms of radiation without knowing the desired dose to produce a certain physiological action. There are many variable factors in the treatment with each agent. In applying radium, the proper screening and cross firing must be employed, and the adjacent glands should receive modern röntgen treatment. The technic and variable resistance of tissue should be studied as carefully by the radiotherapist as by the surgeon. We do not give much credence to the opinion of the surgeon or physician without special training and experience; neither should the value of treatment be condemned merely because it is given by a physician inexperienced and untrained in using either radium or the röntgen rays.

The first and most pronounced result of a radium treatment is that the offensive and excessive discharges are lessened and often entirely disappear within two or three weeks after the treatment. In most cases the treatment is justified if this deodorizing effect is all that can be accomplished, as this alone has a marked beneficial constitutional effect. But radium does more than cause a disappearance of the offensive discharges. Besides palliation and retarding the disease, many clinical cures take place and some of the patients have remained well for over four years when at the time they were referred they were considered hopeless from a surgical standpoint. All radiotherapists advise surgical removal in favorable cases, to be followed by radiotherapy, except in epithelioma. There are a number of borderline cases and we are often in doubt which is the best method of treatment, surgery or radium. In many of these cases, it seems advisable to give antioperative radiation, not only of the local growth but also of the adjacent glands. It is pitiful that so many inoperable cases receive so little attention when their condition is pronounced hopeless, and as they are in a deplorable state mentally, physically, and socially, they seek the advice of quacks. Since so many of these patients receive such great palliation and prolongation of life from radium, each patient should at least be informed of this possible relief by his or her physician.

Treatment of epithelioma by radium has been so gratifying and the results obtained during the last few years have been such that many consider radiation the most efficient treatment we possess today; not only because the cosmetic, but because the end results are much superior. Epithelioma in certain locations, on account of special features, warrant brief separate description. In a previous paper (1). I went into more detail than time will permit at present.

Four classes of epithelioma are to be considered: First, the lesion which can be cured by one application of radium with the proper dose; second, the lesion which is so situated that glandular involvement is likely to take place or has already occurred and in which the röntgen rays should be employed as an adjunct to treat adjacent glands; third, those cases in which the local application of radium sup-

plemented by the röntgen rays will act only as a palliative measure, and fourth, those cases in which excision is justified to be followed by radiotherapy.

Epithelioma of the upper part of the face, unless it has involved cartilage or bone, is more amenable to treatment than in any other location. In the early cases one application of radium will usually effect a cure. Radium is one of the most defective agents in the treatment of epithelioma of the eye lids. It can be brought in contact with the lesion, and there is little or no danger to the eye; and if the cartilage is not invaded, it requires only a small amount of radium to effect a cure. If caustics have been employed, the cartilage is usually involved and it is much more resistant to treatment and recurrences are more likely. The cosmetic results are superior to any other method except the röntgen rays. Frequently when treating the extensive lesions you will expect that if the lesion is healed, a large amount of deformity will result, and to your surprise there is scarcely any deformity, except the removal of the eye lashes. The reason for this is that the resulting scar is smooth, pliable and not thick and elevated like that following caustics or even a cutting operation.

In the treatment of epithelioma of the lower lip, sufficient results have been obtained by radiotherapists to justify us in considering radium applied locally to the lesion, and the röntgen rays to the adjacent glands, a perfectly legitimate method of treatment. The cases should be selected and treated by an experienced radiotherapist. Too much caution cannot be directed against inefficient work, which is being done by those who have just merely purchased radium or a röntgen outfit. Results obtained by efficient treatment in such cases by radium, supplemented by the rays, have proved equal or superior to those obtained by surgery. This is true in early as well as in advanced cases. Epithelioma of the lower lip is a serious condition, and radiation, when employed, must be given in such a manner as to destroy all cancer cells in the local lesion and in the adjacent lymphatic glands. When so given, over ninety per cent. of the early superficial cases are cured without producing any deformity, more advanced cases are cured, and hopeless cases receive retardation and palliation which cannot be accomplished by any other method.

Six or eight weeks after these advanced lip cancers and the adjacent glands have been properly radiated, there may be very few cancer cells in the original lesions, and the enlarged lymphatic glands have disappeared or are reduced to hard fibrous nodules and the lymphatic system is sclerosed and at least partially blocked, thereby lessening the danger of cancer dissemination such as follows a cutting operation. If much destruction has not been produced by the cancerous process before the treatment is given, very little if any deformity will take place, because cancer cells can be destroyed by radium without destroying the surrounding tissue; but it will not replace tissue which has been destroyed either by growth or caustics.

Cancer cells are from three to seven times less resistant than normal tissue, depending upon the type of the lesion. Squamous cell epithelioma re-

quires from two to four times more radiation to eradicate the disease than the basilar form. A few years ago this fact led many to believe that the squamous or more malignant form could not be cured by radium. The reason was that an insufficient dose was given and that the small fractional doses were ineffective. Neither did they treat the submental, submaxillary or deep cervical glands thoroughly. Experience of the past certainly justifies the conclusion that cutting out the centre of a wide spreading cancerous lesion does not diminish the age of the cancer; but, on the other hand, the remaining disease often appears to grow more actively as the result of the operation, while destroying the growth locally by radium does not hasten the process in the glands. A cure is never obtained unless the disease in the lymphatics is completely eradicated.

The lymphatics draining the lower lip are the submental, which receive the lymphatic vessels from the chin and central portion of the lower lip, and the submaxillary receive the lymphatics of the lateral portion. The submaxillary salivary gland is closely connected and often metastasizes. There is an anastomosis between the lymphatics which drain both sides of the lower lip as well as those draining the central portion. This must be remembered when radiating the lymphatics of the neck. The deep cervical chain extends from the mastoid process to the clavicle; some of the glands lie behind the internal jugular and subclavian veins and cannot be reached surgically without the removal of the jugular. The cervical glands metastasizes from the submental and the submaxillary. When the submental and submaxillary are palpable, some cancer cells usually have reached the deep cervical chain. If a radiotherapist is going to treat epithelioma, he must realize the early invasion of the lymphatic chains the same as the surgeon, and treat them by radiation as carefully as a radical operation is performed. The writer has seen a few cases of epithelioma of the lower lip in which only the lesions on the lip receive treatment and at the same time the lymphatic glands were involved. Radium is one of the most efficient methods of removing precancerous lesions of the lower lip, epithelial warts and epitheliomata in the early stages before tissue destruction has taken place. One application of radium will cure an epithelioma at this stage without leaving any deformity. These early cases after treatment, when apparently cured, should be kept under observation for three years. Besides, a thorough course of treatment over the glands is given when the surgeon would not remove the adjacent glands, as their involvement would be so doubtful.

The objection to surgical removal is the frequent recurrence in the scar, because the operation on the glands cannot be sufficiently complete, no matter how thoroughly the dissection is carried out. The removal of the submental, part of the parotid, submaxillary and all the glands which metastasize together with the ligation and excision of the jugular is no easy task; besides, cancer cells are often left in deeper glands which cannot be reached. This may seem very radical to those inexperienced in the

use of modern radiation, but it is not so radical to those who know what has been accomplished by radiotherapy and to those who are familiar with the results in early surgical removal even when radically performed. It has been shown that a recurrence takes place in over fifty per cent. of the cases where there are no palpable glands at the time of operation, and in over seventy-five per cent. when there is any glandular involvement whatever.

Epithelioma of the mouth and throat are much more resistant to treatment than when the skin is affected. Sometimes the results of radium therapy of the buccal, lingual, and pharyngeal cancer are brilliant, and at other times disappointing. The results warrant the consideration of radiotherapy in every case, whether alone in small lesions as an anteoperative procedure, or as a palliative method in hopelessly inoperable cases. And even since the smallest lesions are very prone to recur locally and the adjacent glands are so early invaded, radiotherapy should follow surgical removal of even the smallest growth.

Röntgenization of the lymphatic glands should always supplement radium therapy. The object of röntgen therapy is to control and destroy metastases in the adjacent lymphatics. The glands should be treated by röntgen therapy in the early cases, because no one is ever able to tell how early the glands are invaded. Experience should have taught this to every surgeon and laryngologist as well as to every therapist. With the röntgen rays, larger areas can be treated, and it is more practical in some cases than radium, while the latter has the advantage of coming in close contact with the disease. Then, too, we are able to give a much heavier dose by radium, even producing a caustic reaction, which will heal in from two to four weeks, whereas, if this dose were given with a Coolidge tube of the ordinary type, or even with the one which had been suggested for cavities, the caustic reaction would not heal for months, or probably never. A slough might be the result.

In other words, both radium and the röntgen rays will produce a destructive action; but with radium a reaction of a much greater degree can be produced without seriously injuring healthy tissues than with the röntgen rays. This is a therapeutic difference between the two agents which is very important to remember when treating malignant growths in the mouth and throat. In some cases, in which, on account of the location, extreme caustic power is not indicated, better results may often be produced by some other method, such as electric coagulation. The advantages of electric coagulation are the destruction of tissue without opening the blood and lymph vessels, and the prevention of dissemination which might occur with a cutting operation. The large amount of carcinomatous tissue which can be destroyed by electric coagulation without hemorrhage is an item of great importance, and compels serious consideration by those who have treated many malignant cases.

Sarcoma in the nasopharynx is much more amenable to radium treatment than carcinoma. Even in cases in which half of the throat is filled the growth will frequently disappear in from four to six weeks

after treatment. I have treated several such cases with radium which have remained well for over four years. If time permitted I could report quite a number of cases, in most of which the time elapsed since the treatment was given has not been sufficient to warrant their being called other than clinical cures.

While as before stated, carcinoma of the mouth and throat, when it has invaded the deeper structures, is not so amenable to radium as is sarcoma, still some results have been obtained. For the sake of description I call the lesions which are superficial, epithelioma, and those which have invaded the deeper tissues, carcinoma. If ulceration is confined to the superficial layers of the buccal mucous membrane, and has not spread to the mucous membrane around the teeth, one application of radium will frequently heal the lesion. If the ulceration has to any extent invaded the muscle tissues, it is very resistant to radium treatment, and such cases should be given sufficient radiation to produce a marked reaction. Reaction will usually disappear in from two to four weeks; then electric coagulation may be advisable, rather than a repetition of radium. After destroying a lesion with electric coagulation it usually heals promptly, leaving very little scar, and no contraction of the surrounding tissues. If the gums are involved, the teeth seem to act as an irritant, and the cancerous process spreads rapidly, but if they are extracted, it seems only to aggravate the condition. I have one case of sarcoma in which the disease had spread to the gums, and to my great surprise this case was clinically cured by radium alone. What has just been said in regard to the buccal mucous membrane will apply to the tongue, except the muscle tissue is earlier invaded, and the adjacent glands also metastasize early.

In carcinoma of the uterus, radium is indicated as a palliative for inoperable and recurrent cancers; also for operable carcinoma if there are constitutional contraindications, and for prophylaxis after surgical removal. Schmitz considers it a specific palliative in inoperable cancer of the uterus, because it will apparently cure thirty-five per cent. of the cases, and in an additional sixteen per cent. subjective improvement is marked. However, recurrence takes place in a large majority of these clinical cures within two or three years. The patient during this time regains normal health and can lead a useful life. If a recurrence takes place, as a rule the patient suffers little in comparison with those who had no radium treatment. In these hopeless cases, the offensive discharge and hemorrhage usually completely disappear within from two to four weeks. The cessation of discharge, which often is so offensive to the family and even to the patient, is a remarkable feature. The local condition changes in character; within from two to four weeks after the treatment, the mass begins to contract and shrink, and continues to decrease in size. This is more marked in some cases than in others, the growth having entirely disappeared within two months.

Postoperative treatment is an important field for radium when supplemented by the röntgen rays

from without, but is usually neglected until a recurrence takes place. Gynecologists, while their reports show the end results from operation are lower, have not taken up postoperative radiation to the same extent as the surgeons are doing for carcinoma of the breast.

Frank at the Mt. Sinai Hospital, New York, advises anteoperative radium treatment, and gives the following reasons:

"The operable cases of carcinoma of the cervix which have come under the writer's observation during the last ten years have been few in number. The final results of the radical operation, except in the hands of a few operators who control a large material, have been discouraging. In the light of the experience of others, the writer feels inclined to advise, at least tentatively that operable cases be subjected to a short preliminary treatment by radiation, followed by an abdominal total hysterectomy and salpingoophorectomy without excision of the parametria. It is, however, not justifiable, in the present state of our knowledge, to rely solely upon radium treatment in operable cases, unless the patient is an exceptionally poor risk (excessive obesity, severe cardiac, pulmonary or renal disease), because there is as yet not sufficient evidence that a permanent cure can be produced by radium. The preliminary radium treatment should be vigorous and short in duration. "Sterilization of the growth should be sought, but the operation should be undertaken before the parametrial scar tissue formation which regularly follows radiation, has had time to advance too far."

In view of his observation, Frank deemed it best not to operate until the lapse of three weeks, because the growth would not be sufficiently cleansed from a bacteriological point of view. Four weeks after the operation radium should be resumed.

I have omitted malignant growths of other situations which have been treated by radium, as it would require too much time. However, I would like to mention that the same results, both from a palliative standpoint as well as the number of clinical cures produced, in the treatment of carcinoma of the rectum and bladder are not obtained. The mucous membrane of the vagina will tolerate from three to six times more radiation than that of the bladder or rectum, provided there is no scar, the results of a lacerated cervix.

During the past eighteen or nineteen years I have seen at least 1,500 cases of carcinoma of the breast in all stages; that is, from the very earliest to inoperable or recurrent in which the patients were in a pitiful condition and were taking large doses of morphine. I have studied the results and benefits derived from surgery in the various clinics and the value of radium and the röntgen rays not only in my own laboratory but throughout the country. From this I have been very forcefully struck that the surgical mind is rapidly changing and coming to the conclusion that it is only the very early cases that are really benefited by operation and that ultraradical operations such as removal of the clavical, etc., are contraindicated. Since seventy-five per cent. of all the primary cases that I have seen were inoperable, this brings

us to a point where really there are only a comparatively few patients who receive benefit from operation. And since only eighty per cent. of the very early cases, when the axilla is microscopically free at the time of operation, are cured surgically, it follows that the only method by which a large number of cases of cancer of the breast could be cured is by the removal of this organ before it could become carcinomatous. The same would hold true in carcinoma of the uterus.

I have had this problem facing me for the past fifteen years and I have made every effort to improve my radiotherapeutic technic the same as the surgeons have done for the last twenty-five years; and while I am obtaining far better results than I did at the beginning, I am frank to say that both surgery and radiation or a combination of both is not the cure we have all been looking for. However, I do not want to be misunderstood because I am positively sure that radium and the röntgen rays have done far more for this large number of patients than surgery alone. The palliation has always been marked in at least eighty per cent. of the cases in the inoperable and recurrent cases and the life has been prolonged from one to five years, and I am sure that more primary early cases which have been operated upon have been benefited by anteoperative and postoperative treatment. I am also sure that more advanced cases are cured for a period of five years by both anteoperative and postoperative treatment. It is also true that if a more comprehensive study of the glandular involvement and the metastases should be made by both the surgeon and the radiotherapist, the surgeon would not operate in certain cases and the radiotherapist would give more efficient treatment.

CONCLUSIONS.

We know the value of radium therapy in malignant growths has been established and is incontestable; that it varies according to the region and nature of the lesion and its condition at the time radium treatment is instituted; and that, while we must not lose sight of other methods, since in many cases the best results are obtained by a judicious combination of the different therapeutic agencies, radium holds its own as a curative measure and as a palliative procedure.

Treatment of hopeless carcinoma in the past has been with morphine; today it should be radiotherapy. The leading surgical authorities today are beginning to recognize radium as a legitimate method of treatment. It is pitiful that patients with inoperable carcinoma, after their condition is pronounced hopeless, receive so little consideration. One of the most striking results of radium therapy is that the secretions which are often offensive disappear almost in every case.

Thorough knowledge of the action of radium is essential because from that knowledge only may the proper dose be applied to produce the best results. Haphazard use of radium is today discouraged. In estimating the value of radium therapy, its advocates do not claim that it supersedes surgery, but that it is a valuable adjunct to surgery, in helping to prevent recurrences after operation and in rendering inoperable cases operable, and that it has

proved itself one of the best palliatives we have in cases in which operation is impracticable and in many of such cases has brought about an apparent cure. Radium should always be considered first in the treatment of epithelioma, because when properly applied, practically epitheliomatous tissue can be made to disappear and there are fewer recurrences than by any other method. Formerly radiotherapy was advised on account of its leaving practically no scar; today the principal reason for treating these cases with radium is that the end results are superior to any other method.

It is a demonstrated fact that radium has the power of inhibiting the proliferation of the cancer cell. In this way it has been shown that malignant growths are retarded by radium and become less malignant although they have not been reduced in size or have disappeared. By more intense radiation the cancer cells are completely destroyed. When this has been accomplished without seriously injuring the surrounding healthy tissue, it comes nearer to a cure for carcinoma than surgery or any method which has been employed up to the present time. This can be accomplished in at least ninety per cent. of all epitheliomata and this is the reason it is the best routine treatment.

In the treatment of advanced epithelioma of the mouth and throat, by giving intense radiation to a point where some of the surrounding healthy tissue is destroyed, more of the malignant cells can be destroyed by radium and more cures can be produced than by any other method. When radium is pushed to this point, it is necessary in many cases to remove some of the healthy tissues which have undergone necrosis or degeneration by fulguration or surgery.

Radium in tubes arranged at a certain distance apart and at a certain distance from the skin, placed over the submental and submaxillary (which are junctions of the lymphatics) so these areas are bombed with intensive radiation, and the adjacent lymphatics treated by deep röntgentherapy, is more effective in destroying the malignant cells in the lymphatics of the neck than the most careful dissection of the neck. Glands have been removed and examined under the microscope in a sufficient number of cases after such radiation to verify this statement.

In recurrent and inoperable carcinoma of the uterus, radium might be considered the specific treatment, because it is the only method which retards the process to the same extent and gives the same amount of palliation. Radium is always more valuable in inoperable than recurrent carcinoma of the uterus, because about one fourth to one third of these cases are clinically cured for a time. Since so much has been accomplished in the inoperable cases of carcinoma, in every primary case, no matter how early the operation has been performed, there should be either anteoperative or postoperative radium treatment or both.

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EMPIRE BUILDING.

(Permission to publish given by the Surgeon General,
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A CLINICAL STUDY OF INFLUENZA PNEUMONIA.*

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A type of pneumonia has, within the past five months, sprung up in pandemic proportions, starting in the northeastern section of the United States, spreading southward along the eastern coast, thence across the country to the west. This pneumonia, which is a characteristic complication in about ten per cent. of influenza cases, stands alone as a special type. Among the various synonyms are bronchopneumonia, flu pneumonia, influenza pneumonia, acute bilateral bronchopneumonia, diapedesis pneumonia, extravasation pneumonia, grippe pneumonia, Spanish pneumonia, and, most descriptive of all, hemorrhagic pneumonitis, a term applied to this condition by Major J. H. Selby and thoroughly descriptive.

ETIOLOGY.

There does not appear to be any predisposing factor aside from a reduced resistance by the initial attack of influenza. Various suppositions have been put forth as the cause of this complication, all with good bacterial evidence, but it must be admitted that the conditions found, have, to say the least, been confusing.

Cultures from the sputum have shown the *Bacillus Friedlander*, various staphylococci, nonhemolytic and hemolytic streptococci, *Micrococcus catarrhalis*, influenza bacillus and pneumococcus. The influenza bacillus is seen occasionally, but as a rule the pneumococcus in one of its various types predominates.

The lungs at postmortem show a profuse bacterial flora in which has been found pus cocci, Friedlander bacilli, *Bacillus pneumococcus*, influenza bacillus, streptococcus, etc. The frequency with which the Friedlander bacillus was found at postmortem in this series, led to the belief that this organism might be the causative factor. This bacterium was frequently found at postmortem and the lung pathology was perhaps characteristic in many ways, yet the following points were against it: First, the Friedlander type of pneumonia is more frequently seen in children; second, the sputum is tenacious and viscid; and third, it is not uncommon to find the Friedlander bacillus during the terminal stages of almost any type of pneumonia and especially at postmortem.

With the idea in mind that postmortem bacteriology might be misleading, a series of lung punctures was instituted, twenty in number, for the purpose of obtaining cultures from living tissue, taken at all stages of the disease. At first it was difficult to obtain specimens owing to inability to aspirate material from the lung tissue even under strong vacuum. However, by modifying the technic, from a few drops to a half c. c. may be obtained which is

sufficient in the majority of cases to give positive cultures.

The technic is simple and as follows: The location for puncture is selected at an area in the back, on the side giving the greatest evidence of pneumonic involvement. Areas of consolidation, shown by increased voice sound, are to be avoided as these areas represent ordinary bronchopneumonia consolidation and not hemorrhagic lesions. The lower lobe in nearly every case shows greatest involvement, as evidenced by retracting interspaces, diminished tactile fremitus, diminished or absent breath sounds and fine crepitant râles. Therefore, a point about two spaces below the angle of the scapula is usually selected. The patient is rolled into a position allowing the side to be operated to present uppermost. The area to be operated upon is painted with tincture of iodine, which is dried and washed off with alcohol, to prevent possible sterilization of the specimen. The skin at the point of the puncture is cauterized to avoid contamination. A preliminary local anesthesia with one or two per cent. cocaine is desirable to prevent undue pain or excitement.

The puncture is made with a lumbar puncture needle, fenestrated by three or four holes along its shaft at the distal inch. It is connected by means of a one inch piece of rubber tubing to a thirty c. c. Luer syringe with a tightly fitting piston, so that strong suction may be made. As the instrument enters the lung tissue, suction should be started and the needle is passed straight into the lobe. If air is aspirated, the needle is not in a hemorrhagic area and should be passed in a different direction until no air is aspirated, or at least very little. If difficulty occurs in obtaining sufficient amount of specimen, the needle may be passed carefully back and forth without changing its direction, and this will permit the fenestra to scrape off small particles of tissue without untoward results. If the specimen be small in amount, it may be washed from the syringe with one or two c. c. of sterile water. The wound of puncture is protected by a piece of sterile gauze held by adhesive or by a collodion dressing. This procedure has been criticized because of the possibility of pleural infection leading to empyema. In defense of the operation, will say that empyema did not occur in any case which was punctured.

In this series of 150 cases, of which close records have been kept, there have been only six cases of empyema, none of which had been punctured; and where six cases of pus occurred without puncture, even a coincident infection could not positively be laid to the operation. The result of this investigation was as follows: In a series of twenty punctures the first ten showed most of them to be sterile with one report of Friedlander bacillus and one influenza bacillus. The last ten punctures in the series showed seven positive influenza and three positive pneumococcus cultures.

The positive findings of influenza in the latter part of the series is due to improved laboratory technic and the diligent work of Colonel H. J. Nichols and Captain Clarence Stimmel. I believe at the present time the preponderance of evidence is in favor of the influenza bacillus as a primary cause of the hemorrhagic conditions, menstrual, nasal and

*Based upon observations made in the pneumonia wards of Walter Reed General Hospital, Takoma Park, D. C., September 21 to November 20, 1918.

pulmonary, so characteristic of this disease. And it would also appear without a doubt, although the pneumococcus is found in the sputum and lungs later, it exists more in the accompanying secondary lesions of bronchopneumonic areas of consolidation or in the blood stream.

PATHOLOGY.

The pathology of this complication of influenza presents a characteristic standard which varies according to the intensity of the primary infection, the character of the secondary bacterial invasion, and the length of time the lesion has been progressing. Upon opening the chest at post mortem, one is struck by the intensity of the lesions present in the lungs. The lower lobes are usually affected most extensively; the upper lobes also present the same type of lesions, but usually not the degree of involvement to be seen in the lower lobes. Strange to say, the middle lobe of the right lung escapes involvement more frequently than any other, which fact is probably due to its anatomical position. Frequently consolidation, either confluent or massive, is present in one or more lobes to such an extent as to resemble pneumonia of the lobar type.

The visceral pleura usually presents evidence of inflammation varying in degree from small areas of exudate and subpleural areas of hemorrhage to large amounts of loose fibrinous deposits which may be so abundant as to give a buttered appearance. These pleural exudates are, as a rule, not closely adherent to the parietal pleura, and may be easily separated, leaving deposits on the inner thoracic wall wherever the exudate is most abundant. No rib markings are to be seen over typical areas of hemorrhagic pneumonitis, as so frequently seen in lobar pneumonia, although often observed when massive consolidation is present. Pleural fluid is usually present in abnormal amounts, varying from 100 c. c. to one or two litres or more. It varies in consistency from that of serous fluid to that of thick pus. When sterile, it is of straw color and clear, although it may be clear during early infection. When infected, it may be bile stained—cloudy and full of flakes of pleural fibrinous exudate—brownish red when a mixture of serum, blood and pus—and greenish yellow with the typical empyema of pneumococcus infection.

Upon removal of the lungs, they are seen to contain an extraordinary amount of blood. They weigh from two to three times the normal, or even more, depending upon the amount of hemorrhagic involvement. Cut section of these hemorrhagic lesions shows blood in large amounts mixed with purulent material which immediately exudes from the cut surface, reddish brown in color. The tissue is dripping wet with this exudate. The surface, when scraped, shows small areas of bronchopneumonia, dark in appearance, or, if confluent, appears more like the gray hepatization of lobar pneumonia, with small scattered ringlike areas of fibrinous exudate corresponding to the location of the smaller bronchi or bronchioles.

The scraped out section immediately becomes wet and dripping. The larger tubes, bronchi, and even the trachea, show membranes either intensely congested with hemorrhagic areas or pale and covered

with a mucopurulent exudate. Filling the tubes is a sanguinopurulent exudate mixed with frothy fluid showing the presence of a terminal pulmonary edema. The lobes of the lungs not only show various amounts of a deposit of pleural exudate over their external surfaces, but also an interlobar pleuritis which may lead to adhesion of the lobes so affected, or an exudate between pleura and pericardium may be present, producing pleuropericardial friction rubs which have been heard in five of the cases under observation.

Thus in summarizing the pathology of the lungs, it may be said that this type of pneumonia presents a widely extended hemorrhagic exudate into the alveolar spaces which, in the prolonged cases, progresses to confluent consolidated areas. The extent of this consolidation depends upon three factors: The type of secondary bacterial invasion (streptococcus, pneumococcus, etc.); the length of time the pneumonia has been in progress (the longer the process, the more massive the consolidation), and finally the virulence of the primary attack. The earlier the patient succumbs, the less the degree of consolidation.

The heart appears to show but few of the classic signs of overwork. The pericardium, as mentioned before, may show on its external surface, areas of deposit of pleural exudate. The sac oftentimes contains an excess of fluid varying from the normal amount up to five or six ounces. Only one case in the series of 150 showed physical signs which were diagnosed before death. This case showed a diffuse impulse, best felt and seen at the ensiform and diminished heart sounds with a strong, full pulse. The mitral and tricuspid sounds in this case were especially distant and indistinct. As the patient had been intensely jaundiced, the fluid was bile stained. The right ventricle showed in many instances some dilatation, but, as a rule, the external appearance of the organ was not far from the normal. The myocardium macroscopically does not present any degree of degeneration, although possibly the muscle may appear slightly paler than normal. The valve leaflets do not show deposits and appear competent but frequently there have been found clots in the heart, which, upon due examination, show titlike processes extending into the valve pockets and quite adherent at their threadlike extremities. These clots externally are dark in color, resembling a postmortem condition, but upon scraping off the external surface, they present a lighter appearance, not unlike an antemortem clot. No significance has been attached to their presence.

The liver shows but little aside from the normal, excepting that it is paler than usual. About five per cent. of the cases showed jaundice, the skin varying in color from light yellow to a deep greenish yellow. Cases exhibiting an intense icterus, present the classical picture including bile stained sputum, sweat and urine. Jaundice was at first thought to be a bad prognostic symptom, but as a matter of fact most of these patients recovered.

The kidneys present nothing worthy of special note on macroscopical examination. Most cases show the urine of a toxic parenchymatous nephritis. The specific gravity is raised from 1020 to 1025 or 1035, varying with its concentration. Albumen is

found in nearly every case and varies from a slight trace up to thirty per cent. by volume, or even more. Its presence is of prognostic value although many patients recover even with large amounts of albumen. Hyaline casts and cylindroids are present in varying amounts, but usually disappear toward the end of lysis, or shortly after the temperature has reached normal. The presence of granular casts indicates that the patient is very seriously ill, and with few exceptions, when showers of granular casts are reported, the patient seldom recovers. It is striking to note how quickly the urinary picture becomes cleared after toxic symptoms begin to abate.

Blood.—The blood macroscopically varies in color according to the mechanical interference with air exchange in the lung. The more extensive the hemorrhagic process, the greater the carbon dioxide content, and therefore the darker the appearance. The coagulation time taken in a few cases showed a slight prolongation of time, but in most cases not greatly beyond normal limits. It varies from three to twelve minutes. The red cells are not affected to any degree and are reduced but little in number. A great deal of work was done in the white cell in an effort to bring out something definite as to its rôle in this disease, but no definite conclusions resulted. It is the rule in an influenza pneumonia for the white count to start low, varying from two to eight thousand, with a relatively high small mononuclear and low polymorphonuclear differential count. But this is governed to a great extent by the secondary invading organism. Thus a mixed streptococcal infection will cloud the picture by causing an early high white count. The pneumococcal secondary infections cause a rise, but not as a rule until after the condition has been in progress for several days. White counts may vary up or down from 1,000 to 5,000 from day to day. A pus complication oftentimes is not characterized by the usual high count and there may be an antemortem rise as high as 35,000 without pus complications. Furthermore, a patient exhibiting signs of severe toxemia may pass out with a count as low as 2,000.

Blood cultures were positive in seven cases and in each instance the pneumococcus was found, Type II in six of them and Type I in one instance. Six of these patients died. The chlorides of the blood in a few determinations made thus far, show nothing abnormal.

The brain in nearly all cases showed the presence of edema, but otherwise nothing unusual. Spinal fluid obtained from three cases giving signs of cerebral irritation, in the form of meningismus, was negative. Specimens varied in amount from twenty c. c. to thirty-three c. c. under sufficient pressure to produce rapid drop during withdrawal. Various reports have been written of the presence of abscess formation in nearly every organ, more particularly the kidney, spleen, liver, brain, and lung, but lesions of this kind were not noted in this series. Presence of a gas bacillus producing a localized or general subcutaneous emphysema has been reported at several of the camps, but has not been seen here. True meningitis was not present in any of these 150 cases, although meningeal symptoms were frequently present, evidenced by general rigidity—tremor—

incoordination of muscular movement—presence of cerebrale tache and Kernig with muttering delirium and scanning speech. Reflexes in these cases were usually irregular. Patients presenting symptoms of brain irritation invariably died, yet postmortem failed to show more than edema of the brain. Spinal fluid was negative in every case.

SYMPTOMS.

The patient invariably gives a history of an attack of influenza from which he thought he had recovered. A few cases continue to pneumonia without the typical one to three day normal temperature following the influenza attack and preceding the onset of pneumonia. The majority of cases show this two or three day normal temperature period. The onset is usually quite gradual, requiring two or three days for the disease to become fully established. At first the patient complains of headache, does not feel as well, a slight cough develops or, if already present, becomes worse. The sputum varies, sometimes thick and rusty similar to that of lobar pneumonia, sometimes mucopurulent, yellow, or blood stained, and mixed with froth. Oftentimes, as in the fulminating type, a profuse pink froth is brought up in large mouthfuls, or even blown through the nose. Frequently no sputum can be obtained either because of the patient's inability to expectorate, or because there is none present.

The dyspnea is in proportion to the amount of lung tissue involved and the same holds true of cyanosis, yet, in spite of an intense cyanosis or marked dyspnea, the patient often states that he is not short of breath, and is "feeling fine."

Cough is often a distressing symptom and greatly annoys the patient, but as a rule the sputum is so profuse that one hesitates to attempt relief by the use of narcotics.

The pain of pleurisy is present in most cases but does not become evident until areas of consolidation appear with accompanying pleural involvement. The patient assumes the dorsal position and refrains from moving about in bed, to avoid coughing which is brought on by every change of position, especially from one side to the other.

Sleep is restless and broken, owing to cough, pain or delirium. Many lie awake quiet, but in a state of coma vigil; others are wildly delirious and must be restrained.

The appetite is poor and loss of weight is very rapid until the beginning of lysis, when a ravenous appetite appears and the patient again begins to gain weight.

It has been noticed that cases showing the muttering type of delirium, although often not appearing ill, do not give a good prognosis. It has also been noted that cases of delirium showing fair orientation give a better prognosis than those of the muttering type.

PHYSICAL SIGNS.

During the first day or two of the pneumonic process, physical signs may be very slight, showing only a trivial rise in temperature, respiration, and pulse. Possibly the only sign in the chest will be a small area of fine crepitant râles heard at the angle of the scapula (right or left) and a cough with more or less blood stained sputum.

In the majority of cases the process starts in the left chest although in about one third of the cases the primary lesion is to be found in the right. Frequently both sides are found affected at the time of the first examination. In twenty-four to forty-eight hours breath sounds in the affected area become much diminished, voice sounds and tactile fremitus decreased, and dullness is plainly evident. In fact, there is frequently a period early in the disease when signs are very suggestive of fluid. In the early lesions, coughing increases the number of crepitant râles, whereas during convalescence these râles are cleared by coughing. Mention is made of this fact because the crepitant râles are very characteristic in this type of pneumonia throughout its course. If the process does not become arrested at this period, extension to other areas is very rapid and signs begin to appear in the opposite side at the angle of the scapula; the upper right and upper left lobes are usually affected later. About the third or fourth day typical signs of consolidation areas make their appearance at the angle of the scapula, at the upper right or left lobes, or at the bases anteriorly. Consolidation often progresses to such a degree that the signs may be confused with lobar pneumonia.

The patient has now become seriously ill. There is marked retraction of the interspaces, breathing is labored, cyanosis is marked and he is unable to hold his breath for any length of time. Exaggerated breath sounds are heard in the lobes not affected, showing compensatory breathing.

By this time the patient is *in extremis* and is the clinical picture of a hopeless toxemia. All lobes become involved and on examination show a veritable confusion of crepitant, moist and bubbling râles, distant breath sounds and areas of bronchial breathing. Lastly the noisy bubbling râles of a pulmonary edema, which combination presents a most distressing condition of asphyxia.

When one lobe only is affected by the hemorrhagic process, recovery may take place within a few days, and the same is true even should both lower lobes be affected, providing the areas are not large. When three lobes become involved, the condition becomes serious and toxemia becomes a predominating factor. As these hemorrhagic areas begin to clear, breath sounds become more distinct, moist râles are more numerous, but show a tendency to clear in coughing, and resonance slowly returns. Large areas of consolidation resolve in exactly the same manner as in lobar pneumonia, and these lesions are usually the last to disappear. Pleural friction rubs are frequently present and usually heard in the axillary line. They may be heard at the lingula of the left lung or at the angle of the scapula posteriorly. Fulminating cases have a rapid onset, show widespread lesions and an overwhelming toxemia.

The heart shows at first an accentuated pulmonic second sound. Its borders may not be increased throughout the disease even in severe cases. A number give signs of a right ventricle dilation as early as the second or third day, but frequently the organ again assumes its normal size in spite of an increase of all symptoms. Many of the fatal cases showed but little dilatation and many showed no

dilatation whatever. Very few were dilated to a marked degree. Pericarditis is not uncommon and pericardial and pleuropericardial friction rubs are frequently present, the latter being due to pleural exudate appearing adjacent to the pericardial sac. Arrhythmia, fibrillation, and heart block were seen in several cases but not to a serious degree, as all of these patients recovered.

The pulse may be rapid, or disproportionately slow. In serious cases the pulse becomes rapid, often reaching 140 or 150 a minute. It is commonly dicrotic, often intermittent in the early stages and frequently so during terminal stages in hopeless cases. An early intermittent pulse, in conjunction with an early right ventricle dilatation, may later become regular and continue so throughout the course of the disease.

The blood pressure as a rule is somewhat lowered. Observation in fifty cases showed an average systolic pressure of 120 and a diastolic average of seventy-five. Many gave a systolic pressure as low as eighty to ninety, and one had a diastolic pressure of forty. No prognostic significance could be attached to the readings and a number of patients recovered who showed a systolic pressure lower than the pulse rate. Blood pressure remains fairly constant throughout the course of the disease until within a few hours before death, and it does not show a definite rise for sometime following the beginning of lysis and recovery.

Vasomotor paralysis in highly toxic cases is very evident. These patients present a condition similar to shock, the blood pressure is low, the pulse rapid, thready and easily compressed. They are pallid and the skin fairly leaks perspiration. The cyanosis is hypostatic, the heart sounds become snapping and irregular, and muscular tone is lost, to all appearances a "wet rag heart" that is making desperate efforts to carry on work with a decreased volume of blood. Frequently it has been found difficult to introduce a needle into the veins of these patients and the condition as described, with very few exceptions, is hopeless. Cyanosis appearing early is a symptom of prognostic value.

Respiration varies in rate from twenty-four to seventy a minute or even more, depending upon the amount of tissue affected and corresponding degree of toxemia. Jerky, superficial and diaphragmatic types of breathing are common. Expansion is much decreased, hiccoughs are frequently persistent and annoying, and if respiration is painful the respiratory grunt is present.

The temperature varies from 100° to 107° and also is in proportion to the pulmonary involvement and amount of toxemia. The curve is somewhat characteristic, starting to rise after a two or three day normal period following an attack of influenza. A certain number showing pneumonic symptoms during the height of influenza do not show the preceding drop to normal. The average temperature ranges from 102° to 104° with a slight morning variation, of one or two degrees, which continues until the lysis sets in, anywhere from five days to two weeks. Patients with a high temperature for more than two weeks either have a pronounced sec-

ondary pneumonic involvement or some complication as empyema or pericarditis.

Atypical temperatures are quite common, and it is not at all unusual to see patients who are clinically in good condition with a temperature of 105° while on the other hand, patients with pus present as in empyema, may have a normal temperature. I recall distinctly one patient, who for four days before death had a temperature not higher than 99° at any time in the twenty-four hours, yet at autopsy one litre of pus was found in each side, a condition which was not recognized before death, although examined repeatedly for complications. Diagnosis was further obscured in this patient by the absence of physical signs and a low white cell count. The course of this pneumonia terminates by lysis requiring from three days to one week for the temperature to reach normal. Late minor extensions of the process may cause temporary elevations lasting from one to three days, while pus complications continue with a temperature not unlike any septic case.

The tongue becomes coated early in the disease and shows a white coating with the borders red and fairly clean. As the disease progresses and toxemia becomes severe, the coating becomes thicker and darker, sordes appear on the lips and teeth, the patient becomes a mouth breather and the secretions of the mouth are sticky and stringy. The tongue, in very sick patients, is dry, brown, hard, rough, and in a fixed position. The patients are unable to articulate. Their mouths are kept moist and clean with great difficulty.

The throat shows only a reddened mucous membrane, the tonsils are not greatly enlarged, and the palate presents nothing of particular importance. Laryngitis is common and often patients are unable to speak above a whisper until well along into convalescence.

The nose also shows a reddened mucous membrane, quite dry with a decreased amount of secretion. Epistaxis occurred in about twelve per cent. of the men, varying in amount from small stains to severe and persistent hemorrhage.

Gastrointestinal disturbances in the average case are not worthy of much comment. In severe cases involuntary feces are common and there may be an almost constant dribbling of fluid discharge from the rectum. Constipation is the rule. Most patients tolerate large doses of digitalis without gastrointestinal disturbances. Anorexia is not as marked as in lobar pneumonia and often those who are very ill will call for something to eat. As convalescence begins, the appetite returns and the patient very rapidly regains lost weight.

Tympanites is frequently seen and pleurisy pain referred to the epigastrium, gallbladder and appendix is not uncommon, as in lobar pneumonia.

NERVOUS SYMPTOMS.

As in most pneumonias, nervous symptoms are shown by sleeplessness, restlessness, some degree of headache and delirium. The delirium is dependent upon the degree of toxemia and not because of the presence of a high temperature. Chiefly two types of delirium were noticed in those very ill. First, a maniacal type in which the patient is talkative,

hard to keep in bed, and often must be forcibly restrained. These men usually answer questions intelligently, are fairly well oriented, and, although wildly delirious for even a week or ten days, many of them recover. Then there is a muttering type of delirium, with coma vigil in which the patient lies on his back perfectly still, apparently watching all that is going on about him and yet unable to respond to suggestion, does not comprehend what is said to him, and answers questions in a muttering, incoherent manner. Most of these cases are of the pallid type of cyanosis, have incontinence of urine and feces, and represent a hopeless toxemia.

Six of the series have shown a toxic psychosis for a week or ten days after temperature had become normal. These patients are always worse at night and unless closely watched, would travel about the ward, get into beds occupied by other patients, and in general present a picture of mental confusion. They also suffer delusions of persecution or grandeur and, at times, are greatly depressed and melancholic. During the day they are mentally clearer and most of them recollect nothing concerning their actions during the previous night.

THE SKIN.

In at least two thirds of the cases there were lesions worthy of mention. An eruption varying in its intensity commonly appeared in the chest and back beginning as macules of a reddish hue showing within twenty-four hours a slightly raised papular centre. None of these became pustular, but within three or four days a sebaceous material could be expressed. As the lesion reached its full stage of development, a slight scaling of the papule took place leaving the red macular base which did not disappear until convalescence was well established. These macules appeared in crops and were arranged in groups of two. The distribution was quite characteristic and often a definite triangle of eruption could be seen on the anterior chest, having its base along the border of the clavicles and its apex at or near the ensiform. Posteriorly this eruption was more commonly seen between the scapulæ. Scattered areas were distributed over the flanks, abdomen, and lower back. These lesions resembled those of acne, but were easily differentiated by the red halo and the small size of the papule in its centre. The eruption was easily distinguished, and often appeared on patients who never before had acne in any form. It also resembled an infectious sudamina, but vesicles were not present in the early stage preceding the development of papules. Crystalline sudamina appearing on the abdomen, were seen in three cases. Erysipelas appeared on the face in two cases. Urticaria was common as an anaphylactic reaction following the use of horse serum both plain and Pneumococcus Type I. Jaundice was observed in about five per cent. of the patients. In several there occurred small crops of furuncles and in one a carbuncle over the occipital protuberance. Superficial bed sores appeared in a few in spite of close attention, due, no doubt, to the presence of an intense toxemia, accompanied by involuntary urine and feces and extreme emaciation. Profuse perspiration and drenching sweats were frequently seen in

cases showing an extreme degree of vasomotor paralysis and during convalescence.

COMPLICATIONS.

These consisted chiefly of pleural effusion, empyema, pericarditis, otitis, mastoiditis, phlebitis, and nephritis. During the first few weeks when cases were representing a high grade of virulence, complications did not appear to be as common as later, when the virulence of the primary factor was reduced but secondary bacterial invasion was more in evidence. Pleural effusion was present in varying amounts and often absorbed without interference. When the amount of fluid present was sufficient to interfere with respiration to a noticeable degree, aspiration was performed.

Empyema appeared in about five per cent. of cases and most frequently in the left side. The pneumococcus was most frequently found. One case of double empyema showed influenzal infection in pure culture in the right side, with a cloudy brownish fluid, and a pneumococcus infection on the left side as a thick greenish yellow pus. The blood in this case contained *Pneumococcus* Type II. In one other case there developed an empyema of the left chest. A point just below the angle of the scapula, a clear fluid was aspirated containing *Streptococcus hemolyticus* and in the anterior axillary line, at the fourth interspace, could be aspirated a yellow seropurulent fluid containing pneumococci.

The x ray is invaluable in deciding questions of doubt as to early diagnosis, and presence of complications, including encapsulated empyemas, pleuritis, pleural and pericardial effusions, etc. In diagnosing these cases by the x ray, care must be taken in estimating the amount of pleural fluid present, as hemorrhagic lung shadows may blend with those of fluid. That is to say, when fluid is seen in the costophrenic angle, adjacent pneumonic areas may lead to the overestimation of the amount present. A prognosis dependent upon x ray findings may be misleading, owing to the fact that, even though the condition appears to be spreading, a patient may have overcome the toxemia and, in spite of spreading areas, carry the condition along to a favorable termination. Few diseases have such a chain of dependable subjective and objective clinical signs, upon which one may so accurately base a diagnosis of the condition, its prognosis and its complications. Therefore, with these facts in mind and with economic consideration, the x ray finds a place of greatest value as an aid to the diagnosis of complications.

THE PROGNOSIS.

In nearly every case the prognosis seemed to depend on the amount of lung tissue involved, the rapidity of extension and the degree of toxemia. Patients in whom two or three lobes became involved within twenty-four, or thirty-six hours, were cyanotic, highly toxic, and seldom recovered. On the other hand, some survived even though every lobe became involved. In other words, sufficient time elapsed so that the lobes first affected were recovering in time to enable them to compensate extensions into other lobes. Patients with a course

of more than two weeks, usually showed massive areas of unresolved consolidation or an empyema. Granular casts indicate a high grade of toxemia and when showers of these casts are reported, it is seldom that the patient recovers.

A profuse, frothy sputum tells of an intensely virulent infection and most of these patients die within two to five days. Early cyanosis shows rapid extension and renders a bad prognosis. Muttering delirium and *coma vigil* shows the presence of a severe toxemia, affecting the higher centres and indicates a serious condition from which few recover.

Profuse sweating, mottled, clay colored skin, together with involuntary discharges, make death a certainty. Secondary infection by the streptococcus renders the prognosis more doubtful. When *Pneumococcus*, Type I, is the secondary invader, the outcome is made more favorable by use of the serum.

TREATMENT.

Various forms of treatment have been worked out, tried and found wanting, and as with many other diseases, having no specific treatment, the variety of treatment is proof of its inefficiency. Many patients no doubt would have recovered without treatment, others undoubtedly recovered by the aid of treatment, while many died in spite of all that could be done for them. A summary of treatment was as follows, with the following objects in view: Prophylaxis; elimination; nutrition; treatment of symptoms, and the treatment of complications.

All wards devoted to influenza cases were strictly isolated and the beds were cubicled by means of sheets. Covered petri dishes were used for sputum specimens, and paper napkins for the disposal of expectorations and discharges from the nose, and thrown into paper bags, fastened at the head of the bed. These bags, with their contents, were collected twice a day and burned.

All attendants and ward surgeons were required to wear gowns and gauze face masks. The number of visitors was cut to the minimum and they, too, were required to wear masks and gowns. In fact, every possible precaution compatible with the emergency was carried out in detail.

Upon admission, the patient was given two ounces of castor oil, and if no results were obtained in twelve hours, it was followed by four ounces of a saturated solution of epsom salts. It is important to obtain at least one copious bowel movement each day to avoid tympanites and aid elimination. Many of the patients received an initial dose of calomel followed by a saline. Tepid baths were given as needed and water was given *ad libitum*, patients being urged to drink large quantities of fluids.

Nutrition is an important factor and must be given with due consideration for the presence of a toxic nephritis which is seen to a greater or lesser degree in practically every case. Nourishment was given every two hours and consisted of custards, milk, malted milk, rice, fruit sauces, soft toast, and ice cream. Orangeade and lemonade, sweetened with plain sugar and lactose, were given freely and many patients were allowed to eat apples.

As a large number showed symptoms of acidosis, the juices of oranges and lemons and apples, to-

gether with potassium citrate, were urged in large amounts in an effort to reduce the carbon dioxide content of the blood. Stimulative treatment consists chiefly of the use of digitalis, which must be used in large doses. Its use was started as soon as a diagnosis of pneumonia was certain, or even suspected. The drug was given chiefly in the form of the fat free tincture and the dose varied from fifteen minims every four hours to as much as thirty minims every two hours. Many patients received larger doses without any noticeable effect. In spite of the large dose, very few patients developed gastrointestinal symptoms (not more than two per cent. directly attributable to digitalis. In spite of the free use of digitalis, with few exceptions very little influence on the pulse rate was obtained, while toxic symptoms were prominent; but as convalescence became established, the full effect of the drug became more noticeable and it was not uncommon to find a pulse rate of forty or fifty a minute. In patients showing gastrointestinal irritation from the use of digitalis, digitalin hypodermically was substituted. Its value is greatly questioned.

Strychnine was used in nearly every case but was not started until a positive indication for stimulation was present. It was given hypodermically at first, every four hours, later increasing the frequency to every three or even two hours in apparently hopeless cases. Its action in most cases did not seem to give more than transitory results, except for tonic action during convalescence. Caffeine sodiobenzoate and camphor in oil were used freely for emergency stimulation but these too gave only temporary results. As the great majority of patients extremely ill showed typical signs of shock, various efforts were made to combat this condition but no results beyond a temporary improvement were observed. The fluid extract of ergot was used with good temporary results. Ergotin was used with no noticeable action. Adrenalin and pituitrin were practically useless, neither producing any rise in blood pressure or even a transitory stimulation. Alcohol in any form was seldom used.

Locke's solution with thirteen per cent. acacia was given in a number of cases intravenously, thinking perhaps the presence of a colloid might possibly prevent, to a certain extent, the absorption of toxin, and, at the same time furnish a diluent. I believe that this solution gave the most striking results, improvement often being immediate and continuing for six to eight hours. It gave best results when given from two to three times a day, at six or eight hours' intervals. Bromides in full doses were used for those with delirium and also when the patient was restless and unable to sleep. Occasional doses of chloral hydrate were given either for its direct hypnotic action or to fortify the effect of bromides. Codeine was used in preference to morphine to relieve pain and troublesome dry cough. Expectorants and narcotics of all kinds were religiously avoided as most of these patients were already half drowned with exudates.

Morphine was used only as a last resort or when pain could be controlled in no other way. Several patients had alarming symptoms directly after the hypodermic administration of morphine. Two

men who had been progressing favorably, having been given one quarter of a grain of morphine for the relief of insomnia, died within an hour from the time of injection. Possibly these unfortunate occurrences were not due to the drug, but nevertheless it has led me to believe that its use is not without danger. Hot applications were not used, as a lung already engorged needed no extra blood supply. On the other hand, the use of ice bags was permitted.

SERUM.

Immune serum obtained from patients who had been convalescent from the disease for seven to ten days, was used in six cases of this series, with curative results in only one instance. In most of these cases it did not appear to influence favorably the course of the disease in the least degree. I believe it to be an uncertain and indefinite therapeutic measure, and factors so innumerable enter into its composition that its value as a standard method of treatment depends upon chance. That is to say, the immune serum may contain certain antibodies not at all specific for the toxin of the patient to be injected. Again the bacterial infection is so complex that the immune bodies needed by the recipient are furnished only by chance by the donor, if at all. The influence of the serum on the white blood count showed nothing of importance.

Results obtained by oxygen were transitory, and as the condition progressed the cyanosis became as pronounced as before. It was interesting to note that often the patient was greatly relieved by lung puncture, especially if a pneumothorax followed the operation, and it was not uncommon for patients to request that the operation be repeated. Patients frequently showed a drop in temperature following puncture and a temporary improvement in physical signs. The cough and sputum would increase for a short time, followed by a marked decrease in the number of râles within a few hours.

The results following this procedure led to the opinion that the production of a slight positive pressure in the side showing greater involvement might materially aid in compressing the profuse exudate from the affected lobes. With this purpose in view, an artificial pneumothorax was produced in three patients, injecting from 100 c. c. to 150 c. c. of air into the pleural cavity, in the same manner as has been frequently carried out in the treatment of tuberculosis.

These three cases were considered hopeless at time of injection. Two of the patients recovered, but the third one died three days following operation. Special mention of this case is of interest. At the time of pneumothorax the patient had been very ill for four days and was considered hopeless, being intensely cyanosed, delirious, and moribund beyond a doubt. One hundred c. c. of air were injected into the left pleural sac. The following day the patient became conscious and rational, and very few râles were to be heard in the chest of the side operated upon and breath sounds were quite distinct. He continued to improve for thirty-six hours, when he again became delirious and comatose, dying forty-eight hours after operation.

Autopsy showed a pneumothorax still present.

The lower lobe was compressed to one third its normal size and did not contain the usual amount of exudate, while the upper lobe which was not hemorrhagic showed but little compression and its functions were not interfered with by the artificial pneumothorax. The use of this operation as a therapeutic measure in selected cases is worthy of further trial. All complications were treated as separate conditions.

The mortality, which was thirty-one per cent. in this series of cases, hardly represents a fair figure, as many of the patients had been ill a number of days before admittance, and it therefore includes the more serious ones sent in from surrounding camps. Undoubtedly the prognosis was not improved by transfer in ambulance for long distances. Many died within a few hours after admission.

Although nearly two hundred and fifty patients were treated in ward 11, the preceding remarks are confined to observations and notes kept in a series of one hundred and fifty cases occurring during the height of the epidemic, from September 21st to November 20, 1918.

ETIOLOGY AND TREATMENT OF BRONCHIAL ASTHMA.*

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Recent investigations have thrown some light on that obscure condition called bronchial asthma, with the profitable result that such investigations have led to the alleviation of the symptoms of this distressing disease in a number of patients. While speaking of therapy it is hardly necessary for me to add that before the patient is treated for bronchial asthma it must be ascertained that the symptoms are not due to cardiac, renal, pulmonary or pituitary disease. Due consideration must also be given to the idea advanced by Pottenger (1) as to the relation of the vagus to the disease. Recent investigations have added confirmatory evidence to the statement made by Meltzer (2) and Wolff-Eisner that asthma is to a great extent a manifestation of anaphylaxis or allergy. It was found, that in the lungs of animals that had died of anaphylactic shock, there was a contraction of the bronchioles (3) and it is supposed that a similar condition exists in the asthmatic spasm. The nerve centre controlling the muscles in the bronchioles in asthmatics is in a state of unstable equilibrium. These ideas are more acceptable than the idea that asthma is due to a congestion of the mucous membrane in the lungs.

It might be well to digress here to refresh our minds a little on this subject of anaphylaxis. The name was used by Richet before the investigations of Rosenau and Anderson or of Otto were made. The meaning of the word is the opposite of prophylaxis, that is hypersensitiveness or hypersusceptibility. Von Pirquet in his work on tuberculosis,

in which he devised the skin test named after him, used the word allergy, which is another term for the same phenomenon. Dr. Theobald Smith had noticed this hypersusceptibility in guineapigs used in testing horse serum and as a result of his suggestion Otto performed his research on anaphylaxis, which appeared at the same time as the paper of Rosenau and Anderson. These investigations showed that it was the proteid substances that sensitized the animal.

Since von Pirquet's work, the skin reaction or modifications of it have been used in glanders, typhoid as the typhoidin reaction of Gay (4) the skin reaction to pneumotoxin (5) and recently in hay fever, asthma and as a test to detect food sensitization especially in children. The sudden cuticular reaction of Jenner, noted at the time of revaccination against smallpox, may also be mentioned. It is now generally believed the skin reaction is brought about as follows: The antibodies (which are formed in cells by the action of protein), if few in number, are all attached to the cells. On the introduction of the protein substance to which the animal is sensitive a reaction occurs in the sensitized cells, that is, in those cells to which the antibodies are attached. This in brief is the cellular theory that seems to have been proved by the researches of a number of investigators. Another explanation is that infection with the tubercle bacilli, for example, causes the production of antibodies which unite with the tubercle proteid when it is rubbed in the skin and a toxic substance is formed which causes the symptoms of anaphylaxis or allergy. The toxic substance is supposed to cause a dilatation of the blood vessels at the site of the scarification and it is in this way that the local reaction is caused.

Bronchial asthma is supposed to be in part the result of the sensitization of the patient to the proteids of bacteria, foods, and miscellaneous substances. For example, Walker states that in his series of patients studied fifty-five per cent. were sensitive to some protein and the nonsensitive were probably due to chronic bronchitis, cardiorenal complications, or emphysema. By some investigators it is thought to be a straight infection with bacteria. Hay fever, which is, as you know, closely related to asthma, is supposed to be due to sensitization to the pollen protein of certain members of the vegetable kingdom. This has been proved experimentally by Koessler (6). Urticaria (7), eczema (8), and angioneurotic edema are likewise supposed to be due in part to sensitization to various proteids.

In Walker's first bacteriological examination of the sputum of asthmatics he used plain agar and I have not yet seen any published papers showing his results with the blood agar. By using the latter he would be able to more easily detect *Streptococcus viridans*, *Streptococcus hemolyticus*, *pneumococcus*, and of course without any hemoglobin in the media which he used the influenza bacillus would be missed entirely. I may say here that Sicard (9) used blood agar and he found that the most universally present microorganism was *Streptococcus viridans*. Cecil (10) also found that the latter coccus was very prevalent in respiratory

*Paper read at the May Meeting of the Yorkville Medical Society.

diseases. In fact it seems that it is one of the most common cocci of the respiratory flora.

However, Walker with the media he used found that *Staphylococcus aureus* and *Staphylococcus albus* were quite prevalent and he also isolated a diphtheroid on which he lays much stress as one of the possible factors in asthma. Bacterial proteids were obtained from a number of microorganisms and skin tests were made with them. He emphasizes the following: "During or immediately after an attack of asthma the skin reaction will be questionable." With his skin tests he obtained the greatest number of skin reactions with *Staphylococcus aureus*, i. e., nineteen positive reactions out of ninety-seven tested, next with *Staphylococcus albus* and with *Streptococcus hemolysans* and a diphtheroid he obtained an occasional positive reaction. Out of forty-four patients tested with *Streptococcus viridans* he did not have a single positive reaction. I have heard several bacteriologists quoted as saying that the latter has no antigenic properties; but I do not know on what they base this assertion. I have looked up the literature somewhat on this subject and found that streptococci are capable of producing agglutinins, opsonins, and hemolysins. One investigator states that it can produce antibody, but that its power to do so is not marked.

In R. A. Cooke's (11) report on 100 selected cases of asthma he states that bronchial infection appears as the primary infection in only six per cent. of the cases. But in another part of the same paper he states that thirty-three per cent. of the patients had a complicating simple infection. Furthermore, as confirming the bacterial causation of some of the cases of asthma, Walker states that, "We have found that the serum of many patients that are sensitive to the protein of *Staphylococcus aureus* agglutinate strains of this organism." Treatment of the patients who were nonsensitive to this organism but whose serum agglutinated it, was followed by relief of the asthma. On the other hand, he obtained no positive agglutination tests when he used *Staphylococcus albus*. The results from skin reactions, complement fixations and precipitin reactions were more comparable with bacterial proteins. When Walker used the other proteins to which the patients were sensitive as antigens in complement fixation and precipitin reactions he found they were of no value in the diagnosis, prognosis, or treatment of the condition.

R. A. Cooke divides his patients into two groups, namely anaphylactic and nonanaphylactic. Walker also divides his into two groups, using the term sensitive and nonsensitive. Out of 150 patients studied by the latter with the skin reaction fifty-five per cent. were sensitive to some protein. In Walker's series, the horse, mainly the dander, was responsible in twenty per cent. of the cases. In Cooke's forty-four per cent. reacted to animal dander. It must be remembered that while Cooke used the intradermal injection as his method of determining sensitization, Walker used the skin abrasion method. Cooke's is probably more sensitive. Next in importance as causative factors Walker places the proteins of wheat, *Staphylo-*

coccus aureus and early pollens which were responsible for fifteen per cent. The late pollen Walker considered responsible for ten per cent., the cat in five per cent., *Staphylococcus albus* in three per cent. Of the miscellaneous proteins one patient was sensitive to casein, one to egg, two to chicken meat, one to feather, and one to flaxseed.

Of Cooke's cases thirty-three per cent. were sensitive to early pollen, thirty-one per cent. to late pollens, and thirty-four per cent. to food proteins. It is necessary to keep in mind the different methods used in applying the protein, Walker recognizing this when he states "that it is possible that the intradermal method would change some of the nonsensitive to the sensitive group." But Walker suggests that perhaps the intradermal method is too sensitive and it is not so easy to apply. Furthermore one of the investigators in our laboratory had such tremendous reactions that he became alarmed when he used the intradermal method. Bearing these facts in mind it is perhaps safer for the general practitioner to use the skin abrasion method.

Of the patients with asthma who seem to be sensitive to pollens the greatest number react to ragweed. They react next to goldenrod and next to timothy. It is better in the determination of seasonal asthma to test patients with the pollen of all the common plants rather than with one plant from each family.

In my own limited number of patients, thirty in number, tested with bacterial proteins, I found very few positive reactions, and besides they were not marked reactions. On the other hand Walker believes that the cutaneous test has proved to be of value in determining a bacterial cause in some of the patients. In the patients nonsensitive to the abrasion method it is possible that the intradermal test would demonstrate bacteria as the causative factors in some asthmatics. As I have mentioned previously, in the testing of patients to get an idea of sensitiveness to proteins it is advisable for practitioners to use the skin abrasion method, Walker believing, as I have stated before, that for general purposes the intradermal test is too sensitive.

In using the skin abrasion method thoroughly clean the flexor surface of the forearm with fifty-five per cent. alcohol and with a small pipette or a platinum loop place a drop of decinormal sodium hydroxide near the anticubital space and below and to one side place another drop. With a von Pirquet borer or a Hagedorn needle abrade the skin through the first drop and use this as a control. Do not bring the blood. To the second drop I add with a small platinum spatula a small amount of the dried proteid to be used and abrade the skin. Take care not to mix the proteids. If you use the platinum loop it can be burned after each trial. Some use a fresh tooth pick with each protein. Unless you plan to use every protein which you have it is advisable to question the patient as to sensitiveness to substances and thus the test may be expedited. A very positive reaction appears within a few minutes and consists of a wheal at least one centimetre across with a sharply demarcated, raised and jagged border and this wheal may be surrounded by an area of erythema. In some cases the reaction may be positive, although there is only an extensive

erythema, but of course it must be much larger than the control. It is advisable to write down the list of proteins as you intend to use them before performing the tests and then lay the small vials out on the table in the order as noted on the list. When good strong reactions are obtained they are truly remarkable and convincing and when, as often happens, the reactions agree with the statements made by the patients as to sensitiveness to certain foods or other proteins the results are truly gratifying.

In my personal investigations I have tested thirty-four patients with bronchial asthma, one with chronic bronchitis and three with hay fever. I have used thirty-two proteid substances and two pollens, ragweed and timothy. Of the thirty-two proteid substances four were bacterial, made by myself. They were made from *Streptococcus viridans*, *Streptococcus hemolysans*, *Staphylococcus aureus*, and a chromogenic gram negative coccus isolated from the sputum of an asthmatic patient. The bacterial proteids were made from microorganisms grown on agar, from which they were removed, washed with saline twice, and then washed with alcohol containing carbolic acid twice, and finally washed with ether and then allowed to dry.

Of the thirty-four patients who had asthma I tested thirty with the four bacterial proteids, of whom only three reacted to the chromogenic gram negative coccus, one reacted very slightly to *Streptococcus hemolysans*, and one reacted very slightly to *Streptococcus viridans*. Of the twenty-four tested with dog's hair two gave a marked reaction. Of the twenty-four tested with cat's hair one gave a very slight reaction. Of the twenty-six tested with horse dander one gave a very slight reaction. Twenty-three were tested with egg yolk and all were negative. Thirteen were tested with egg white of whom one gave a very marked reaction and one a very slight reaction. Of ten tested with cow's milk one gave a marked reaction. The patient who reacted very markedly to egg white and cow's milk was a boy of nine years of age. About two weeks after the first reactions were obtained he was again tested with the same substances and gave identical reactions.

A few asthmatics were tested with the common cereals such as buckwheat, corn, rye, oat, barley, wheat, and rice, with indifferent results, since only a single marked reaction was obtained. A few of the patients were tested with the meats, such as beef, pork, lamb, and chicken. Out of these there was one moderate reaction. A very few were tested with fruit protein, and one marked reaction with banana was obtained. The patient, a young man, was asked before the tests were made as to the foods that seemed to cause him distress and since he mentioned the banana this was tried first and a marked reaction obtained. A very few were tested with the common shell fish and with one patient a moderate reaction to lobster was obtained. One young woman was tested with the thirty-four substances, including the two pollens. She reacted moderately to lobster protein and on being questioned it was ascertained that thirty-six hours previous to the test she had eaten lobster. The patient

abstained from lobster but a few weeks after having the tests performed she ate some scallops and very soon thereafter she had an attack of asthma. She never reacted to clam or oyster proteins. The reaction was called marked if there was a large irregular wheal with erythema, it was called moderate if the wheal was smaller, slight if there was a large area of erythema only, and very slight if there was an area of erythema slightly larger than the control.

THERAPY.

Since it has been almost definitely established that asthma is due in over half the patients to a sensitization to protein it now remains to state how this information may be applied. The skin reaction may in this respect enlarge its usefulness since the reaction is of great value in prognosis and in checking up the treatment.

An interesting application of these discoveries is stated in *Science* (12). It was ascertained by study that the California native black walnut was probably responsible for a considerable amount of hay fever in that State. The patients were tested by the intradermal method with extracts made from walnut pollen and a number of positive reactions were obtained. All the individuals used as controls were negative. A number of patients were relieved by leaving the regions where the walnuts abound during the season of pollination. Many of the patients are being treated with the pollen extracts, but the results have not yet been announced.

Patients sensitive to proteins of horse dander, dog's hair, cat's hair, and pollens are relieved by a process of desensitization. It is unfortunate that the effects are transitory, especially with hay fever, and that consequently every year the patient has to go through a series of prophylactic inoculation before the appearance of the causative pollen. In desensitization the patient is given a set of injections with gradually increasing amounts of pollen protein. These amounts are accurately ascertained by R. A. Cooke and Vander Veer (13) by determining the amount of total nitrogen which the doses contain.

With patients sensitive to food proteins it seems that the only recourse is in abstinence from the foods which cause disagreeable reactions. That something, however, is possible in the way of desensitization to food products is apparent from the excellent work done by O. M. Schloss (14). His immunization was accomplished by the use of capsules given internally and containing not the whole substance, but one of the isolated proteids. His results were very satisfactory.

As to the vaccine therapy it seems to be the consensus of opinion of several investigators that some of the patients are relieved by injections of vaccines. Walker (15) found that patients were relieved if they were injected with vaccines made from the microorganisms to which they were sensitive. This he found to be true with *Staphylococcus aureus*, *Staphylococcus albus* and diphtheroids. Also Walker found that certain nonsensitive patients, whose sera, however, agglutinated *Staphylococcus aureus*, were relieved by vaccines of the latter.

Sicard (9) also reports some successful results in the use of vaccines. Hutcheson and Budd (16) give a favorable report on vaccines in asthma. My opinion, based on the use of vaccines in a considerable number of patients, is that vaccine therapy in asthma is still in an experimental stage. I have seen patients who were considerably relieved by a few injections of vaccine but with these we must always keep in mind the mental effect of such a procedure. Then there are other patients who do not improve at all after a considerable number of injections. With these there is a possibility that we have not arrived at the true causative factor. More valuable data on vaccine therapy, however, will be obtained by carefully observed injections of sick patients than by experiments on a healthy animal of another species. I say this although fully cognizant of the basic principles of immunity that were discovered by the latter procedure. Although still in a vacillating state of mind as to the efficacy of vaccine therapy in asthma I believe that some useful knowledge has really been gained as to the etiology and treatment of bronchial asthma.

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BRONCHIAL ASTHMA IN CHILDREN.*

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This disease may be defined as one characterized by attacks of severe spasmodic dyspnea, which may be preceded, accompanied or followed by bronchitis of greater or less severity.

ETIOLOGY.

There may be one or more of the following factors involved in the etiology of the disease; heredity, the exudative diathesis, adenoids and enlarged tonsils, bronchitis, enlarged bronchial glands; the in-

fluence of high winds, dust, cold or damp on susceptible subjects. It may be due to indigestion, constipation, pollen or animal protein, especially from horses, cats, or dogs. Recent research work would seem to indicate that, in a great many cases asthma is really a manifestation of food anaphylaxis, the most common offending food being eggs, and next fats and sugars. This sensitization to foreign protein may be inherited or active. It was at first thought that sensitization was always active through the entrance of undigested protein through the intestinal mucous membrane, but a number of cases have been reported of late where such an accident could not have occurred and where the sensitization must have been inherited, or at least congenital. As a matter of fact, the sensitization, when active, may be produced by ingestion or inhalation of the protein, or by bacterial autolysis. There is no question but that the exudative diathesis, made so much of by Czerny and the German school, has a definite relation to asthma. This diathesis may be briefly stated to be mainly a congenitally low tolerance of fats. When we observe the frequent close association of eczema, and of seborrhea of the scalp with asthma, and when we see how often all of these conditions are cleared up by cutting down or excluding fats from the diet, we cannot disregard this fat intolerance as an etiological factor. Finally, an enlarged thymus may have a mechanical action in the causation of attacks, and there is a definite relationship between asthma and spasmophilia and rickets. The capriciousness of the disease is remarkable, as many patients who have attacks in a damp climate with low elevation, are cured by going to a high dry district, while, on the other hand, many cases occur in high altitudes and dry climate which obtain prompt and lasting relief on removal to the very opposite environment.

SYMPTOMATOLOGY.

This depends on whether there is an associated bronchitis, as is usually the case in the younger children, or whether the attack is of the adult type with little or no bronchitis, and with a predominance of the nervous attributes. A division of cases into these two general classes is sufficient for general purposes, although some writers give as many as four. For instance, Holt names a first class which begins with bronchitis, a second which follows a bronchitis but which does not necessarily recur, a third of the hay fever or periodically recurring type, and finally, the adult type. The salient points in the symptomatology are the spasmodic dyspnea mostly expiratory in character, a varying degree of immobility of the chest wall, and of emphysema with its resultant hyperresonance, a characteristic wheezy respiration with loud, sonorous and sibilant râles all over the chest. A striking and almost pathognomonic picture is seen in an eosinophilia up to fifteen or twenty per cent. of the total leucocyte count as compared with a normal one to two per cent. There may also be Charcot-Leyden crystals and Curschmann's spirals in the sputum. A concomitant urticaria or eczema will often be a clue to a correct diagnosis in obscure cases.

*Read before the Flatbush Medical Society, Brooklyn, January 10, 1919.

DIFFERENTIAL DIAGNOSIS.

Asthma must be differentiated from congenital stridor, enlarged thymus, spasmodic croup, laryngitis, laryngeal diphtheria, whooping cough, retropharyngeal abscess, enlarged bronchial glands and foreign bodies in the larynx.

PROGNOSIS.

Depends largely on the amount of emphysema and the possibility of removing the cause of the attacks. While never fatal in itself, it unquestionably lowers the resistance of the child, especially to respiratory affections.

TREATMENT.

Prophylactic treatment includes removal of diseased tonsils and adenoids, careful diet with an avoidance of cream, eggs, and sweets. Abt, of Chicago, advises the administration of calcium chloride in doses of three to five grains four times daily in the intervals between attacks, while Kerley prefers to give sodium bicarbonate and sodium salicylate. Aspirin, in my experience, is of great service, and may be given in five grain doses three times a day to a child of five years for a considerable time without any untoward effect. Skin tests should be made to discover to what proteins, if any, the child is sensitized. This is done by making scarifications on the flexor surface of the forearm with a scalpel or a von Pirquet borer and then applying the concentrated protein in powder form and then dissolving it in a drop of decinormal sodium hydrate solution. The positive proteins will, in a few minutes, produce a very typical urticarial wheal, white in the centre and surrounded at the periphery by an intensely red zone, which may or may not be accompanied by itching. This work on protein sensitization was, I think, first done by Schloss and then later by Talbot, of Boston, followed by Walker, Goodale, Blackfan and others. At first watery extracts were used and then in the Harvard Botanical Museum, and at the Peter Bent Brigham Hospital in Boston, Wodehouse worked out a method of extracting the protein from fruits, nuts, eggs, vegetables, animal substances such as cat hair, horse dandruff, and chicken feathers, and producing them in a fine powder form freely soluble in alkaline media and quite stable over long periods of time.

In looking over the reports of experiments along these lines, one is struck with the fact that there was a marked reaction in a great percentage of cases to the protein of the walnut, and I do not believe that this point is given the attention which it deserves. The sensitization of a patient to animal protein explains the formerly mysterious association of attacks of asthma with the close proximity of cats, horses, parrots and other animals. Schloss and Talbot have done a great deal of experimental work on the desensitization of patients by the administration of the offending protein in capsules, beginning with an almost infinitesimal dose and gradually and cautiously increasing until immunization is accomplished. In cases where the attacks are seasonal and evidently of the hay fever variety, skin tests may be done in the same manner to identify the exciting pollens. As a preventive,

Holt gives syrup of hydriodic acid in doses of thirty minims three times a day at five years of age or potassium iodide in doses of two to four grains three times a day. Codliver oil, either pure or in emulsion, alone or combined with syrup of the iodide or iron, is a valuable tonic. Daily sponging with cool water, outdoor life preferably in the country and in a mild, warm, dry climate are valuable adjuncts in the management of asthmatic cases.

TREATMENT OF THE ATTACK.

An emetic may be given if there is stomach distress, and especially if there be a history of recent dietetic indiscretion in a susceptible child; the dyspnea may be relieved by inhalations of the fumes of burning powders containing stramonium, a mixture much used by me consisting of equal parts of flour, potassium nitrate and powdered stramonium leaves. Adrenalin, 1-1000 solution, in one or two minim doses gives rapid relief when administered hypodermically, and it may be followed for longer effect by the hypodermic injection of morphine sulphate 1/50 to 1/20 grain. Night attacks may be prevented by the giving of antipyrin in doses of four grains at five years of age up to six grains at ten years.

178 WOODRUFF AVENUE.

THE CLINICAL APPLICATION OF QUARTZ ULTRAVIOLET LIGHT IN CONSTRUCTIVE TISSUE CHEMISTRY.

Dealing with the Physics of Light and the Kinetic Capacity of the Patient's Cell Physiology.

BY DONALD McCASKEY, M. D.,
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The perspective of understanding regarding ultraviolet light metabolism effects has been in a haze. This foggiess of opinion and current comment has induced me to offer this brief word, with the idea of helping to crystallize what we know from what we do not know. This article is purely introductory to a forthcoming series, and merely scratches the surface. Ultraviolet light, as used here, embraces all terms such as uvioltherapy, sunburn, actinotherapy, quartz light, Kromayer, Nagelschmidt and heliotherapy, actinic rays and chemical rays.

Two aspects of this subject are dealt with: First, light wave physics; second, the energy or kinetic capacity of the patient's protoplasm.

To clinically apply quartz ultraviolet light and obtain constructive results in the health cycle of the patient, two things are absolutely essential: First, accurate metabolism knowledge of the patient's blood and tissue chemistry. This means a survey of the individual's blood sugar; blood urea; blood uric acid; blood creatinine; blood creatin; hemoglobin; red corpuscles; white corpuscles, and a differential count. Then make a routine urine examination for organic and functional kidney action; total nitrogen in grams in twenty-four hours by the Kjeldahl method; percentage of urea nitrogen to total nitrogen, followed by the chemistry of food intake in nitrogen grams; then an electrocardiogram of the heart, and finally the blood pressure.

The second is wariness in the use of this ultraviolet therapeutic agent. This means a knowledge of skin reactions to certain degrees of irritation; distance of light application; duration of light dose, and a knowledge of the mechanics of the ultraviolet light machinery and their proper mechanical adjustment. It is futile to expect effective results from ultraviolet therapy in the metabolic field of clinical medicine unless these two fundamental qualities are thoroughly understood. Then follows the clinical application. This plan carried out to the completion of its cycle can then be made to meet the indications of the individual patient. Otherwise, poor results will invariably follow.

In the physics of light we are dealing with mathematics. Just as in weight physics there is a unit of measurement known as one pound, so there is a yard stick for the measurement of light. This yard stick is one ten millionth of one metre. It is called an Angstrom unit; A. U. is its abbreviation. Light represents wave lengths. These are of long or short dimensions. The long ones take us into the field of the Hertizian, wireless telegraph or longer wave lengths. These are all grouped together as the infrared light waves. Beginning at the red ray of the rainbow spectrum which totals 7,000 Angstrom units long, these infrared light waves expand into single vibrations, covering thousands of miles in length. The retina of the human eye is not capable of any selective recognition of these infrared wave lengths.

On the other end of the spectrum, or the short dimension light waves, we have radium and x rays. These vibrations are so short that they narrow down to even one quintillionth of a fraction of a millimetre. These are known as the chemical or actinic light waves. Between the two, we have wave lengths giving us the colors of the rainbow. These are red, orange, yellow, green, blue, indigo, and violet. These range from red, which is 7,000 A. U. long, to violet, which is 4,000 A. U. The human retina is not constructed so that it can distinguish any wave length outside of this 7,000 to 4,000 Angstrom unit range.

We also have another group: Beginning at the violet wave length the waves contract into smaller wave lengths. They are known as the ultraviolet rays. They continue to grow shorter and shorter until they reach such dimensions and chemical intensity that they are known as the x rays. Growing still shorter, the field of the radium wave lengths are reached. I shall confine myself to that range known as the quartz light spectrum, as I use it in the Nagelschmidt and the Kromayer ultraviolet lamps. Here we have the red and the orange rays cut out. The spectrum begins at 6,300 Angstrom units, which is between the orange and the yellow vibrations. The wave lengths then shorten down through the yellow ray, which is 6,000 A. U.; through green, 5,500; through blue, 5,000; indigo, 4,500, and violet, 4,000 A. U. Just below violet, at 3,800 A. U., visible light ends. Then the actinic lengths continue to contract to 1,650 A. U., where the quartz light spectrum ends. This gives a complete scope of a spectrum, the maximum of which is 6,300 A. U.; the minimum is 1,650 A. U. A

simile of these quartz ultraviolet wave lengths might be found in bullets of different penetration power—the shorter the wave length, the greater the penetration power into the tissue protoplasm.

Now we come to the second aspect of this subject, which is the kinetic capacity of the patient's protoplasm: All light, heat or sound waves have penetrating power. It is a question of degree, momentum, resistance, absorption, surface tension, and other physical properties. We can drive orange, red or infrared wave lengths into a patient's flesh to a deep degree of penetration—just how deep I do not know nor does it make any difference. We can also drive the quartz light spectrum, mentioned above, into the patient's cellular protoplasm. But, we come to another factor, it is the factor of absorption.

How much of the light that is administered therapeutically is absorbed?

Light is like water. It must go somewhere. Wherever it goes, some of it is absorbed. What happens when light is absorbed? What occurs in the bodily metabolism when certain ultraviolet wave lengths of light are absorbed? What variety of the cellular protoplasm in an individual absorbs ultraviolet light? What wave lengths of this light are absorbed by these cells? What particular proteins or aminoacids, comprising the protoplasm of a cell, has a capacity for absorption? What happens in the patient's metabolic processes after it is absorbed? These are some of the problems that we are slowly trying to solve and unravel.

Sidney Russ, physicist of Middlesex Hospital, London, has found that human blood serum, and also the protein in ordinary egg albumin, absorbs actinic wave lengths from 3,180 to 2,100 Angstrom units. Russ says it better than I, so I'll put it in his words: "We have found experimentally that such substances as human serum and egg albumin also have a well marked absorption band for wave lengths varying from 3,180 to 2,100 Angstrom units (and also possibly beyond, but this we have not investigated). If further we recall the fact that human skin in a layer as thin as one tenth mm. is practically opaque to radiation over a very similar range of wave lengths, then we may look upon this region as one for which protoplasm has a particular power for absorption."

I know from my own quartz light work during the four past years that a uviolet radiation of from three to five minutes, at approximately four inches, is powerfully germicidal. Russ's work corroborates and parallels my own in this field. He says, "If a powerful source of ultraviolet radiation be directed upon an infected wound, the result of an adequate exposure will be that the pathogenic organism on the surface will be directly killed." Cultural plates made have bacteriologically verified this, and bacterial cultures of all types, including the spores of tetanus bacillus, upon radiation by ultraviolet light between 2,960 and 2,100 A. U., were all promptly killed. Newcomer, of Phipps Institute, University of Pennsylvania, has killed typhoid bacilli quickly with ultraviolet light. This, however, only applies to organisms that can be directly reached. Russ and Browning, in their work, have

found that the most marked germicidal action occurred between 2,800 and 2,540 A. U. While the penetration power of these wave lengths is small, yet something happens to the physiology of the cellular protoplasm as a result of the absorption of these waves.

From my studies I believe ultraviolet waves possess definite physiological effects of a synthetical nature. Are these effects solely in the fabric of the cell structure or in the colloids within the cell fabric, or in both? These are questions I hope soon to be able to answer. The first macroscopic effect of uviole light is sunburn. Sunburn produces swelling. Swelling means inflammation. Inflammation is the constant dominating reaction of living protoplasm to injury. There is an increase in the catabolism of the tissue radiated. Also the blood urea is increased. Here we get into the field of the aminoacids, some of which act as acids, others as bases, some reducing agents, some perfectly neutral. The end result of this cycle of catabolism is a compensatory reaction into the anabolic cycle. It is here we have a synthetic regeneration of the constructive phase of tissue chemistry and cellular vigor.

McDonagh, of London, has found that elastin and collagen, two aminoacids which form one of the vital parts of connective cell structure, differ entirely from the predominating aminoacids. Elastin is basophilic, due to the presence of glyocol, lucinine, alanine, and phenylalanine. Collagen, which is a product of one form of connective tissue catabolism, is acidophilic, due to the presence of arginine, lycine, and other aminos. McDonagh has also found that the reducing aminoacids in elastin are leucine and tyrosine. Some of these aminoacids absorb ultraviolet light. Those thus far checked up and proven spectroscopically being tyrosin and phenylalanine. What other aminoacids absorb ultraviolet wave lengths and between what range, remains to be spectroscopically proven. Clinically, many patients, after prescribed doses of ultraviolet light, are objectively and subjectively entirely relieved of their ailments. These clinical results stand unassailable.

Therefore, to what degree the intricate fabric of blood and tissue chemistry can be strengthened and revitalized by the application of ultraviolet light; to what degree the latent energy forces contained in the colloid granules of human cell structure can be released; to what extent the whole local tissue or the whole systemic structure of the patient's body can be brought into higher state of kinetic balance and increased resistance against disease; to what extent the assimilation powers of the patient can be strengthened and equipped for more powerful and efficient functioning; to what extent we can harness this great medical adjunct of ultraviolet light therapy to our aid in battling to unravel and solve some of the mathematical problems that the metabolism of our patients present for us to constructively solve—remains to be developed to a greater and greater degree. Certainly, a medical man armed with accurate blood chemical knowledge as to blood sugar, blood urea, blood uric acid, hemoglobin, nitrogen chemical food intake and nitrogen elimination outgo, so as to have the patient's body in a state of nitrogen balance between what goes in and what

comes out—then to employ with wariness and yet with daring, the kinetic releasing force of ultraviolet light—armed this way, any of my colleagues may gradually learn to possess and wield the balance of power in better solving their patient's ill health problems. Another thing I have found—the urea production is not only increased but eliminated in larger quantities in the urine following sunburn therapy.

In future periods I shall dwell upon the adjuvant use of actinotherapy in local infections, in malnutrition, in cardiac and high blood pressure disorders, and from time to time other classes of ill health conditions that come within the scope of the practitioner in the selected field of clinical metabolism.

One thing I have discovered, which I wish to record collaterally as a warning for the benefit of my colleagues; ultraviolet light used in diabetes is bad medicine. In all my experience thus far, this metabolic disease needs accurate suitable food intake measured on a pair of scales and the blood sugar kept down to a .10 to .12 balance. Ultraviolet therapy knocks this balance into a cocked hat and the patient goes from bad to worse. Here is disease replete with problems. I am beginning to think, however, that there is a stage in the reconstruction of a diabetic where gentle doses of ultraviolet light will be beneficial. Just where this stage should begin and where it should end, and what principles should underlie the problem of uviole dose, I do not know as yet. Certainly for a colleague to begin uviole therapy on a diabetic is as dangerous as for a young aviator, just learning to operate his airplane, to go into an air battle all alone against a squadron of a dozen enemy aviators. Diabetes demands ninety-nine per cent. wariness and one per cent. daring when it comes to the clinical application of ultraviolet light.

24 WEST FIFTY-NINTH STREET.

ABUSE OF ALCOHOL FOR RUBS AND OTHER BODILY USES.

BY NATHAN ROSEWATER, M. D.,
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Alcohol has been King for ages. Its therapeutic application is hard to dethrone with the general public, and even with some of our medical profession. We all admit there is a necessity for using grain alcohol as a solvent for essential oils, gums, alkaloids and other medicines, and for practical preservation of many pharmaceutical preparations where nothing else answers so well. Since the enforcement of the law which requires all preparations to be labeled conspicuously with the percentage of alcohol which they contained, almost every liquid exposed for sale shows its alcohol contents. The small amount usually thus contained in any dose may be negligible, except if repeated quite often, or where alcohol is strongly contraindicated. Here the wide awake physician must protect the patient.

However, it often enters the home and bedside, even the homes of the well informed, in such subtle disguise that the closest scrutiny is required lest

a neighbor or friend sends it unconsciously as a liniment, bottle of wine or malt tonic, cordial, benedictine, beef, iron and wine, elixir, and so forth, and does not the alluring label say it is a good liniment, tonic, appetizer, blood builder, and everything else good? Has it not a U. S. pure food guarantee label, inviting its preference? Of course this only means that those ingredients named, the alcohol or strychnine, quinine, morphine, or other substances are pure, but nevertheless poisonous and capable of injurious effects; therefore the law compels that these contents be printed on the label, to warn the unwary public not to use them except at their own peril, in spite of their being pure.

Not even the advocates of temperance have cautioned the public enough against the alcohol lurking in home made root beer, made with yeast and sugar, and in thousands of the best homes it is given to children, causing constitutional results from alcohol not suspected by the family physician, yet produced in these drinks by yeast or other ferments, converting the sugar into alcohol. Were a hundred men to stand in line in front of a bar and drink alike at regular intervals one would be drunk on a first glass, one on a second, one on the third, and so on; yet at the other end would be a few whose capacity would seem to be unlimited, a matter of individual susceptibility and resistance. Intoxication is only one of the bad effects of alcohol, whereas its slow effect on the nervous system, heart, liver, kidneys, brain, not noticeable by an unsteady or other recognizable gait or action of the one who drinks, is so well understood that the indiscriminate use of alcohol has no defenders among physicians, whether advocates or not of its value as a medicine in specific cases. How much more true is it that alcohol should not be prescribed for those very susceptible, except by their physician and with constant watchful control.

If its use is to be guarded when taken internally what can be said of its present day common use as an external application? Even on the babes in the cradle, especially of the well to do; upon the aged, the so called neurasthenic, upon practically every one sick in the hospital, from the time they enter till they leave.

The physician's prerogative and duty to permit no habit forming drug to be administered without his specific prescription or knowledge has been unconsciously, yet almost universally, usurped by the zeal or assumed knowledge of nurses, so that it is necessary at the present day for the doctor to specify in bold black type "*No alcohol rubs,*" because it seems to be handed down as a duty of a nurse to "rub alcohol after each bath," to "close the pores." (Why closing of the pores would be good, or how alcohol can do so, or for how long, nobody knows, least of all the nurse.)

As alcohol evaporates when applied or rubbed into the skin, its well known cooling, also stimulating, so called invigorating, effect is noticed for a short time. The cooling effect is produced by the loss of so much heat given by the body to the alcohol, which is required to produce alcohol vapor out of liquid alcohol. Meanwhile the alcohol absorbed into the skin stimulates the tissues and be-

comes more or less absorbed and diffused into the circulation, where it must ultimately lead to similar damage as would alcohol taken internally. I have often seen serious damage result, not from the rub or massage, but from alcohol absorption. Should some contend that all of its evaporates without absorption, then it must be a delusion and a fraud to waste money by evaporating alcohol instead of water to cool off the body.

Water also evaporates and cools, whether used hot or cold, by being converted from a liquid into water vapor, which the skin when moistened with it yields an increased warmth to the water, giving off about 1,000 degrees of latent heat for every 212 of sensible heat required to produce water vapor, so that water cools the skin even more per square inch of surface than alcohol. For this reason fever patients are just as effectually cooled and fever reduced by sponging them with warm or cold water as by tubbing them, while not risking the bad effects of shock, imperfect handling of the patient and so forth in tubbing. Water should be used made slightly alkaline either with soap, bicarbonate of soda or phosphate of soda, not only because it is just as good, but better than alcohol.

The reason offered that an alcohol rub "makes you feel so good right after," or that "you sleep well after it," is the same reason why you feel good after taking a swig or night cap, while ignoring "that dark brown effect the morning after." How sad that many do not stop to think that, for every stimulant that exhilarates and exalts you above the level, there always is a final depression that drags you down in the dumps equally as far below the level, and then there is a violent demand for a second and third stimulant to get back to that good feeling until habit peremptorily adds its nagging demand to keep going. Thus unconsciously a desire for a boost is started from the cradle or later on, and we wonder at the weaklings who in spite of the fondest hopes of parents, seem to fail, because they have not been given a correct start.

When we know exactly why and how to use alcohol in disease, it may be a valuable medicine; until then let us avoid it where we can. Of course wood alcohol, so easily procured for automobile use, is far more poisonous whether rubbed or drank, so we must keep teaching the public its dangerous character, and see that it is labeled when sold with sufficient precautions.

SUMMARY.

The slow, insidious introduction of alcohol into the body may be from home made root beer, and other home fermented drinks, where sugar is converted into alcohol, or through its use as a preservative or disguised in a vaunted remedy, or in liniments, or as pure alcohol, by the nurse or rubber, applied externally often daily after the bath, upon infants and those of all ages. If it is the alcohol that stimulates, it must have been absorbed, and many repetitions will cause constitutional damage. If it is not absorbed, and it all evaporates, it is an individual and national waste, while its stimulant effects should be credited rather to the cooling and rubbing, for which water answers even better.

The indiscriminate and insidious abuses of alcohol

will find no defenders among physicians whether advocates or not of its value as a medicine in specific cases. The physician's prerogative to permit no habit drug to be administered, such as alcohol, without his specific prescription, should be insisted upon, especially as to hospitals, sanatoria, nurses and masseurs.

609 OSBORN BUILDING.

PREVENTION OF POSTOPERATIVE THIRST.

BY BERTHA VAN HOUSEN, M. D.,

Chicago,

Head of Obstetrics, Loyola University.

Thirst following abdominal operations is often of so intense a character that the memory of it lingers in the patient's mind for many years. Every hospital has records of patients who have surreptitiously consumed the contents of a hot water bottle in an effort to quench the unendurable thirst from which they were suffering. Even when the surgeon has ordered water *ad libitum* or has installed the Murphy drip so a little water can be retained and absorbed after the patient has regained consciousness, that thirst is but slightly relieved.

This distressing thirst not only makes the patient wakeful and irritable and difficult to control but it has an important physiological meaning as well, because it is the direct result of the anhydrous effect of the anesthetic upon the tissues, of the loss of blood and peritoneal fluid during operation and especially the depletion in the vascular system incident to preparation for operation.

Three years ago, in order to overcome these conditions a standing order was given in all my operative cases of a three quart enema of tap water, temperature about 100° immediately following the operation, or as soon as the patient was returned to her bed. This enema was given fairly rapidly not more than ten or twenty minutes being required to introduce the entire three quarts. An ordinary colon tube was used and the water poured into the attached funnel. The patients, almost without an exception, retained the entire three quarts of tap water.

The fact that an enema of so much larger amount than usual can be retained at this particular time is largely dependent on the patient having had, preliminary to the anesthetic, either morphine and scopolamine or morphine and atropine. In addition to this preliminary anodyne all of my patients, who were given the three quarts of water by rectum, were also given morphine, one thirty-second grain, and scopolamine 1/200 grain every four hours during the first day and occasionally the second day following operation.

Many beneficial results from these large injections have been noted: Catheterization was rarely necessary. The secretion of urine was not accelerated during the first twelve hours but after that it became very active, the patient often voiding every hour for a few times. Thirst was entirely relieved. Occasionally patients even refused water for twelve to fourteen hours following operation.

Shock was prevented. The heart action was better sustained by the well filled bloodvessels. Gas pains were less frequent and annoying. Wounds healed more quickly and more firmly and resisted infection better due to the more normal condition of the circulation. The patient was well fortified to bear possible secondary hemorrhage or excessive loss of fluids due to prolonged or profuse vomiting. In pelvic operations the distended rectum gives the small intestine less opportunity to fall into the posterior cul de sac and become adherent. Albumen and casts more rarely appear in postoperative urine examinations.

Of the three quarts of water injected into the bowel the greater part was absorbed and never excreted by the bowel or kidney. Three day records of the intake of liquids and the loss by vomitus or urinary secretion showed that the patient retained permanently five pints of the water injected.

It is interesting to know something about the distribution of three quarts of water introduced in the large intestine too rapidly for immediate absorption. To determine this, three quarts of water were injected into the bowel after the completion of the operation and before the abdominal incision was closed. The abdomen was then explored and the following conditions found; rectum fully distended, sigmoid nearly empty, descending colon fully distended, transverse colon partly distended, and the ascending colon containing a small amount, as did the cecum. The small intestines were quite empty. Immediately following the closure of the abdomen two quarts more were injected into the bowel and the entire five quarts were retained by the patient with the usual good results.

For the benefit of any who may hesitate to use so large an enema it may be mentioned that at the present time my patients receive two quarts of tap water per rectum in the operating room during closure of the abdomen and three per rectum as soon as they are returned to their beds, making in all five quarts of water retained by the bowel. Since the introduction of the large (three to five quart) postoperative enema such orders as cracked ice, ice bags to the throat, sponging the face and hands at frequent intervals applying wet gauze to the lips and tongue and various other time consuming methods of combating thirst are not known in the surgical wards. This simple measure has accomplished so much in making patients comfortable and relieving the work of the nurse that it has seemed a worthy subject to bring to the attention of the surgeon.

25 EAST WASHINGTON STREET.

Chemotherapy in Sarcomata of the Limbs.—G. Perthes (*Zentralblatt für Chirurgie*, 1918, No. 7) reports the case of a sarcoma of the radius in a little girl in which he injected salvarsan in the veins of the involved limb. After elastic ligature a canula was inserted in the lumen of the median vein and the injection introduced. The tissues of the growth reacted more strongly to the injection than the normal tissues, but destruction of the neoplastic cells was not obtained.

RECENT GLEANINGS RELATIVE TO THE
PROPHYLAXIS AND TREATMENT
OF INFLUENZA.BY LOUIS T. DE M. SAJOUS, B. S., M. D.,
Philadelphia.*(Continued from page 466.)*

Apart from the use of the gauze mask in the individual prophylaxis of influenza, some attention has been paid to the employment of nasal sprays and gargles for the removal of the causative germs from contact with the mucous membranes. Thus, at the beginning of the epidemic in October, 1918, the members of the committee appointed by the French Academy of Medicine to formulate a general plan of influenza prophylaxis recommended, among other measures, rinsing of the mouth and gargling at least twice a day with a tumblerful of warm water containing one teaspoonful of Labarraque's solution. An effort at antiseptis of the nasal passages was also to be made by the employment of liquid petrolatum containing one per cent. of resorcinol. In this country some have practised spraying of the nose with antiseptic alkaline solutions, normal saline solution, or oily menthol solutions; and for the throat, gargles of various antiseptic solutions, including the newer chlorine yielding preparations, have been used. In England, Averill, Young, and Griffiths, 1918, derived a sufficiently favorable impression from spraying the nose and throat with a one in 1,000 solution of acroflavine to deem this measure worthy of further trial.

As a matter of fact, there exists as yet little or no scientifically precise evidence of a definite prophylactic value of these attempts at nose and throat antiseptis. Such evidence is, indeed, difficult to secure. According to a report prepared under the auspices of the American Public Health Association regarding the question of masks, sprays, and gargles, the latter two agencies cannot be expected to protect the nose and throat from infection, for various reasons. In the first place no germicide strong enough to destroy infective organisms can be applied to the nose and throat without at the same time injuring the mucous membranes. Again, it is held, irrigation such as would effect complete mechanical removal of the germs is impracticable; and the use of sprays and gargles tends to remove the protective mucus, spread the infection, and favor the entrance of the organisms.

In partial rebuttal of these highly unfavorable conclusions we may point out that some slight injury to the mucous membranes by an antiseptic is doubtless allowable if at the same time a greater destructive effect upon the infective organisms themselves is exerted. Again, apart from any germicidal action, even partial mechanical removal of the germs represents a certain amount of gain, even though a continuous irrigation, such as that availed of in the Carrel method of wound treatment, cannot be employed in the nasal and oral passages. Mucus laden with germs is no longer protective, but a menace to the integrity of the mucous membrane, and if this mucus is rendered more fluid by the use of a mildly alkaline cleansing solution, elimination

of it along with a host of infective germs may be expected to occur, with the help of irrigation, more promptly than would otherwise be the case. Mucous membranes are frequently, at the beginning of infection, in a relatively dry condition which may be expected to favor implantation of germs, and under these circumstances it would appear that only good could result from a flushing of the surfaces with some cleansing solution.

On the whole, it seems permissible to ascribe to cleansing nasal sprays and gargles a distinct, though minor, rôle in prophylaxis. After removal of mucus from a mucous membrane by means of an alkaline solution, the membrane may remain, for a time, bare and unprotected.

In regard to the prophylactic value of vaccines, it cannot be said that convincing evidence in favor of the procedures so far employed has been forthcoming. As J. A. Park and others have pointed out, complete success is not to be expected from vaccination with known organisms against a disease the virus of which is still in doubt. If the primary virus of influenza is actually a filterable organism, vaccines made from the known unfilterable germs are manifestly nonspecific in relation to this virus, and can be expected to awaken only that modicum of nonspecific immunity which frequently results from inoculation with germs other than that against which protection is desired. Among the individual reports of experience with vaccines in the recent epidemic is that of W. H. Wynn, 1918, who administered to 230 persons prophylactic injections of 100,000,000 streptococci and pneumococci and 50,000,000 influenza bacilli, with increased dosage at the second and subsequent injections. The results obtained were such as to suggest, in his estimation, that some slight measure of protection was afforded, though the inoculated and noninoculated series of cases were not strictly comparable. Whittingham and Sims, 1918, used a vaccine containing, in addition to the organisms already mentioned, the catarrhal micrococcus and the meningococcus. Among 156 inoculated persons the incidence of influenza was five per cent. and among 149 uninoculated, twelve per cent. H. L. Barnes, 1918, employing influenza vaccine prepared by T. Leary, of the Tufts Medical School, observed an incidence of twenty-six per cent. among ninety vaccinated persons and of thirty-four per cent. among sixty-four unvaccinated persons. The mortality was practically the same in the two groups of cases. In an account of the work of the Illinois Influenza Commission during the recent epidemic, C. St. Clair Drake, 1918, states that among the Illinois counties answering questionnaires concerning the results of the use of vaccines within their boundaries, twenty-nine counties believed the vaccines had served to prevent the spread of infection. In summarizing, it would seem that while most statistical comparisons show an appreciable margin in favor of the prophylactic use of vaccines, the results obtained from this type of procedure still leave much to be desired. Isolation and, probably, the use of properly constructed masks remain the chief measures upon which control of the incidence of influenza depends.

(To be continued.)

Editorial Notes and Comments

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ENCEPHALITIS LETHARGICA IS NOT SLEEPING SICKNESS.

The popular term "sleeping sickness" which has been applied to encephalitis lethargica is a misnomer. The endemic disease known as sleeping sickness or African lethargy is caused by the *Trypanosoma gambiense* which is introduced by the bite of the tsetse fly. Sufferers from the African sleeping sickness exhibit an apparent state of sleepiness caused by their depleted condition. They are conscious but are too weak to manifest any interest in their surroundings and lie about with half closed eyes giving the impression, to the careless observer, that they are sleeping. The term sleeping sickness applied here is not scientifically accurate. It was to investigate this disease that Koch made his journey to South Africa, and it was in the course of his study of this disease and of an effort to control it that Ehrlich evolved arsphenamine and neoarsphenamine as the most useful of a large number of arsenical compounds, prepared by him for use in the treatment of the disease by the destruction of the trypanosomes.

Reports have been received of the occurrence of a disease both in this country and abroad which, in its clinical manifestation, remotely resembles the African sleeping sickness. Various titles have been coined or resurrected for this syndrome, the most popular of these being lethargic encephalitis. Acute

encephalitis, epidemic encephalitis, ophthalmoplegia, and nona have also been freely used in describing a complication which has come as one of the sequelæ of the influenza pandemic.

Dr. Royal S. Copeland, Commissioner of Health of the City of New York, informs us that up to March 14th nine cases have been reported in this city in which encephalitis is suspected. So far the situation hardly warrants the placing of the complaint in the list of reportable diseases, but members of the medical profession are requested to report all cases in which encephalitis lethargica is diagnosed or even suspected. The letter reads as follows:

Reports have been received from various European cities which indicate the prevalence, in epidemic form, of a disease which has been named encephalitis lethargica. The first case of the disease in this city was reported to this department on March 12, 1919, and information has since been received from authoritative sources that there are eight other cases under observation in which this disease is suspected. In view of the fact that it is essential for us to be apprised as promptly as possible of the occurrence of cases of this disease so that we may take such measures as may in the premises be necessary, I would earnestly request the cooperation of the physicians of this city in making prompt report to the Director of the Bureau of Preventable Diseases of any case in which encephalitis lethargica is definitely diagnosed or suspected.

The situation at the present moment does not seem to warrant our making this disease reportable by a Sanitary Code enactment, and I look forward with confidence to the cordial and helpful cooperation of your readers in giving us prompt information as to cases of this disease.

The symptoms and anatomical lesions in extreme cases of encephalitis lethargica, resemble those of epidemic poliomyelitis and efforts have been made to establish an identity between the two. Laboratory inoculations from patients to monkeys, however, have been fruitless. In the majority of cases reported it has been shown that the patients had apparently recovered from influenza some time previous to the manifestations of these symptoms.

In the study of the earlier epidemics of influenza mention is made of somnolence following the acute stages of this disease, as in the case of the epidemic of 1712 when the term sleeping sickness was employed to describe the complaint. Later, during the epidemic of 1889, nona was used to describe the alleged new disease which was then especially prevalent in Italy and Russia.

Profound sleep has been observed in many epidemics of varying character. During the early months of the war when the typhus epidemic swept over Serbia, patients were encountered who slept

for many months after they had recovered from the fever. Cases of deep slumber have frequently been reported among wounded soldiers when no systemic infection was present. At the Val de Grace Hospital in Paris, a French soldier who had been wounded slept soundly for over three years. Frequently men would be brought into the French hospitals from the battlefield wounded, but fast asleep. The handling of their fractured limbs and free examination of their wounds would not rouse them, nor would anesthesia be required for operative procedures. At periods varying from four days to two weeks they would awaken and slowly resume their conscious activities. Reports have also been made of comatose states following typhoid fever, smallpox, and other depleting infectious diseases.

The theory has been advanced that the condition is induced by an intense fatigue which prompts the protecting psychic mechanism of predisposed individuals to seek refuge in a subconscious state.

It will require much more convincing data than has been adduced so far to establish the symptoms which have been manifested by some of the patients following their convalescence from influenza during the present pandemic as a definite disease, but for the sake of convenience we can with advantage use the term encephalitis lethargica to describe the condition. The popular use of the term sleeping sickness should be discouraged as misleading.

HYPNOTISM THEN AND NOW.

A generation ago Bernheim, at Nancy, was exploiting hypnotism as a cure for nearly everything under the sun, and under the inspiration of Liebaud was attracting world attention to the work of his clinic. Just about a generation before that, Elliotson caused something of the same sort of a sensation in England, and a generation earlier some of Mesmer's disciples in France were talking much of animal magnetism and making all the world believe that they had discovered a wonderful new force. It would not be difficult to trace preceding outbreaks of interest in the same sort of thing about a generation apart for several centuries. Greatrakes's successful stroking was one of them and Father Höll's use of magnets was another.

According to the law of phases in the history of medicine, we should be prepared for another manifestation of interest in hypnotism, but it begins to look very dubious as to whether we shall have it or not. One of the authorities on nervous affections during the war, Lieutenant Colonel Colin Russell, of the Canadian forces, recently suggested, after a study of hysteria under the name shell shock, that the use of hypnotism for the cure of that affection

was contraindicated because hypnotism was only induced hysteria itself and therefore should not be employed for the cure of hysteria.

When we recall that thirty years ago hypnotism was looked upon as a very wonderful psychological phenomenon which not only deserved to be studied, but above all promised to reward investigation by furnishing the key to a great many psychic processes and to mental activity generally, it is rather interesting to have it now set down as an induced hysteria. Physicians who know what a diabolically intricate thing hysteria can be; how puzzling and yet how simple; how full of the unexpected and yet how eminently amenable to suggestion, will realize something of the change that has come over medical scientific opinion before hypnotism could be thus defined. When Du Maurier's *Trilby* was written, all the world was inclined to accept hypnotic influence as a simple fact. Certain persons possessed a marvelous power of will which they could use to influence others and the question was whether this might be used for profound evil as well as for good. Svengali, in *Trilby*, had made the poor heroine of the book a famous singer, though before she was influenced by hypnotism she could not carry even the simplest of airs; he had so overpowered her will that she was just as clay in his hands to be shaped any way that he wished.

Psychologists and even distinguished legal authorities discussed whether the law must not take account of this new and wonderful influence which had been discovered or at least was being exploited as never before. Was it not possible that many crimes were done for which the doers were not at all responsible? There was quite a flurry in medico-legal circles over it. Fortunately the courts are conservative and though lawmakers may be stampeded, judges are slow to take up the novel till it proves its rights in open court and nothing serious came of the discussions. Many medical lights, however, were quite sure that as a consequence of the neglect to take advantage at once of this new great discovery immense injustice and the possibilities of legal wrong were being prepared for.

Now comes the sane conclusion that hypnotism does not represent some influence which passes from the operator to the operated upon, but only a state of mind and will induced in the subject by suggestion from the operator and so closely resembling hysteria as to be practically indistinguishable from it. How time does settle many problems! It sometimes seems very hard to wait, however, but patience is the only safeguard in the quest of truth. Hypnotism is after all just one of the therapeutic modes that come and go. The most interesting chapter in the history of medicine is that which

treats of the cures that have failed. A distinguished French physician said once, and the expression is well worth recalling, that the therapeutics of any generation is always absurd to the succeeding generation. And in this case, the course of medical advance has run a little faster than usual and in less than a generation hypnotism in therapeutics becomes not only absurd, but a source of danger. For it increases suggestibility and therefore renders subjects more liable to hysterical manifestations.

THE ADVANTAGES OF PHYSICAL THERAPY.

Physical therapy has been raised considerably in the estimation of the European medical profession during the war owing to the lack of chemical agents, which were diverted by the exigencies of warfare. Many physicians in France and Great Britain have been compelled to avail themselves of more primitive means of treating disease. Among these means the most prominent have been the physical agents which, according to its advocates, exert, when employed scientifically, somewhat remarkable healing and curative powers.

The effects of physical training have been demonstrated in the clearest possible manner in the making of civilians into soldiers—incidentally converting flabby, puny, and anemic townsmen into hardy and rugged specimens of humanity. Moreover, in the treatment of the men disabled in war unique opportunities have been and are being afforded for putting these principles into practice. But it is urged that physical therapy has a range wider by far than in getting men into condition or in the rehabilitation of the injured. The claim is made that, properly applied, it is of infinite service in general practice and may frequently, with advantage, take the place of medication.

The claim seems to be founded on a sound basis, as its practice has produced in the hands of experts exceedingly good results in a variety of conditions. Rheumatism in many forms, neuritis, neuralgia, nervous conditions, certain heart conditions, and injuries of joints, muscles, or bones have all yielded to physical therapy, administered as hydrotherapy, electricity, massage, active and passive exercise, employed intelligently.

In this country there is in the person of Professor Tait McKenzie, of the University of Pennsylvania, perhaps the greatest exponent of scientific physical therapy of the world. During his experience as a major in the British Royal Army Corps, he was impressed by the large number of men suffering from conditions which could be cured by some form of

physical therapy. British physical therapists have come to exactly the same conclusion; and Italian and French practitioners versed in physical therapy have put these views into action with really astonishing results. In France and Italy men are being treated by what is known as the agricultural cure, that is, they perform agricultural labor under close supervision by medical men. It has been found that work or even play in which an individual can take an interest is greatly superior, from all points of view, to purely mechanical exercises. In any event, whether physical therapy is employed in the rehabilitation of injured soldiers or in the treatment of civilians, one fact is plainly evident, that the medical man who supervises the treatment must know his subject. An undoubted reason why bone-setters and other unqualified physical specialists so greatly flourish, is because the qualified medical man, as a rule, is ignorant of physical therapy. It appears to have been proved conclusively by the war that physical therapy is of great use in medicine and surgery, and therefore it would seem to follow logically that medical students should be provided with facilities to learn this branch of medical science under the most favorable auspices. This can be done most effectively during their medical curriculum. It does not seem out of place then to suggest that the time is ripe for the teaching of physical therapy to be regarded as a legitimate and essential part of the medical course.

PRESCRIBING FOR THE DRUG ADDICT.

The law now governing the traffic in opium and coca and their derivatives in the State of New York frankly recognizes the existence of a class of persons addicted to the use of these drugs and provides that, in prescribing for such persons, the prescriber shall use an official triplicate prescription blank, one copy of which shall be forwarded to the office of the narcotic drug commission at Albany, one given to the patient, and one retained by the prescriber. On account of the odium attached to drug addiction and everything connected therewith, the majority of physicians have declined to prescribe for addicts and the majority of druggists have refused to dispense such prescriptions. The result has been the concentration of these functions in the hands of a few who have frankly commercialized their privileges. The records required by law show that there are physicians who have prescribed for as many as 500 addicts within one week, many of them receiving more than one prescription, and that there are drug stores which have dispensed as many as 350 prescriptions for addicts in one day. If these

physicians and pharmacists were summarily stopped from this practice the addicts they are treating would again turn to the underworld for the drugs they need.

Senator George H. Whitney, as chairman of a joint committee of the Legislature of the State of New York, made an exhaustive study of the drug addiction and formulated the narcotic law which went into effect on February 1st. In the course of an address recently delivered before the New York Academy of Medicine, Senator Whitney pointed out the fact that the physicians who refused to prescribe for addicts were shirking a duty, as were the pharmacists who refused to fill such prescriptions. To meet this situation, Senator Whitney suggested that narcotic clinics be established by the State where confirmed addicts could, for a small fee, obtain a prescription for the needed drug. The establishment of such clinics would not curtail the privileges of either physicians or pharmacists, but it would break up the practice of prescribing for addicts as a business, and would place the prescribing in more responsible hands. It is true of course that unless the patient is incarcerated in an institution he could, by visiting different clinics under different names, obtain prescriptions for excessive quantities, but the majority of younger addicts earnestly seek reformation and many of them will gladly cooperate with the physicians.

If we would go a step further than was proposed by Senator Whitney and provide that narcotic dispensaries should be attached to the clinics, where addicts could have narcotic prescriptions filled at a moderate price, we would be in a much better position to check up the quantities used by each patient and maintain some sort of supervision over the effort to effect a cure. The establishment of such dispensaries would also do away with the scandal of druggists who make a specialty of dispensing narcotics for addicts.

There are many who urge the adopting of more drastic measures, who would cut off all supplies from all addicts, or who would place the whole supply of narcotics in the hands of the State. But the careful, moderate, and sane methods which have been followed by the narcotic commission, and the good already accomplished in diminishing the illicit peddling of narcotics and in ascertaining the real facts regarding this evil, warrant us in opposing such extreme measures and in asking that the newly established commission be given full opportunity to demonstrate the adequacy or inadequacy of the law and the fitness or the unfitness of the commissioner and his deputies to solve the many complex problems involved in the prescribing and handling of narcotic drugs.

DIAGNOSTIC ERRORS CAUSED BY ABDOMINAL PANNICULITIS.

Panniculitis is a chronic inflammation of the connective tissue, characterized clinically by local edema, and histologically by sclerosis of the fatty tissue more or less hypertrophic. The process may occur wherever fat is present, but it arises most commonly in the abdominal walls.

Abdominal panniculitis shows itself in the form of painful nodules seated in the cellular fatty structures and according to their site may, on superficial examination, lead to the diagnosis of gallbladder, gastric, intestinal or appendicular affections. From the clinical point of view, it is most frequently found among corpulent women, elderly people, arthritics, and subjects offering disturbances of nutrition. Nothing is revealed by inspection, but on palpation small nodules of variable size, somewhat rounded and immovable will be detected. They may or may not be adherent to the skin, but they are never adherent to the underlying muscle. It is not always an easy matter to discover these small indurations because they are rather soft.

Palpation will always cause pain, due to compression of the sensitive nerve ending in the inflammatory mass. The pain radiates over the entire region, but it is not of equal intensity and there exists what may be termed a central point where it is most intense. This point is decidedly circumscribed and requires careful palpation for its exact localization. Sometimes it is the seat of spontaneous pain, but it is always painful on palpation. Another characteristic of the pain is that it is superficial and corresponds to the cutaneous nerve endings. It is occasionally so acute that the slightest contact is unbearable for the patient.

From the general point of view, panniculitis may engender various disturbances. There may be disturbances of the sensibility which give rise to some form of algia, and motor disturbances of which asthenia is the most common. Some patients present secretory gastric disturbances, while other show trophic manifestations. These are due to the chronic changes arising in the tissues with a tendency to sclerosis on account of repeated congestive attacks. The two pathognomonic signs are edema and pains.

By the contraction of the underlying muscles, which is caused by the pain, panniculitis may simulate deep seated lesions and all the abdominal viscera have been suspected, when, in reality, the case was one of inflammation of the subcutaneous abdominal fat. The erroneous diagnosis of acute or chronic appendicitis has been made most frequently, but if the clinician will bear in mind that a panniculitis may exist and will look for such a condition he will lessen the possibility of error.

News Items.

Booth Memorial Hospital.—Under this title a new hospital has been erected by the Salvation Army at 314, 316 and 318 East Fifteenth street, New York.

Harvey Society Lectures.—The sixth lecture of the series will be given at the New York Academy of Medicine, Saturday evening, March 29th, by Dr. Yandell Henderson on the Physiology of the Aviator.

Three New Maternity Clinics.—The New York Milk Committee has announced that it will open three additional maternity clinics in the Bronx. One of these will be at 1,637 Washington avenue, one at 2,380 Hughes avenue, and one at 513 East 149th street.

Demobilization of Student Nurses.—Students in the Army School of Nursing who desire to complete the course and obtain a diploma will be retained in the school at Washington; those who do not intend to complete the course will be demobilized and issued transportation to their homes by April 1st, or as soon thereafter as possible.

To Reorganize Red Cross Hospitals on a Peace Basis.—The Surgeon General of the Army has appointed a board, consisting of Brigadier General Francis A. Winter, Colonel Paul F. Straub, and Colonel F. U. Patterson, to consider and make recommendations in regard to the reorganization and equipment of Red Cross base hospitals on a peace basis.

To Consider Criticisms and Suggestions Regarding the Medical Service.—The Surgeon General of the Army has appointed a board consisting of Brigadier General Francis A. Winter, Brigadier General John M. T. Finney, and Colonel L. A. Conner to consider criticisms and suggestions concerning the medical service of the army which have been submitted by medical officers as the result of their experiences during the war.

General McCaw and General Noble Receive Recess Appointments.—Commissions as brigadier generals in the regular army ad interim have been issued to Colonel Walter D. McCaw and Lieutenant Colonel Robert E. Noble. These officers were nominated as major generals, emergency, on December 4th last, but Congress failed to confirm the nominations before adjournment. Similar action has been taken in the cases of the officers nominated for promotion to the rank of captain in the Medical Corps and in the Dental Corps on February 27th.

Medical Veterans of the World War.—Colonel F. F. Russell, Army Medical School, Washington, D. C., is secretary of the temporary organization of Medical Veterans of the World War, and those interested may obtain application forms for membership from him. Physicians who rendered service to the government during the war as officers in the Medical Corps of the Army, Navy, or Public Health Service, as contract surgeons in the Army or acting assistant surgeons of the Public Health Service; as medical members of local boards, or members of medical advisory boards, are eligible for membership.

Postgraduate Courses in Neurology.—The postgraduate courses in neurology have been resumed at the Neurological Institute, 149 East Sixty-seventh street, New York. All graduates in medicine with the proper credentials may be admitted. There is no actual time limit to the length of these courses, but a minimum of six weeks is advised. Applications should be made to Dr. Walter Timme at the institute.

New Officers of Philadelphia Pathological Society.—At the recent annual meeting of the Pathological Society of Philadelphia and Society of Normal and Pathological Physiology, the following officers were elected: Dr. John A. Kolmer, president; Dr. Paul A. Lewis, vice-president; Dr. Fred D. Weidman, secretary-treasurer; Dr. Frank B. Lynch, Jr., recorder; Dr. Stanley P. Reimann, curator.

Low Infant Mortality Rate in New York.—The infant mortality rate in New York last year was the lowest of the ten largest cities of the United States, and was the second lowest rate recorded for the city, the lowest being in 1917, when it was 88.8 in a thousand reported births. The rates last year in the ten largest cities were as follows in a thousand reported births: New York 91.7, St. Louis 94.4, Cleveland 97.4, Detroit 100.7, Boston 114.8, Buffalo 121.5, Pittsburgh 122.5, Philadelphia 123.9, Chicago 131.3, Baltimore 147.7.

Medical Society of the County of New York.—A stated meeting of the society will be held in Hosack Hall, New York Academy of Medicine, Monday evening, March 24th, under the presidency of Dr. Charles H. Peck. Lieutenant Colonel Howard Lilienthal, Medical Corps, U. S. Army, will deliver an address on Personal Experiences in Thoracic Surgery with the American Expeditionary Forces, which will be discussed by Dr. Willy Meyer, Dr. John A. Hartwell, and Dr. Nathan W. Green. Dr. George H. Semken will read a paper on Reconstruction Operations in Cancer of the Face.

Clinical Society of Hospital for Deformities and Joint Diseases.—A stated meeting of the society will be held in the dispensary building of the hospital, 41-43 East 123rd street, New York, Tuesday evening, March 25th. The following program has been arranged for the scientific session: The presentation of interesting clinical cases by members of the staff of the hospital; a paper on Bone Lesions, with lantern slide demonstration, by Dr. Joseph Roth; an address on Personal Experiences with Surgery in the American Expeditionary Forces, by Lieutenant Colonel Howard Lilienthal, Medical Corps, U. S. Army.

Demonstration of an Aeroplane Ambulance.—Lieutenant David Gray, a convalescent aviator of the Royal Air Force, was brought by seaplane from the naval air station at Far Rockaway to St. Luke's Hospital, Amsterdam avenue and 113th street, New York, in forty-nine minutes. The actual flight from Far Rockaway to the foot of Ninety-sixth street, where the plane landed on the North River, a distance of eighteen miles, occupied only sixteen minutes. There the patient was transferred to a steam dory, landed at the foot of Ninety-sixth street, and conveyed by ambulance to the hospital. The demonstration is looked upon as a decided success.

Philadelphia Medical Societies.—The following medical societies will meet in Philadelphia during the coming week.

MONDAY, *March 24th.*—Genitourinary Society; North Branch, County Medical Society.

TUESDAY, *March 25th.*—Jewish Hospital Clinical Society; West Philadelphia Medical Association.

WEDNESDAY, *March 26th.*—County Medical Society.

THURSDAY, *March 27th.*—Pathological Society; Mount Sinai Hospital Clinical Society; Southeast Branch, County Medical Society.

FRIDAY, *March 28th.*—Medical Club (directors); Neurological Society; Northwestern Medical Association; South Branch, County Medical Society.

Two General Hospitals to Be Closed.—Army general hospitals at Long Beach, Long Island, N. Y., and West Baden, Ind., are to be abandoned. The commanding officer of General Hospital No. 39 at Long Beach, has been directed to transfer all patients and to dispose of personnel as rapidly as possible, in order that salvage and restoration proceedings may begin at once.

General Hospital No. 35, at West Baden, will be abandoned on June 30th at the expiration of the present lease and no patients will be sent there after May 1st.

Portrait Bust of Medical Officers Presented to the Museum.—Bronze busts of Major General William C. Gorgas, former surgeon general of the Army, and of Major General W. Merritte W. Ireland, his successor, have been presented to the Army Medical Museum at Washington, D. C., by the officers of the Medical Corps. A bust of Colonel William O. Owen, who has been in charge of the Army Medical Museum and the Library during the war, has been presented by Major R. Tunstall Taylor, of the Baltimore Hospital for Crippled Children. All three bronzes were modeled by Sergeant P. Bryant Baker.

Distinguished Service Medals for Army Medical Officers.—On March 3d, the Secretary of War awarded the Distinguished Service Medal to four army officers, two of them being members of the Medical Corps. The citations were as follows:

Brigadier General Edward L. Munson, U. S. Army, for exceptionally meritorious and conspicuous service. He developed the scheme of field training for officers and enlisted men of the Medical Department; directed the organization and administration of the medical officers' training camps and organized and administered the Morale Branch of the General Staff.

Colonel Theodore C. Lyster, U. S. Army, for exceptionally meritorious and conspicuous service; for duty rendered in the office of the Surgeon General as Chief of the Air Service Division.

University of Pennsylvania Alumni Association.—At the annual meeting of the Philadelphia Alumni Society, Medical Department, University of Pennsylvania, held on February 15th, the following officers were elected: President, Dr. Henry D. Jump; honorary president, Provost Edgar Fahs Smith; first vice-president, Lieutenant Colonel Clarence P. Franklin; second vice-president, Dr. Paul J. Sartain; third vice-president, Dr. John J. Robrecht; corresponding secretary, Dr. Stephen E. Tracy; recording secretary, Dr. W. Oakley Hermance; treasurer, Dr. Herbert B. Carpenter; directors, Dr. Benjamin Franklin Stahl, Dr. Harvey E. Schock, Dr. S. H. Brown, Dr. S. Lewis Ziegler, and Dr. Henry J. Off.

Local Medical Societies.—The following medical societies will meet in New York during the coming week:

TUESDAY, *March 25th.*—New York Academy of Medicine (Section in Obstetrics and Gynecology); New York Dermatological Society; New York Medical Union; Metropolitan Medical Society of New York City; New York Otological Society; New York Psychoanalytic Society; New York Riverside Practitioners' Society; Therapeutic Club; Valentine Mott Society; Washington Heights Medical Society.

WEDNESDAY, *March 26th.*—New York Academy of Medicine (Section in Laryngology and Rhinology); New York Society of Internal Medicine; New York Surgical Society; Brooklyn Pediatric Society.

THURSDAY, *March 27th.*—Hospital Graduates' Club, New York; New York Physicians' Association; Ex-Intern Society of the Methodist Episcopal Hospital, Brooklyn.

FRIDAY, *March 28th.*—Academy of Pathological Science; Audubon Medical Society; New York Clinical Society; Brooklyn Society of Internal Medicine; Hospital Graduates' Club, Brooklyn.

Personal.—Dr. Clarence C. Burlingame, Medical Corps, U. S. Army, of South Manchester, Conn., on duty in France with the American Red Cross, has been decorated by the French Government with the Medal of Honor of the first class.

Colonel Pearce Bailey, Medical Corps, U. S. Army, of New York, has been appointed medical chairman of the State Commission for the Feeble-minded, to succeed Dr. Walter B. James, resigned. Colonel Bailey was recently discharged from military service and has assumed his new duties as chairman of the commission.

Dr. M. Louise Hurrell, of Rochester, N. Y., director of the American Women's Hospital at Luzanoy, France, has been decorated by the French Government for valuable services rendered in connection with stamping out typhoid fever in certain sections of France. Three other women connected with the hospital received a similar decoration.

Dr. Livingston Farrand, new chairman of the central committee of the American Red Cross, has gone abroad for the purpose of studying the organization's problems in Europe. He sailed on March 9th and is not expected to return until the end of April.

Major Ernest Laplace, Medical Corps, U. S. Army, who for the past seven months has been in command of the Post Hospital at Fortress Monroe, Va., has obtained his discharge from the United States Army and has returned to his home in Philadelphia.

Lieutenant Colonel Edward A. Spitzka, Medical Corps, U. S. Army, has returned to New York and will resume practice at 63 East Ninety-first street. Lieutenant Colonel Spitzka served in command of the 311th Sanitary Train in the American Expeditionary Forces in France.

Lieutenant Colonel E. G. Worthington, Medical Department, U. S. Army, who has been on duty in Surgeon General's Office, Washington, D. C., has been placed in command of the Letterman General Hospital, San Francisco, succeeding Lieutenant Colonel L. C. Mudd, who has been retired on account of age. Colonel Worthington was for some time in command of the base hospital at Camp Lewis.

Miscellany from Home and Foreign Journals

Intravenous Injection of Hexamethylenamine in Sero-fibrinous Pleurisy.—Loeper and Grosdier (*Bulletins et mémoires de la Société médicale des hôpitaux de Paris*, December 5, 1918) report thirty-two cases in which this form of treatment was applied. All were instances of acute sero-fibrinous pleurisy of a tuberculous nature, as shown by cytological examinations and frequently also by guineapig injection. After five to ten hexamethylenamine injections all the patients recovered in periods ranging from seven to twenty-five days. Twelve recovered in seven days, eight more in eleven days, and nine in two weeks. The temperature descended steadily to normal as a result of the injections. The output of urine rose immediately after each injection and on the succeeding day reached 1,800 or 2,000 grams or even more. This diuresis continued as long as the injections were given. Where injections were given on alternate days the output diminished temporarily in the intervals and its return was often preceded by a slight rise of temperature. The injections apparently set free in the circulation pyrogenic substances which cause a recrudescence. Injection of hexamethylenamine into the pleural cavity seemed less effectual than intravenous administration, and was followed by a more frequent and more marked febrile reaction. Intravenous hexamethylenamine injection is not held to be a substitute for all treatments of pleurisy hitherto in use, but is yet deemed very serviceable, facilitating reabsorption of the effusion and diuresis and probably hastening elimination of toxic products through the kidneys.

Colloidal Metals and Antistreptococcic Serum in the Treatment of Streptococcic Bronchopneumonia and Suppurative Pleurisy.—J. Parisot and J. Lecaplain (*Bulletin de l'Académie de médecine*, January 7, 1919) refer to about one thousand cases, encountered since April, 1918, in which treatment by one or both of these measures was employed. All were cases showing large numbers of streptococci, either in the sputum, pulmonary and pleural exudates, or blood stream. In some instances pneumococci and streptococci coexisted, the latter, however, generally predominating. Some of the cases were allied to the complicating bronchopneumonia met with during the influenza epidemic. Gold collobiase, injected intravenously or intramuscularly, in numerous instances yielded rapid improvement, especially where pneumococci and streptococci occurred together. In pure streptococcic infection, on the other hand, silver collobiase appeared more active. In bronchopneumonia of intermediate severity, recovery generally followed intravenous injections of two to four mils of silver collobiase for six to ten days. In the more grave cases, antistreptococcic serum prepared at the Paris Institut Pasteur was given in addition, with advantage. In many cases so severe as to suggest from previous experience, an almost certain fatal termination, the patients recovered under this serum. The latter was always given by Besredka's anti-

anaphylactic method and in grave cases was given in massive subcutaneous doses of 100 to 120 mils a day or by the intravenous route in an initial dose of sixty to eighty mils; on subsequent days the dose was reduced, on an average, to forty mils. Intravenous injection seemed especially effectual. The serum brought about in particular a rapid improvement in the general condition and abatement of septicemia. A temperature previously steady between 39° and 41° C. descended to 38°, then to normal, either suddenly or by lysis. The serum was continued for several days during apyrexia; otherwise the infection sometimes flared up again. Some patients received as much as 710 mils of serum, without untoward results. In streptococcic empyema the authors practise paracentesis, then inject intrapleurally ten to twenty mils of silver collobiase or of antistreptococcic serum. This is repeated at first daily, then every two or three days. In several instances this treatment resulted in a drop in the temperature and rapid improvement of the patients.

Filter Passing Virus in Certain Diseases.—John Rose Bradford, E. F. Bashford, and J. A. Wilson (*Lancet*, February 1, 1919) in 1917 detected, isolated, and cultivated by the Noguchi method a filter passing virus as the cause of acute infective polyneuritis and have since applied a similar technic to the investigation of certain diseases common during the war. From cases of trench fever they isolated a virus consisting of minute coccuslike bodies, grouped in pairs with the opposing faces flattened, and measuring from 0.3 to 0.5 micron. The organism is gram positive and stains readily. It passes through Berkefeld N and V filters and through Massen porcelain filters. It is an anaerobe. It was recovered by culture from the blood in eleven of fifteen cases during the height of the pyretic stage, and in three of eight cases during the apyretic stage. It was not found in more than forty control cases. A similar organism was isolated from the excreta from four different batches of infected lice, but never from clean lice. Cultures from man or lice produced a mild illness when inoculated into man through scarification of the skin, and the organism was recovered from the blood of men so infected and from the excreta of lice fed upon the men. Influenza yielded a minute coccuslike virus, measuring from 0.15 to 0.5 micron, and retaining the gram stain. This also passed similar filters and was anaerobic. This was isolated by culture from the blood, sputum, pleural fluid, and cerebrospinal fluid, as well as from the lymphatic glands in the only two cases so examined postmortem. The organism could also be seen in stained films prepared from the sputum, and from the pleural and cerebrospinal fluids. The second generation of this organism in culture produced illness in both guineapigs and monkeys, and postmortem those animals showed extensive lobular pneumonia with hemorrhages, nephritis, myocardial, and hepatic lesions and minute hemorrhages

and fatty degeneration in those organs. Passage through animals rendered the virus much more virulent. From cases with acute nephritis accompanied with fever and hematuria at the onset a round, coccuslike body, often occurring in short chains was isolated. It had the characteristics common to the two types of virus already described and, like them, resisted heating to 56° C. for half an hour. It was obtained from the blood by culture in six out of nine cases and produced in cultures, when inoculated into monkeys and guineapigs, the typical lesions of extensive tubular and glomerular nephritis. Other obscure diseases which have yielded similar filter passing organisms, but which have not yet been sufficiently studied, include mumps, measles, rose measles, and typhus fever, as well as lethargic encephalitis.

Hyperesthesia of the Thyroid Region as a Sign of Mild Graves's Disease.—Camille Lian (*Presse médicale*, December 26, 1918) sought to discover some physical sign which would permit of definitely ascertaining the presence of incipient exophthalmic goitre as a cause of persistent tachycardia. He believes this condition is sometimes responsible for cardiac acceleration even where the latter is but slight or appears only in the standing posture or upon exertion. Neither the occurrence of the tachycardia chiefly in the morning hours with an accompanying high blood pressure, nor a concomitant dilated condition of the aorta is a definite indication of the goitrous origin of a case of tachycardia. Sympathetic hypertonia may cause the latter condition in the absence of any thyroid disturbance. Examination of the thyroid gland itself and of the eyes can alone supply an answer to the question of thyroid etiology. Graefe's and Stellwag's signs are of great significance in this connection, as are also a widening of the palpebral fissure and diminished frequency of the act of winking in well marked cases; Möbius's sign is more difficult to interpret. Stress is laid on the fact that these signs may be positive in the absence of any exophthalmos. As for the thyroid gland itself, Lian calls attention to the diagnostic value, in early cases, of an area of skin hyperesthesia having the form and situation of the thyroid, elicited by palpation of or testing with a pinpoint the front and sides of the neck. As the point is drawn over the skin the patient experiences in the thyroid region a sharp burning or deep pricking pain. In typical cases the area of hyperesthesia corresponds rather accurately with the shape of the thyroid; in others, the hyperesthesia may extend down to the manubrium sterni or completely cover the anterior and lateral surfaces of the neck. Among ten cases in which the author recently noted thyroid hyperesthesia, in seven the diagnosis could not have been decided upon without this sign. The hyperesthesia disappears in more advanced cases, presumably because the capsule, at first distended by the enlarging gland, has finally given way and been relieved of tension. Lian thinks many instances of tachycardia, at first sight apparently of neurotic origin, can be definitely ascribed, by means of this sign, to incipient Graves's disease.

Anthrax Septicemia from Shaving Wound.—Robert W. Angevine (*Boston Medical and Surgical Journal*, February 6, 1919) reports the case of a man who cut himself while shaving after using a new shaving brush. That evening the redness and swelling about the slight wound induced him to apply for treatment. His temperature was 102.2. The symptoms of anthrax developed, anthrax bacilli were found, and the patient died during the evening of the fourth day. Culture from the cheek lesion taken on the second day gave a small diplococcus, a large diplococcus, a short diplobacillus, and the *Bacillus anthracis*. Blood culture was positive for the organism on the third day. Lumbar puncture taken that day showed the presence, morphologically, of anthrax organisms in large numbers. Samples of the blood injected into the lymph sac of a rabbit proved fatal in thirty-six hours, whereas it was pathogenic for the guineapig in twenty-four hours. The organism from beneath the gangrenous eschar was smeared and found to be gram positive, occurred in short chains, and the average size was given as one by six microns. No spores were noted in the smears. The cultures from the blood appeared typical morphologically, and culturally the growth gave the Medusa head appearance on agar. Spores were noted in the culture.

Colorimetric Determination of Glucose in the Diagnosis of Acute Meningitis.—Jean Pignot (*Paris médical*, December 28, 1918) directs attention to the absence and gradual reappearance of glucose in the cerebrospinal fluid in nontuberculous, acute meningitis tending toward recovery. In relapses, glucose disappears again, and returns when the relapse subsides; in serum disease, on the other hand, the glucose remains constant. In cases with meningeal symptoms but with normal, aseptic spinal fluid, the glucose likewise remains constant. In preparing samples of the fluid for the glucose test, the author first adds to about five mls of spinal fluid a small amount of a mixture in equal parts of lead acetate and zinc acetate. The fluid is then brought to the boiling point on a water bath, centrifugated, and the supernatant clear fluid taken for the test. The latter is carried out as follows: Exactly two mls of the fluid are placed in a test tube with five mls of freshly mixed Fehling's solution and the tube kept seven or eight minutes in the boiling water bath, and then centrifugated. The clear fluid is decanted, the tube turned bottom up on filter paper for two minutes, without detaching the sediment of oxide of copper, and about five mls of an acid decinormal solution of ammonium molybdate then poured into the tube. An intense blue coloration at once results, which is proportional to the amount of copper oxide present. The volume of fluid in the tube is brought up to twenty mls by addition of water and the resulting color compared with a series of five or six standard tubes previously prepared with known amounts of glucose. The molybdate is an extremely sensitive reagent, and in this procedure shows quantitatively the extent of reduction where the amount of oxide of copper is so small as to be hardly visible.

Operations for Stigmata of Decline.—Robert T. Morris (*American Journal of Obstetrics*, January, 1919) asserts that all of the Aryan nations at the present time appear to be declining. In the course of decline of any cultivated variety of animal or plant nature appears to strike at the reproductive organs of the female. Stigmata of arrested development of the ovaries at times find expression in neoplasms. In undeveloped oviducts with obliteration of the lumen leading to sterility, the author sometimes restores fertility by bending the oviduct on itself, making slits in the ampulla and uterine cornu, guided by a sound in the uterus, and sutures the margins of the slits together in such a way that a short circuit lumen into the uterus is produced. Flexions of the uterus are most often symptomatic of a general condition and do not call for surgery, but occasionally constitute stigmata dependent upon arrested development of some part of the uterine wall. The appendix vermiformis often appears as a stigma of decline when undergoing fibroid degeneration before middle life, commonly in patients presenting other stigmata, such as narrow costal angles, gun stock scapulæ, high arched palates, and defective ears—a group including neuropathics very largely. Many appendectomies have been done for fibroid appendices practically harmless except for a moderate degree of local irritation; temporary improvement results through suggestion, but after a year or so symptoms return. In nearly all operations for stigmata the patient should be informed in advance that only one phase of a general condition will be relieved. Loose kidneys commonly belong among the stigmata associated with a dragging colon and shallow Gerota's pouch. In well selected cases, brilliant results sometimes follow a fixation operation, but loose kidney as a stigma usually does not require operation. Loose peritoneal supports and the prolapsed colon commonly belong to the stigma category. Sometimes the secondary complications call for surgical work in these cases, but one should always remember that the patient has something else the matter—something belonging to arrested development.

Eradication of Latent Sepsis Preparatory to Bone Transplantation.—Harry Platt (*Lancet*, February 1, 1919) says that the two chief causes for immediate failure of bone grafting operations for ununited gunshot fractures are infection from latent foci and the breaking down of poorly nourished skin cicatrices. The adoption of a probationary period and the provocative efforts of massage and electrical treatment to eliminate the danger of latent foci of infection are purely empirical. The probationary period of six months may not be sufficient, for tissues may still be capable of infective reaction after nine or twelve months following primary healing. The location of many of the septic foci is such that the provocative manipulations cannot reach them. In order to overcome the difficulties of the methods commonly employed the author practises and recommends the performance of a two stage procedure. After the wounds have been healed soundly for eight weeks, during which the regular physiotherapy has been practised, the skin scars are exercised and the site of nonunion

is exposed. The fibrous tissue in the bone gap is excised, together with enough of the bone ends to expose vascular tissue. The excised block of tissue is sent to the laboratory for culture and the first stage of the operation is completed by swabbing out the bed for the graft with Harrington's solution, and by closing the gap by a restoration of the fascial and muscular coverings. The skin flaps are undercut and sutured. After two or three weeks physiotherapy is begun again and in from six to eight weeks after healing the bone grafting is carried out. During the interval the wound is well ionized to secure the maximum softening of both superficial and deep scar tissue. If the bacteriological examination of the tissues removed at the first operation shows them to be sterile, and if the wound healed without complication the success of the future graft is certain. If pathogenic organisms were cultivated, but the wound healed by primary union, sepsis can be regarded as having been wholly eliminated.

Suspension Treatment of Fractures of the Thigh.—William H. Johnston (*Lancet*, February 1, 1919) enters into a detailed discussion of the mechanical principles associated with the various methods of suspension treatment of fractures of the femur, confirming his conclusions by accurate experimental measurements. He says that in the various methods employed the forces brought into play are often multiple and are frequently not applied directly in the long axis of the femur. The forces are eventually resolved, but by acting at a mechanical disadvantage greater weights must often be used than are really necessary. In all indirect methods of applying the reducing force three conditions must be met. First, the forces must be arranged with mathematical accuracy so that the maximum resultant is obtained in the long axis of the femur with the minimum of components. The angle of flexion of the leg upon the thigh must be the most economical one; that is, the one at which the leg will bear the strain longer and more easily, and with less tension and pressure effects than at any other. Finally, variations in this angle must be possible with a variable, but proportionate, distribution of the forces which act upon the knee and leg so that the skin is conserved. All of these requirements can be met by the use of a modification of the Hodgen splint, the precise construction and adjustment of which are described and illustrated. This apparatus permits complete freedom of movement of the leg from full extension to flexion to 90° with the thigh; the movements are so controlled that during the changes the reducing force acting upon the femur does not change; the reducing force is always applied exactly in the long axis of the femur; movements of the pelvis do not throw the system out of adjustment or alter the direction or magnitude of the forces; and anterior arching of the fractured segments is provided against. Any of the commonly used methods of applying the reducing force to the femur may be employed, but adhesive plaster can be employed with as great advantage in most cases as any other and is generally decidedly preferable on account of simplicity.

Toxic Injury of the Eye.—E. Ammann (*Correspondenz-Blatt für Schweizer Aerzte*, December 28, 1918) reports three cases of poisoning of the eye. The first was one of chloracetone poisoning met with in a shoe factory in which this substance was employed. The clinical picture was that of a sharp conjunctivitis with cloudiness of the cornea. Several workmen were affected. In the worst cases the epithelium of the cornea in the palpebral fissure was desquamated and a slight, bandlike opacity formed in the most superficial layers of the parenchyma. The subjective symptoms were relieved completely by cocaine, and recovery followed bandaging the eyes for two or three days. The second case was one of blebs on the cornea induced by ammonium persulphate in a dye works. None of the workmen who handled this substance were affected, but the manager seemed to have a peculiar idiosyncrasy. He stated that the manufacturer of the drug suffered from the same idiosyncrasy. The third case was one of suppurative corneal ulcer resulting from ptomaine poisoning induced by eating rotten beef. A father and son were affected. The father died from the gastrointestinal intoxication, the son recovered, but with the vision of the right eye reduced to one twenty-fifth, of the left to counting fingers at half a metre because of dense corneal opacities.

Systemic Effects and Mechanism of Action of Mustard Gas.—Vernon Lynch, H. W. Smith, and E. K. Marshall, Jr. (*Journal of Pharmacology and Experimental Therapeutics*, December, 1918) found that when an animal is exposed to the vapors of dichlorethylsulphide in high concentration there occur two classes of effects: First, the well known local effects on the eyes, skin, and respiratory tract, viz., conjunctivitis and superficial necrosis of the cornea; hyperemia, edema, and later necrosis of the skin, leading to a skin lesion of great chronicity; and congestion and necrosis of the epithelial lining of the trachea and bronchi. Second, the systemic effects, not as yet generally recognized, due to absorption of the substance into the blood stream and its distribution to various tissues. A striking feature of the symptoms of poisoning is the latent period before any serious effects are noted. The development of the effects is then quite slow, unless very high superlethal doses have been inhaled. The substance is absorbed through the lungs. After experimental injections the symptoms are salivation, vomiting and diarrhea, tonic and clonic convulsions, slow and irregular heart, followed by rapid pulse, and stimulation of the respiration. A dose of six milligrams or less per kilogram, injected intravenously in aqueous solution, proves fatal in dogs. The substance appears to be excreted in the urine, in part at least, as dihydroxyethylsulphide, which has been shown to be a comparatively nontoxic body. The lesions found in the intestine suggest that excretion of the poison may also occur here. The authors' theory of the mode of action of mustard gas is that it penetrates the cells and in the aqueous phase of the cell hydrolyzes to hydrochloric acid, which is responsible for the damage. Sodium bicarbonate in large doses somewhat alleviates the symptoms, but does not prevent death.

Significance of an Inverted T Wave in the First Lead.—I. Harris (*Lancet*, February 1, 1919) points out the meagre information to hand regarding the significance of the inversion of the T wave in Lead I of the electrocardiogram. This wave was found inverted in forty patients who complained of dyspnea on exertion, fainting fits, or edema, without obvious causes to account for their symptoms. While patients who complain of these symptoms did not always show the inverted wave, all who did have the inverted T wave did complain of one or more of the symptoms referable to a defective heart action. The conclusion was reached that the occurrence of an inverted T in Lead I was a trustworthy sign of a damaged heart muscle.

Mesodermal Derivatives to Immunize Mice against Transplantable Tumors.—Shigemitsu Itami (*Journal of Cancer Research*, January, 1919) repeated the experiments of Uhlenhuth and Weidanz with results identical with those obtained by these workers, that is, the lens could not be made to produce the refractory state. Neither the lens, the brain, the cartilage, the bone, nor the muscular tissue showed any immunity to the two connective tissue tumors used. On the other hand, lymph nodes produced a high resistance against transplantable carcinoma. Itami calls attention to the fact that this has no bearing upon the question of the rôle of the lymphocyte in immunity, since an equally high protection can be brought about by other materials.

Autouroculture in Typhoid Fever.—Ranque, Senez, Chevret, and Gruat (*Presse médicale*, December 9, 1918) recommend the following procedure for daily use in tracing the elimination of typhoid bacilli in the urine and the establishment of curative immunity: The patient urinates in a sterile glass and at the bottom of the latter there is introduced 0.5 to 0.8 mil of a one in 200 solution of malachite green. The urine is then placed in the incubator at 37° C. Apart from the pyocyanus which sometimes grows in the preparation, the typhoid and paratyphoid bacilli develop alone and in pure culture in it. Elimination of the bacilli in the urine begins concomitantly with or before defervescence. It continues two weeks in patients treated by ordinary methods, and but five days in patients receiving vaccines. The investigation published by the authors was based on 165 cases.

Association of Herpes Zoster with Varicella.—R. Cranston Low (*British Medical Journal*, January 25, 1919) reports three cases showing a close relationship between herpes zoster and varicella. The first case was that of a man who had a severe attack of herpes. Thirteen days later two of his children developed chickenpox. The second was that of the development of herpes by a ward patient, followed two days later by the appearance of a case of chickenpox in the same ward, both patients having been in the ward for several weeks before either developed the disease mentioned. The third instance was the development of chicken pox in a child in a ward nineteen days after the admission to the ward of another child who was suffering from typical herpes zoster. The literature is reviewed, to

show that similar close associations between the two diseases have been noted by others. The reverse has also been recorded, namely, the development of cases of herpes zoster following exposure to chickenpox. Finally cases have been recorded in which herpes zoster has developed and its appearance has been followed in a few days by a more or less generalized varicellalike eruption. These three associations almost force the conclusion that herpes zoster and varicella are the same disease. It is suggested by the author that in herpes the infection is largely local, passing through the nose, along the lymphatics around the olfactory nerves, and via the cerebrospinal fluid to the sensory nerve trunks. In varicella, on the other hand, the virus rapidly enters the blood stream and thus produces the generalized eruption.* Lastly, in the combined cases the first mode of infection was followed by the entrance of the virus into the circulation. Varicella usually produces a lasting immunity to further attacks, and herpes zoster is seldom seen twice in the same patient, but herpes has been known to develop in a person who had previously suffered from an attack of varicella. Herpes zoster is known to occur not infrequently in persons who are taking arsenic and it is suggested that the use of arsenic predisposes by rendering the patient more susceptible than normal to infection by the virus. This is supported by the fact that, even though the patient may continue to take arsenic, the zoster runs the usual normal course, heals, and does not recur.

Recurring Microbic Dermatitis of the Feet and Hands Following Frostbite.—H. Gougerot (*Paris médical*, December 21, 1918) looks upon cold as the predisposing and primary cause of trench foot and a similar condition in the hands. The initial livid or white appearance, and the red, edematous appearance with neuritis should be referred entirely to the action of cold. Raymond and Parisot showed the secondary pathogenic influence of previously saprophytic fungi, but the author is disposed also to lay stress on the participation of streptococci and other bacterial infections, not only at first but also in a late or recurrent secondary dermatitis on the parts affected. Special attention is called to certain forms of circumscribed or residual microbial dermatitis which frequently follow trench foot. The first of these is intertrigo of the toes, which may be erythematous in type, or erythematoulcerative with suppuration, or, particularly, erythematous, with oozing and frequently painful fissures. At times there are deep, rounded ulcers on the lateral surfaces of the toes, or linear ulcers in the folds of skin. These lesions are obstinate, recur frequently, and extend from the folds to the dorsum or sole of the foot. Repeated smear examinations and cultures showed an absence of any fungous parasite. The second type of lesion consists of an onychia of the feet or hands, containing streptococci and staphylococci and yielding to constant applications of one or two per cent. yellow oxide ointment in conjunction with the x rays. The third type of lesion comprises small plantar erythematous patches, rounded or irregular, and somewhat resembling dry eczema or psoriasis. Iodine, however, is as a rule badly borne in these

cases. The treatment should be at first antiseptic—yellow oxide, or the Alibour or De Hérain pastes—then reductive. The prognosis in the cases following frostbite is less favorable than in microbial infection of a healthy skin. Periodical examinations of old trench foot cases should be carried out to detect and eradicate foci of germs causing repeated recurrences.

Gangrene of the Lower Extremities Following Influenza.—Molina, Moulouguet, and Debray (*Bulletin de l'Académie de médecine*, January 7, 1919) note that influenza while it exhibits a great variety of localization in the body, seems to spare very particularly the vascular tissues, textbooks referring to arteritis as an exceptional complication. They report, however, the case of a woman aged twenty-three, five months pregnant, in whom, when apparently entering into convalescence from a moderately severe pulmonary influenza pain in the right foot and leg, developed, one week after the onset. Six days later the pain was of extreme violence and the tips of the toes were beginning to dry up. In the four subsequent days a violet coloration extended up to the middle of the leg, and delirium and fever supervened. An amputation in the middle third of the thigh was performed, with subsidence of delirium and fever on the next day and subsequent uninterrupted healing of the stump. Dissection of the amputated limb showed the popliteal, tibioperoneal, and posterior tibial artery transformed into cardboardlike tubes filled with a grayish magma, and the vein thrombosed and containing dark clots. On histological study the involvement of the vessel walls was found to be but slight, in contrast with the pronounced macroscopic findings.

Cutaneous Diphtheria of the Foot.—J. J. Keegan (*United States Naval Medical Bulletin*, October, 1918) reports an unusual case where the patient was received for treatment of a gangrenous ulcer twelve centimetres in length and seven centimetres in width, occurring over the external malleolus of the right foot. The ulcerated surface was covered with a grayish white membrane and surrounded by an elevated indurated border. The posterior and lateral surfaces of the leg were indurated, red and tender. It was shown that the membrane contained gram positive bacilli with the typical morphology and staining qualities of diphtheria bacilli. Cultures confirmed these findings. A slight huskiness of the patient's voice was noted, two days prior to admission. The tonsils and posterior pharyngeal wall were dark red and rather rough. There was no typical membrane, but cultures taken from the tonsils gave a pure growth of diphtheria bacilli. Prior to admission a tight shoe had caused a pressure sore which had rapidly formed an ulcer. The temperature of the patient was 99° and the pulse 80 to 90 for a few days. The ulcer was treated by the application of diphtheria antitoxin to the wound surface and intramuscular injections of the antitoxin. This was probably a case of primary pharyngeal infection with a subsequent transmission to the abraded surface of the foot, which resulted in the ulcer.

The State of the Ureters and Their Orifices in Gunshot Wounds of the Spine.—Andrew Fullerton (*British Medical Journal*, February 1, 1919) investigated the condition of both the ureteral orifices and of the ureters in several cases of complete transverse lesions of the cord in the effort to throw some light on the cause of the very frequent ascending infection of the urinary tract which occurs after such lesions. He was able to demonstrate that the peristalsis of the ureters continued normally; that the normal movements of the lips of the ureteric orifices continued; and that the tone of the ureterovesical sphincter was maintained and the valve was competent. One of the suggested methods of treating the urinary retention in these cases has been to avoid the use of the catheter, either by allowing the bladder to become overdistended and overflow to take place continually, or by periodically emptying the bladder with the aid of suprapubic pressure. In both of these methods the increased pressure in the bladder might be supposed to tend to force the urine to regurgitate up the ureters. Observations were therefore made on a patient with complete retention and it was found that even the presence of a pressure within the bladder equal to ninety-one centimetres of water did not cause regurgitation or back pressure in the ureters. The jets from the ureters continued normally; when catheters were passed into them and the pressure in the bladder was raised no fluid passed up from the bladder and escaped through the catheters. The peristalsis of the ureters, the ureterovesical sphincter, and the oblique passage of the ureter through the wall of the bladder provide three obstacles to the back flow of urine from the bladder and maintain competence of the openings even against very high pressure. These obstacles are not impaired by paralysis of the bladder and urinary retention in complete lesions of the cord.

Primary Sarcoma of the Prostate.—David Newman (*British Medical Journal*, January 18, 1919) records the case of a young man, in excellent health, who received an injury to his perineum and testicles which produced slight hematuria and some difficulty in voiding. When seen two months later he had almost complete retention of urine and severe pain. The urine, removed by catheter, contained both pus and blood. Rectal examination revealed a soft, smooth, round enlargement of the prostate. By a suprapubic cystostomy the entire prostate was found occupied by a soft fungating growth which sprang from a small cavity with well defined walls. The growth proved to be a round-celled sarcoma. The mass was removed and the cavity curetted, but in two weeks the tumor had recurred and was of larger size than the first mass. The important features in this case seemed to be the primary existence of a small, well encapsulated sarcoma of the prostate which had given no symptoms and which would probably have remained more or less dormant for a long time. The capsule of this neoplasm was apparently ruptured by the injury to the perineum and its rupture permitted the very rapid growth of the neoplasm. This corresponds perfectly to what is known of similar encapsulated sarcomatous growths in the breast which

are suddenly stimulated into rapid growth as the result of an injury. Further points of interest are the rarity of primary sarcoma of the prostate, its usual hopelessness when the diagnosis can be made, and the extremely great difficulty of making the diagnosis, even by the most modern methods of examination, while the tumor is still sufficiently circumscribed to be successfully removed. In a total of sixty-nine cases in which the results of operation were known only three were permanently cured.

Repair of the Male Urethra.—E. D. Telford and F. G. Norbury (*Lancet*, February 1, 1919) record a case of loss of one and one quarter inches of the urethra just distally to the triangular ligament which was successfully repaired by the insertion of a tubular graft made from the very long foreskin of an infant one year old. This piece of foreskin was split longitudinally and sutured to each end of the divided urethra on the dorsal aspect of that canal. A tubular silver sound was then passed through the penile urethra and into the bladder, and over this the preputial flap was sutured to form a tube. The silver catheter was left in situ for eight days, during which healing was perfect. No instrumentation was tried until fifteen weeks after the operation, when sounds up to 9/12 were passed without difficulty. One year later the urethra was tested and still accommodated a 9/12 sound without difficulty.

Genital Prolapses and Hernia during the War.—P. Piel (*Zentralblatt für Gynäkologie*, Nos. 14, 15, 1918) shows that comparative statistics for genital prolapses, as well as the use of the pessary, during peace and war times, shows a great increase for the war period. In this "age of prolapsus" there has unquestionably been an increase in the proportions of cases in Germany. The reasons which are given are the increase in the number of women who have been compelled to do hard manual labor and the general underfeeding to which they have been subjected. The underfeeding plays an important part, but not as much so as the hard labor.

Internal Strangulation of the Hip Joint.—M. Wilms (*Zentralblatt für Chirurgie*, Nos. 14, 15, 1918) observed a case in a child of fourteen, where the right leg suddenly assumed a position similar to that seen in coxitis; slight flexion, abduction and outward rotation. The absence of all pain on pressure excluded any inflammatory process. The impotency of the limb disappeared after a light narcosis. While the leg was being flexed a click was heard. Wilms considers this as a case of displacement and a pinching of the ligamentum teres.

The Correction of Badly United Fractures by Osteotomy.—F. Bonhoff (*Zentralblatt für Chirurgie*, Nos. 14, 15, 1918) describes a case of a compound fracture of the leg which united with a shortening of four and a half centimetres with an accompanying internal of rotation of the foot of 90°. The callus of the united fracture was solid and the bones were crossed. The integument was atrophied and badly nourished as a result of a previous erysipelas. Osteotomy was performed in the healthy bone with a correction of the deformity.

Proceedings of National and Local Societies

THE NEW YORK ACADEMY OF MEDICINE.

Stated Meeting Held February 20, 1919.

The President, Dr. GEORGE DAVID STEWART, in the Chair.

SYMPOSIUM ON INFLUENZA.

Dr. GEORGE DAVID STEWART, the president, in opening the meeting, referred to the need at this time of a more comprehensive knowledge of the subject of influenza. He stated that when Gibbon, writing of the fall of the Roman Empire, predicted that never again would the civilized world be overrun by the barbarians, he proved that it was very dangerous to prophesy. Despite this danger, a great many people seemed to have a habit of prophecy, frequently discussing what would happen when the world had become overcrowded; when all the coal deposits had become exhausted, and similar subjects about which they really knew nothing and for which they did not attempt to offer a remedy. Typhoid fever was formerly the scourge of armies. Thousands died of this disease in the Civil War and in the Spanish American War, but only about 200 had died of it in the war just now happily over. The test tube and the science of the doctor had practically banished typhoid fever as a menace to mankind; but something else had arisen to prevent the immediate advent of the millenium, for influenza had come to scourge the world and had already taken toll far in excess of the great war. Influenza and its subsequent or accompanying pneumonia had not yet been conquered by the science of the doctor, his test tube, his magnifying glass and his sera.

A meeting to discuss this topic had recently been held at the academy, but the subject was of such supreme importance that it had been considered wise to hold another meeting at this time with the idea of bringing together in concrete form all the knowledge that had been gathered on the subject in the hope of finding better methods to combat the disease. Doctor Dana would give a summary of the facts gathered at a series of meetings by members of the public health committee in a study on prophylaxis; representatives of the army and navy would relate their experience in treatment, and it was to be hoped that as a result of this meeting one, without risking prophecy, could be certain that a forward step had been taken in the direction of conquering and abolishing the disease.

REPORT ON THE PREVENTION OF INFLUENZA BY THE PUBLIC HEALTH COMMITTEE OF THE NEW YORK ACADEMY OF MEDICINE.

Dr. CHARLES L. DANA read this report, a summary of a study of influenza undertaken by a sub-committee of which Doctor Dana was chairman and Dr. Walter L. Niles, Dr. Karl M. Vogel, Dr. Herbert B. Wilcox, and Dr. E. H. Lewinski-Corwin were members. The object of the committee was to make a critical examination of existing evidence regarding methods of prevention of influenza and of pulmonary complications, particularly for the

benefit of the general practitioner. The literature was surveyed and conferences were held with those who had had exceptional opportunity for observing the etiological and prophylactic phases of the disease during the recent epidemic, among them being Dr. William H. Park, Dr. Robert J. Wilson, Dr. Dudley D. Roberts, Dr. Victor C. Heiser, and Dr. Robert Anderson Cooke.

Etiology.—While the exact factors were still unknown, there was considerable clinical evidence that the influenza bacillus alone did not cause the condition but that there was an unknown factor, possibly a filterable virus, which initiated the infection and lowered the bodily resistance to a wide variety of organisms.

Mode of dissemination.—Droplet infection played a great rôle but some additional factor, as yet unknown, was also concerned. Direct infection through contaminated hands, eating utensils, etc., was also a factor.

Immunity.—There was no evidence that a single attack conferred absolute immunity, but relative immunity was produced.

Age and sex distribution.—Only mortality statistics were available. These showed an almost equal sex distribution, and the age of greatest susceptibility was between twenty-five and forty-five, the largest number of deaths in New York city occurring in persons twenty-eight years of age.

Preventive measures.—These should be of the same character as those used in combating other infectious diseases spread in a similar manner, and comprised restriction of droplet infection by guarding against coughing, sneezing, expectoration, etc., prevention of contamination of the hands, and of food, and the sterilization of eating utensils used by the patient. Overcrowding, such as occurred in barracks, institutions, etc., should be avoided. Those coming in contact with the patient should wear masks which should be suitably made and applied and frequently changed and sterilized. The conjunctival mucosa should also be protected by some method. The use of mild, nonirritating sprays and washes reduced bacterial flora for a short period of time and should not, therefore, be discouraged.

The etiology of the disease being still unknown, the use of vaccines must still be regarded as being in the experimental stage though considerable success had apparently been achieved in this direction clinically. Also the clinical success by the use of convalescent serum reported by many should be mentioned. The patients should have rest in bed, and they should be isolated in hospitals, if necessary, by the cubicle system or by linen screens eight feet high. If proper care could be given at home to those patients suffering from mild uncomplicated influenza, in view of the impossibility of providing adequate hospital facilities during an epidemic for all those requiring treatment, it was urged that these should not be sent to hospitals.

The Dangers of Secondary Infection in the Ward Treatment of Influenza and Pneumonia.—

Captain Francis G. Blake, Medical Corps, U. S. Army, of Washington, D. C., read this paper, which was based on a study, conducted by the pneumonia commission at Camp Pike, of the effects of secondary contact infection in overcrowded base hospitals, nearly all of which were taxed far beyond the limits of their capacity. It was found that a very large percentage of the pneumonias following influenza were caused by secondary infection with pneumococcus, some few being caused by hemolytic streptococcus. The types of pneumococcus encountered were almost entirely those normally found in the mouths of healthy men, and it had been generally accepted that infection with these types of pneumococci was usually autogenous as a result of lowered resistance. But observations made in the course of these studies suggested that this was probably not true in most instances and that the influenza patient was more in danger from pneumococcus carried by his neighbors, or from contact infection. The same considerations held true with respect to hemolytic streptococcus infection. Secondary contact infection in cases of already existing pneumonia were also found to occur frequently, caused mostly by streptococcus infection superimposed upon pneumococcus pneumonia, and there were also instances of double pneumococcus infection. The fatal effect of secondary streptococcus infection due to the overcrowding of the hospital at Camp Pike was well shown by a comparison of the death rate from pneumonia, on the one hand in wards which had long been organized for the care of patients with pneumonia, and on the other hand in wards which were opened for patients with pneumonia and immediately overfilled at a time when the hospital was overwhelmed by the epidemic of influenza. In the former the average death rate was 31.7 per cent.; in the latter 55.2 per cent. This increase in the death rate as the wards became more and more crowded had been proved to be directly due to secondary contact infection, with hemolytic streptococcus spread by contagion throughout an entire ward. There were three instances in particular of secondary contact infection with pneumococci which occurred in wards where every precaution was supposedly taken against transfer of infection from one patient to another. Numerous other instances of secondary pneumococcus infection were met, nearly all possible combinations of different types of pneumococcus being found. This was a condition almost never encountered in pneumonia patients treated under the conditions of civilian practice in normal times.

The methods at present in vogue for preventing the spread of contagion in wards devoted to the care of influenza and pneumonia patients—cubicles, masks, and gowns, elimination of carriers, etc.—might be of some value in preventing the spread of infection under ordinary conditions, but they were not effective in the presence of an overwhelming epidemic and under the conditions that existed in crowded hospital wards. In searching for a solution of the problem it was essential to have the following considerations clearly in mind. Every

patient with influenza should be considered a potential source of pneumococcus or streptococcus infection for his neighbor. Every person engaged in the care of patients with respiratory diseases should also be regarded as a potential source of danger. Pneumonia could no longer be regarded as one disease, but must be looked upon as a group of different diseases caused by a great variety of bacteria, infection with any one of which not only provided no protection against infection with another but might even render the individual more susceptible to secondary infection. Since secondary infection in respiratory diseases was undoubtedly spread in large part by droplet and contact infection, prevention of secondary infection depended upon the elimination of these methods of transmission. The solution that presented itself was effective isolation of all patients individually. In brief, ward treatment should be abandoned and effective individual isolation of every case should be adopted. After learning by sad experience the folly and danger in the group treatment of respiratory diseases means would be provided to make this possible.

The Treatment of Influenza and Bronchopneumonia by the Use of Human Serum.—Lieutenant William R. Redden, Medical Corps, U. S. Navy, United States Naval Hospital, Chelsea, Mass., read this paper in which he gave as complete data as were obtainable in 151 cases at the Naval Hospital, Chelsea, admitted to the wards from September 27th to January 1st. Thirty-seven of the patients were treated while the fall epidemic was on the wane. The remainder represented the later recrudescence, including the men from the U. S. S. *Yacona*, where the complicating pneumonia and the severity of the infection appeared quite comparable with the situation at the beginning of the outbreak. For comparison the original group was considered in the total 151 cases.

Most of the patients were given human serum within the first four days of the pneumonia, the majority within the first forty-eight hours. Three, or less, injections of serum were sufficient in 132 cases, over two thirds of these requiring only two, and one third only one injection. The average amount of each injection was 120 cubic centimeters. In about five per cent. of all cases injected with sera chills occurred lasting from ten to thirty minutes coming on about twenty or thirty minutes after administration, associated with a rise in temperature, pulse and respiration but never amounting to as much reaction as that from horse serum. In a few hours, ranging from two to twenty-four, the patients showed signs of improvement and all toxic symptoms disappeared; the temperature, pulse and respiration fell and the appetite returned rapidly. Eighty-three had a normal temperature within twenty-four hours and the others within three days. There was a decided shortening of the course of the pneumonia. Those cases which received sera early in the disease before extensive consolidation occurred cleared up more readily, while in those treated later in the disease the signs persisted from a week to a month. This persistence of signs of consolidation, more frequently the signs of fluid, was one of the striking features of the disease. Sev-

eral patients received sera before definite signs of consolidation appeared, and these promptly recovered and it was felt that possibly pneumonia was prevented. In the majority of the bronchopneumonias there was either a normal white blood cell count or leucopenia. In all the cases which did not respond readily to sera there was a high count, although many with high count did respond readily.

Complications had been infrequent; in one case acute otitis media developed; in another, intense jaundice lasting a week; in three there were pleurisy and phlebitis, and in three there were evident relapses after an apparently complete recovery. From the data presented it was evident that a low white blood cell count was characteristic of the usual bronchopneumonia following influenza; hence it was of prime importance before serum therapy was instituted. The extent and distribution of lung signs could not be used to distinguish bronchopneumonia from lobar pneumonia, for it frequently happened that the bronchial gave signs of lobar. Low respiration and low pulse rate compared with the lung involvement and high temperature aided in making the diagnosis of the former.

At the present time the only method of testing the potency of the convalescent serum was by its effect on the patients. It would seem that one of the first reactions was against toxic symptoms so that it might be safe to say that the serum had some antitoxic action. The method of obtaining and using the serum had been reduced to the simplest form so that little difficulty was experienced in establishing the treatment, at least in centres. It was suggested that bronchopneumonia wards be established in various hospitals, with one man in charge of the serum treatment; then, by starting with four or five donors recently recovered from the disease, sufficient serum could be obtained to institute treatment. The results would more than pay for the effort. Out of 151 cases of influenza bronchopneumonia there had been only six deaths, or four per cent. Three of these were due to a hemolytic streptococcus complication after recovery from the influenza pneumonia. This low death rate seemed to be directly due to the proper use of serum from recovered cases of influenza bronchopneumonia. In Massachusetts a pneumonia commission had carefully examined the original charts and daily reports of all these cases under discussion and, on the recommendation of Dr. Frederick Lord, the State had established hospital centres to carry out this procedure.

DISCUSSION.

Dr. RUFUS COLE considered that as the papers of the evening had touched on the whole field of acute respiratory disease, including influenza, a discussion of the various problems concerning respiratory infections was rendered very difficult since knowledge concerning influenza was so fragmentary and the opinions held by various observers were so divergent. If one read the older literature concerning influenza, he found that the discussion which accompanied each epidemic was also identical with that which one heard today. There was one striking difference however; today there was very

little opposition to the view that it was an infectious disease. Moreover, most persons now agreed that it was a communicable disease transmitted largely by personal contact, even in spite of the failure of the experiments which have been made to transmit it artificially from person to person. Having accepted these views, the next step would follow as a matter of course; that is, that an attempt should be made to isolate the patients sick of the disease, since from what was known of other infections, it seemed likely that the infectious agent existed in its most virulent and concentrated form in the persons sick of the disease. These principles would seem to apply not only to influenza, but also to all acute infections of the respiratory tract. The epidemics of influenza occurring every thirty years or so were not isolated phenomena. Last winter there occurred a considerable epidemic of respiratory infection in this city and this country due apparently to virulent hemolytic streptococci. Lesser epidemics of pneumonia occurred every winter. If these infections of the respiratory tract were spread by personal contact, the first step in prevention would seem to consist in isolating those sick of the disease. Isolation of carriers or the prevention of carriers from spreading the disease was another matter, obviously more difficult. Because this could not be done, however, was no reason why an effort should not be made to carry out the other more simple procedure. Patients having smallpox, scarlet fever, or pneumonic plague, were isolated as a matter of course, but persons suffering from acute respiratory infections were allowed to spread disease by carelessly sneezing and coughing, even though this latter kind of infection might be more serious than the former, as the recent epidemic of influenza showed. In order that such measures of prevention might be undertaken, however, it would be necessary to have definite and convincing proof of the contagious nature of these respiratory infections, and Doctor Blake's work was of very great importance since it brought additional and convincing evidence.

In regard to the treatment of influenzal pneumonia by the serum of convalescents, Doctor Redden had started with certain assumptions in regard to the nature of the infection. If the results which he presented concerning the efficacy of serum were confirmed, his assumption would probably be proved. At the present time, however, there was a great difference of opinion in regard to the nature of the pneumonia occurring with influenza. Most observers believed that the pneumonia was due to secondary infection and that by the time this stage was reached an immune serum which would neutralize the effects of the primary disease would have little effect. It was to be hoped that Doctor Redden would continue his observations and that others who had facilities for carrying out this method with proper attention to detail and with opportunities for accurately recording observations might also investigate this method of treatment. Doctor Redden would probably be the last one to assert that the value of the method of treatment had been finally proved, or that he would desire that the method should be carried out at the present time

indiscriminately, in a routine and uncontrolled manner.

Dr. MORRIS MANGES said that he envied Lieutenant Redden and others who had had the privilege of working in military hospitals while using convalescent serum, because of the ease with which they secured donors. Those who had tried to get convalescent serum from patients who had recovered from influenza realized that it was almost impossible. He recalled but one patient out of the hundreds discharged from Mount Sinai Hospital who was willing to give up blood. Consequently, at least here in New York, one could not corroborate by personal experience the work Lieutenant Redden had done, but Doctor Manges believed it represented a big advance in the treatment of influenza. So far, only symptoms could ordinarily be treated, but the injection of convalescent serum containing specific antibodies was undoubtedly the treatment of the future. It was a great pity that serum could not be secured from the lower animals so that one could get it on a large scale. Without this recourse, the military hospitals would have to be depended upon to show the way to conquer this disease by a specific method.

There was one thing regarding military hospitals, brought out by Captain Blake, that civilian hospitals had avoided, and that was overcrowding the wards. On the other hand, however, it was not possible to subscribe to the impression conveyed by Doctor Dana's report that it was better for the patients to be treated at home than in a hospital, for in many instances there was no comparison between the care patients received in hospitals with the lack of it in their homes.

Lieutenant REDDEN brought up the question of empyema. The number of empyemas in this city had been small, and the number of pleurisies with effusion had also been small up to the end of the epidemic. As to the differentiation between lobar and lobular pneumonia, this was a matter of physical signs, not a pathological question, and had no bearing on the duration or treatment of influenza. Regarding the continuation of consolidation signs, this was not due to fluid in the vast majority of cases but was due to interstitial changes in the lung which Delafield was the first to describe and Symmers the first to emphasize in the present epidemic.

Lieutenant E. W. GOULD, Medical Corps, U. S. N. R. F., Naval Hospital, Brooklyn, exhibited the model of an apparatus which had been devised for the rapid removal and citration of blood from convalescent donors. At the Naval Hospital in Brooklyn they had treated 842 cases of pneumonia since last September, 320 of which were under their immediate supervision. These cases had already been diagnosed as pneumonia before being sent to the hospital, many of the patients being in an advanced stage of the disease, or even in a moribund condition, upon arrival. The mortality rate among these 320 cases was 26.16 per cent. About the time the use of convalescent serum was begun the mortality rate dropped to 10 per cent. In September a series of thirty cases of the apparent influenza type was treated by the use of human serum from convalescing pneumonias with a loss of only two cases. It

was felt that this immediate and remarkable response could be attributed only to some specific antibody for the rapid and complete subsidence of the symptoms that occurred in twenty-eight of these cases was unusual. Diagnosis of the influenza type of pneumonia was made upon the clinical picture of the case together with the sputum findings and the leucocyte count. A case of bronchopneumonia showing the symptoms of headache, prostration, and early cyanosis with a mucopurulent or bloody sputum which would not type and giving a low leucocyte count was considered a probable case of influenza pneumonia. In the more recent epidemic a difficulty was encountered as it had been in other institutions, in that many of the cases treated, though showing these characteristics of influenza pneumonia had later been shown to be cases of infection with the *Streptococcus hemolyticus*, and these gave no response to repeated injections of human serum. Inasmuch as this differential diagnosis could not be made in the early stages of the disease, and it was felt that the treatment should be begun at the earliest possible moment, the mortality rate in cases lately treated with human serum had been very unsatisfactory, being twenty-six per cent. during the last two months. The result of all this work, however, was felt to be encouraging and it would seem that human serum from convalescent cases of pneumonia undoubtedly contained valuable antibodies, and that its use in cases infected with homologous strains would generally prove satisfactory. In no case had there been any untoward effect from the injection of the serum, and since only human serum was used there was no danger of an anaphylactic reaction, nor was there any need of a test for hemolytic compatibility.

Dr. DUDLEY ROBERTS expressed his interest in Lieutenant Redden's paper because his first article appeared during those tragic days in October when army hospitals were struggling with the problem in hundreds of cases; interested also because a year ago last October, while chief of the service at Camp Sherman, he treated six patients with a transfusion of blood from recovered cases of lobar pneumonia Types III and IV with excellent results. Doctor Roberts was not sure, however, that these results were due to specific antibodies conferred on the patient. The description of the reaction would suggest rather that one was dealing with a nonspecific protein reaction. In October last, reporting results of experiments with vaccine at General Hospital No. 1 at a meeting of the Academy, Doctor Roberts had the idea that they were establishing immunity against secondary invaders, but changed his mind as time went on up to about the middle of December and concluded he was dealing with a nonspecific protein reaction because there were no results unless there was a reaction and because the results were achieved in many cases though the secondary invaders were obvious. The reaction Lieutenant Redden described seemed to be identical with what was seen in the injections of mixed vaccine in doses large enough to give reactions. The question was raised at the Academy at the meeting in October whether the satisfactory results were not due to the fact that the virulence was lessening at that

time. At a later date it was found that the total mortality in the eighty-six cases treated by the expectant plan was 31.3 per cent. and the total mortality in a subsequent series was 9.5 per cent. Almost all the patients who died were moribund on admission. The two series of cases overlapped and a study of the second series showed that during the early period of the epidemic the mortality was the same as during the time the 200 cases were being treated. Even now the disease was just as virulent but this fact was less striking as the number of cases was fewer. The speaker hoped that there would be some further light thrown on the whole subject as time went on.

NEW YORK NEUROLOGICAL SOCIETY.

The Three Hundred and Sixty-seventh Regular Meeting, Held at the Academy of Medicine, November 12, 1918.

The President, Dr. FREDERICK TILNEY, in the Chair.

(Concluded from page 484.)

Contributions to Psychotherapeutic Technic Through Psychoanalysis.—Dr. SMITH ELY JELIFFE read this paper. He expressed the belief that psychopathology and psychotherapy lay no whit behind the great advances made in every department of medicine during the present time. But there had been marked lagging in well defined knowledge, though this was not strange when the difficulty of approach to the psychical life was considered. The widest technics were demanded, and demanded now, and the greatest refinement of approach to all the practical problems of psychopathology. A glance would show what had been done, what vantage ground had been reached, that those who had those problems individually before them might take up the work at the point so far attained. Methods of psychotherapy were in evidence far back in human history. Then, with the pride of more exact knowledge, matters of mental illness slipped into hardened grooves. In more recent times the work that centered around the school of Charcot effectively broke through these barriers and let through some ray of understanding and interpretation. It began to be recognized that there were varying grades of a disturbed thinking where two incompatible trends or modes of thought were striving for possession of the individual's behavior and his attitude toward his environment. Attention was then closely and scientifically directed upon these phenomena. Hypnosis, which has been more or less ignorantly practised, was subjected to a more precise test of its value as a therapeutic agent, and therefore to a clearer self-revelation of its intrinsic nature. By this was first recognized in its therapeutic application the presence of a large portion of mental activity besides the small amount appearing at any time in the limitations of conscious evident activity. It remained for Freud, however, to carry to a more detailed study the conception of hidden mental factors, and as a result he threw a new light upon mental problems and upon which he based therapy. It was in brief to the effect that affect and idea had been, under social ban, driven

from the conscious memory of the individual. Affect, being the indication of a vital dynamic force, could not successfully be kept under repression; it might seem to remain so: it might find some useful substitute and thus afford a wholesome path for energy transformation and escape. But sometimes affect was separated from its original associated idea and came forth as a somatic disturbance, or an obsession, or a compulsion, or any one of a multitude of phobias arose. Therapy in these cases was better accomplished through conscious cooperation of the patient, in the investigation of hidden affective situations and phantasies, than by hypnosis. Freud's theory was that therapy consisted in a re-discovery of what was once in consciousness and in bringing it back to consciousness chiefly by the aid of the dreams of the night, thus enabling the patient to discharge the affect in a clear-sighted manner and directing it to the demands made by culture.

This briefly epitomized the starting point of psychoanalysis which was followed by many further developments in technic, forming the background also for real advance along all sorts of intellectual and cultural sciences and in every psychological situation. Adaptation and maladaptation, which caused health or sickness, then came to be regarded in the light of evolutionary unfolding, whether racially or repeated again in the life of each individual.

Ferenczi had shown that newer technical advances in therapy lay rather in setting free from within the tendencies already there and which were abundantly supplied with energy for discharge, rather than in the introduction of new ideas from without. A certain amount of guidance had to be given, revealing a broader interpretation and truer valuation of these once hidden tendencies and impulses and a wider possibility of application of them to external interests. Here would come in Adler's law of psychic compensation, the statement of which had been another landmark in insight and method of approach. Original organic or psychic deficiency or inefficiency was unconsciously compensated for by extra psychic drive upon some substituted organ, or perhaps overdevelopment of the same organ, with accompanying psychic compensation or even overcompensation, which in turn caused the disturbance. But it was indispensable to bear in mind that each individual psychic content must be the indication for the special aids applied to his case. To impose from without occupation or amusement was to invite failure, but to allow the patient to use old paths of interest, and find them leading out through their very original value to constructive contact with environment, was in line with the natural advances.

This wide employment of the means at hand in the world of real interests and mutual problems was a most rational but too often neglected form of psychotherapy. Where it had not been successful it had been because of failure to make the attachment along the lines of natural and individual energy discharge. Yet in this lay all hope of mental prophylaxis, especially in the field of child training.

Passing reference to the advances marking neurological investigation included particularly the at-

tention being directed to the interaction of body and mind through the metabolic processes of the body, especially through the endocrine glands. These studies too were comprised in the energy concept, for these mechanisms were interdependent in their action with mental processes. The efficiency of the physical mechanism was dependent upon the psychical, for the psychic as the realm of wider activity, of more extensive and effective energy combinations and transpositions, through images and affect, represented the controlling force behind the physical machine, the impulses which drove it to individual and social or racial ends and, therefore, the field principally where disturbances arose and where causal factors must be sought and understood.

In the field usually set off by the symbol *dementia præcox*, there were very definite psychical considerations, in addition to the somatic agents involved. Here would be found special affective situations. Since the *præcox* reaction represented such a decided splitting off and retreat into a specially created phantasy world, it had occurred to the speaker that a special form of personal approach might be of great advantage. It had, at least in some minor instances, been successful. This was the establishment of a triangular transference situation. Confronted with one person alone, the affectivity was put too strongly on the defensive and maintained its closely guarded resistance. Then, again, the yielding of the affect would cause too great a psychic disturbance, and might also establish so strong an erotic situation that no intellectual work with the patient could be accomplished and the affective situation would be only worsened. The affective complex group guarded itself, because of its intensity, from external discharge through another person because wholesome synthesis had been lost and exaggeration in one direction had taken its place. A different approach, therefore, might be made in *dementia præcox* and a transference accomplished, not toward one person but toward two. The specially and psychoanalytically trained nurse being present would allow of this distribution of interest in accordance with the split within the patient's psychical content. The excessive affect could thus have opportunity tentatively and gradually to relieve itself and at the same time it would distribute its force instead of directing it solely at the analyst. The latter method was more successful, as everyone knew, with the patient in whom some intellectual control remained and where such more primitive split had not taken place.

Not only in such severe disturbance as *dementia præcox* but in other severe maladjustments there was demand for some variation of the mode of approach. Greater elasticity of technic would lie in recognizing this as advisable and making it possible. Special transference situations arose from particular forms of psychoneuroses and psychoses. The sex of the analyst might be an important factor. The woman analyst could in some cases take the brunt of the first libido onslaught of the explosively affective patient and save the fate of the analysis which would otherwise precipitate itself into a negative transference directed critically against the

physician, or forming a resistance barrier in the patient against unconscious complexes and their further analysis. The analysis might then continue in the hands of the woman analyst, or be better forwarded by continuance of treatment, after a few months, by the physician himself. Such were some of the suggestive opportunities into which experience was forcing the way. The wider vision granted through the opening to investigation and understanding of the unconscious with the mechanisms and revelation of content through them, presented a limitless field.

Dr. C. P. OBERNDORF said that most of the remarks Doctor Jelliffe had made about transference and resistance he could not agree with. The whole value of a psychanalysis resolved itself into an overcoming of resistances which dated from childhood. The neurotic came into a conflict of some kind in later life, and found himself facing similar predicaments that he struggled against as a child. He then found he was unable to meet the issue any better than at the original conflict in childhood because of infantile resistance. This resistance could not be overcome by telling the patient that he had it or what he should do. It would be impossible for him to follow the directions of the analyst because resistance must first be overcome. Advising the patient was ineffectual. Many neurotic patients were active in carrying on the world's work and had quite enough to interest them, but their personal problems they had been unable to adjust because they had been unable to release themselves from their childhood resistance. If transference was properly handled, the sex of the analyst should not make any difference; if he maintained a neutral attitude toward his patient. As for the jeopardy which Doctor Jelliffe felt would arise from excessive transference, if that was nipped in the bud there would be no great difficulty.

Doctor JELLIFFE drew attention to the fact that he had emphasized the fact that one could get out of the patient only what was within him, but he did not agree with Doctor Oberndorf with reference to nonadvice or in changing the sex of the analyst, though he might agree with him if psychanalysts were absolute mirrors. They were not neutral, however. There were special affective strivings which though one might recognize them could not be handled under all circumstances. It must be admitted that the affective side did show itself and had to be handled by adaptive measures. There was no doubt that the ordinary conscious activities were often difficult to handle and expedients had to be resorted to in order to get pragmatic results, and though it had been said for many years that it was the fault of the analyst if he could not handle all these psychic cases, they did come sometimes too intense to be easily handled. The possibility of adjusting these might be aided by collective work with another analyst of the same or opposite sex. The dynamic situation could be better handled, more particularly in those cases where the effective reactions were highly nascent and there was great tension, such as characterized the *dementia præcox* cases. It was a point well worthy of taking into consideration, especially with certain patients.

Letters to the Editors.

TREATMENT OF INFLUENZA.

2130 NORTH NINETEENTH STREET, PHILADELPHIA.

To the Editors:

March 10, 1910.

The pandemic of influenza has come and gone. We who met it in the clinical field must confess our bewilderment as to its exact entity and to the efficiency of our medication. Those of us who had experience in the 1890-91 epidemic feel that in the degree of general muscular distress, there was considerable dissimilarity. So far as I can learn, the bacteriologists have failed to give us a tangible definite causative organism. In the clinical field, consultation with any druggist will demonstrate the chaotic conception of therapeutics on the part of the physicians.

From my own experience, one thought has arisen which seems of sufficient importance to warrant corroboration or negation from others. I had no mortality among those I treated for this disease. I had a sufficient number of cases, that according to reasonable rules of proportion, I might have expected some deaths. The ordinary temperatures were around 102°, with many 103°, and a few 104°. Cough in the majority of cases was severe. My treatment internally hinged on quinine and salol, with Dover's powder or codeine sulphate for the cough p. r. n. Menthol and compound tincture of benzoin in steam inhalation and turpentine and camphorated oil externally.

I have seen equally good reports from others and in conversation with physicians who had good results, where quinine was mentioned as part of the treatment. My offered premise is that quinine has a specific action in the treatment of so called Spanish influenza and that the organism may be of a type similar to that found in malaria, this latter suggestion with apologies to the bacteriologists.

H. C. MASLAND.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

A Practical Medical Dictionary. By THOMAS LATHROP STEDMAN, A. M., M. D., Editor of the *Twentieth Century Practice of Medicine*, of the *Reference Handbook of the Medical Sciences*, and of the *Medical Record*. Fifth Revised Edition. Illustrated. New York: William Wood & Co., 1918. Pp. xii-1124. (Price, \$5.)

This is the fifth revised edition of an exceedingly useful book. There have been 1,500 new titles and pharmaceutical terms added and doses have been arranged in conformity with the new revised pharmacopeia. Many war terms to meet war needs have been inserted. Medical military abbreviations which have come into popular usage on account of the excessive amount of work at the military hospitals and which are so confusing to the lay physician who has not received military training are explained. The dictionary is arranged in an extremely convenient manner; is complete and accurate.

Births, Marriages, and Deaths.

Born.

EAUFER.—In Boston, Mass., on Monday, March 3d, to Lieutenant Colonel Louis H. Bauer, Medical Corps, U. S. Army, and Mrs. Bauer, a son.

KRAMER.—In Washington, D. C., on Thursday, March 6th, to Lieutenant Colonel Floyd Kramer, Medical Corps, U. S. Army, and Mrs. Kramer, a daughter.

LA GARDE.—In Washington, D. C., on Sunday, March 2d, to Captain Louis A. La Garde, Jr., Medical Corps, U. S. Army, and Mrs. La Garde, a daughter.

SPILMAN.—In Camp Zachary Taylor, Louisville, Ky., on Wednesday, February 19th, to Major Harold Augustus Spilman, Medical Corps, U. S. Army, and Mrs. Spilman, a son.

Died.

BALDWIN.—In Elyria, Ohio, on Tuesday, February 25th, Dr. Harry D. Baldwin, aged sixty-five years.

BULGER.—In Oswego, N. Y., on Monday, March 3d, Dr. William James Bulger, aged sixty-two years.

CARLEY.—In Brooklyn, N. Y., on Tuesday, March 11th, Dr. William R. A. Carley, aged fifty-five years.

CARTER.—In Los Angeles, Cal., on Sunday, March 2d, Dr. James Madison Gore Carter, aged seventy-six years.

COLEMAN.—In Nantucket, Mass., on Monday, March 3d, Dr. Ellenwood Bunker Coleman, aged fifty-seven years.

CUNNINGHAM.—In Oakland, Cal., on Monday, March 3d, Dr. Arthur L. Cunningham, aged fifty-three years.

CUSHING.—In Lockport, N. Y., on Wednesday, March 12th, Dr. Sarah L. Cushing, aged one hundred years.

DICKEY.—In Tipton, Ind., on Sunday, February 23d, Dr. Andrew S. Dickey, aged sixty-eight years.

FRANK.—In New York, N. Y., on Sunday, March 16th, Dr. Gustave Frank, aged eighty-three years.

FRICTSCH.—In Philadelphia, Pa., on Wednesday, March 12th, Dr. Adolph W. Fritsch, aged fifty years.

GRIFFIN.—In Atlanta, Ga., on Sunday, March 2d, Dr. Edgar L. Griffin, aged forty-eight years.

HASKELL.—In New York, N. Y., on Wednesday, March 5th, Dr. Charles N. Haskell, of Bridgeport, Conn., aged fifty-six years.

KIRBY.—In Watkins, N. Y., on Sunday, March 2d, Dr. Nathaniel H. Kirby, aged fifty-eight years.

LANDESMAN.—In New York, N. Y., on Sunday, March 16th, Dr. Max Landesman, aged fifty-seven years.

MCBRIDE.—In Welland, Ont., on Tuesday, March 4th, Dr. Chester Jackson McBride, aged thirty-five years.

MANSON.—In Lincoln, Cal., on Monday, March 3d, Dr. John Manson, aged eighty years.

MEEHAN.—In New York, N. Y., on Sunday, March 16th, Dr. James Thomas Meehan, aged fifty-nine years.

MITCHELL.—In Norwich, N. Y., on Thursday, February 27th, Dr. John Waite Mitchell, aged seventy years.

MYERS.—In Lewistown, Pa., on Friday, March 7th, Dr. John Henry Myers, aged seventy-eight years.

NOBLE.—In Elmira, N. Y., on Saturday, March 8th, Dr. Ellsworth H. Noble, aged fifty-four years.

PORTER.—In Stuart, Fla., on Monday, February 24th, Dr. George Loring Porter, of Bridgeport, Conn., aged eighty-one years.

RIX.—In New York, N. Y., on Sunday, March 16th, Dr. Frank Reader Rix, of Lowell, Mass., aged sixty-seven years.

RONAN.—In Corning, N. Y., on Thursday, February 27th, Dr. John L. Ronan, aged fifty-five years.

SHACKELFORD.—In Dalles, Ore., on Friday, February 21st, Dr. William Shackelford, aged eighty years.

SIVENY.—In Brooklyn, N. Y., on Sunday, March 16th, Dr. Julius F. Siveny, of Providence, R. I., aged thirty-one years.

TUTTLE.—In Wheeling, Ind., on Friday, February 21st, Dr. John R. Tuttle, aged sixty-one years.

WELLS.—In Boston, Mass., on Monday, March 3d, Dr. Frank Wells, aged seventy-seven years.

WHITTAKER.—In Everett, Wash., on Friday, February 7th, Dr. Frank E. Whittaker, of Republic, Wash., aged sixty-six years.

WICKS.—In Schenectady, N. Y., on Sunday, March 9th, Dr. Arthur Grant Wicks, aged fifty-six years.

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Original Communications

THE ETIOLOGY AND TREATMENT OF COLDS.

BY OLIVER T. OSBORNE, M. D.,
New Haven, Conn.,

Professor of Therapeutics, Yale University School of Medicine.

While congestions of the mucous membranes of the upper air passages may simulate colds, probably all so called colds are due to infection. Also, colds are contagious, disseminated by spraying the atmosphere when sneezing and coughing without proper protection. In families probably most colds are spread by closer contact, as by kissing, using the same drinking glasses and the same towels, and even more carelessly, by mothers using the same handkerchiefs for more than one child and for themselves. Those who have colds frequently have them from reinfection from themselves. Also, doubtless many carriers of these germs may infect others.

The germs that produce colds are perhaps many. The *Micrococcus catarrhalis* has been identified, and the *Bacillus influenzae* is the cause of all influenza. It has not been shown that the various types of pneumococci often found in the mouth can cause acute inflammation, or colds, of the upper air passages. Also it has not been shown that the various streptococci found in throats and noses cause so called colds, although Mathers found a *Streptococcus hemolyticus* in an epidemic of colds in Chicago (1). The deadly *Streptococcus viridans* does not cause colds, although this germ is often present in infection of the teeth and gums. Therefore, it seems hardly probable that this *Micrococcus catarrhalis* is the cause of all common colds; evidently there are other germs which rapidly spread contagion that have not yet been discovered.

Vaccine injections from mixed bacteria found in the mouth or nose probably rarely prevent colds. It should be noted that when patients have received such vaccines they have also received general advice and perhaps some special nose and throat treatments that would tend to prevent the occurrence of colds. Therefore the vaccine prevention of colds must be considered as yet experimental only. It is not wise, in this age of prevention and conservation, to consider a coryza, a pharyngitis, or an acute bronchitis of the larger tubes as simple affairs, or conditions of no moment. A cold never leaves the individual as well as he was before the

cold; he must recuperate. Therefore it takes something out of him and does something to him. This is particularly true of young children. A cold always predisposes to another cold. It may allow other germs that have been accidentally inhaled, or that are harbored in the body, to cause an acute infection, perhaps a serious infection. The streptococci of a follicular tonsillitis or the diphtheria bacillus might have been eliminated if the patient had not had a cold, or had not been debilitated by one or more colds. Also, pneumococci, that may be harmless in the mouths of patients previous to a cold, may cause pneumonia after a cold, and especially after influenza has attacked the individual. The sad story of the recent influenza epidemic and its subsequent terrible death rate from lobular pneumonia is very fresh in our minds. We do not know how much more susceptible to an infection (as measles, whooping cough, and scarlet fever) a child may become who has a cold, or is subject to colds, as compared with a child who is not subject to colds. Therefore, to repeat, colds, especially in young children, should be considered regrettable occurrences, and should always be properly treated and never neglected.

PREVENTION.

If a child has adenoids that are in the least obstructive they should be completely removed. Tonsils enlarged, but not large enough to obstruct the throat, in a child may at least be tolerated for a time and not necessarily be immediately removed. If one or both tonsils are diseased, having pockets that harbor secretion, germs, and perhaps pus, there can be no question of the advisability of their immediate and complete removal. If a few surface pockets can be slit and treated and healed, the tonsils need not be removed. It is fruitless to discuss whether we should be born without tonsils instead of with them. There is no doubt that they have a distinct function. This function may be disturbed and may be abnormal, and the tonsils may become a menace to health. Still, there is no excuse for removing a tonsil because it is such. In this age of tonsillectomies, it would be well for the general practitioner to read the article by Dr. Henry L. Swain (2). In other words, we take out too many faucial tonsils. On the other hand, if the patient has recurrent attacks of tonsillitis, and certainly if he has had one or more attacks of acute rheumatism, the tonsils should be sacrificed immediately. A tonsil

is of little moment compared with the danger of an endocarditis. There can be no half way measures with either acute or chronic inflammation of one of the sinuses about the nose or of an ear. No measures should be left untried until the inflammation has abated and the germs of the disease have been eradicated. There can be no question that such inflammations can become focal infections and cause trouble elsewhere, to say nothing of causing local congestions and irritations that predispose to colds.

Nasal hypertrophies or bone blocking of the nostrils must be conservatively treated. Minor operations in this region are more satisfactory than major and the more dangerous resections. Nature did not intend that there should be a perfectly free, open tube from the outside dusty, germ infected, contaminated air to the bronchi. Therefore the passages are made more or less crooked, and more or less narrow, to cleanse and warm the air before it reaches the larynx. Hence the danger to mouth breathers of their having more infection and more colds and more chronic inflammation of the air passages. Chronic pharyngitis and recurrent sub-acute attacks of pharyngitis are frequently cured by causing normal breathing through the nostrils. Although the age of the most frequent colds is childhood, the period in which chronic infection of the teeth rarely occurs, still a neglected, decayed tooth may harbor germs of infection in childhood as well as in the adult. Hence such a tooth should be properly filled or extracted. In the adult chronic infection of the teeth and gums frequently harbor germs of the character that allow recurrent colds. Many a patient who has been subject to colds has had the tendency cured by surgical cleaning of the mouth. The danger in the adult of carrying pneumococci, the *Streptococcus viridans*, and the *Streptococcus hemolyticus*, all ready to be absorbed and cause serious conditions as soon as he is debilitated by a cold or other simple infection, is now well understood. Many cases of hay fever and asthma have first developed after frequent colds, even if specific irritants can later be found.

Beside these local measures of prevention, the proper amount of fresh air during inside work in the daytime and during sleep is essential to prevent congestions of the mucous membranes of the upper air passages. The term "proper amount" should be emphasized. No person was ever yet hardened by foolish hardship and exposure, although he may withstand such and become inured to it and live in spite of it. No babe was ever yet hardened by sleeping out of doors when the cold is intense or during storms. Also, a draft blowing either from out of doors or from an electric fan on some part of the body is not the way to make an individual withstand colds. Having the same number of windows open in the middle of the winter as in the middle of summer is another fad. The seriousness of breathing stale, overused air, or breathing air that is either too dry or too saturated with moisture, is being recognized, fortunately, by even the laity, and more healthful, fresh, clean air living is largely in evidence. However, as just stated, the trend is somewhat the other way, to overdo, in an American manner, the fresh air treatment. There is ab-

solutely no excuse for a tuberculous patient sleeping so exposed that the snow comes onto his bed or into his face. Good common sense is needed as much in this line as in any other method of treating and preventing disease.

The clothing of the babe, the child, the youth, and the adult should be sensible. Some are over-clothed; others are underclothed; many are over-clothed in one part of their body and underclothed in other parts. Some adults boast of wearing the same underclothing the year around, even in the harsher climates. While this may be sensible, sanitary, and even healthful for certain individuals, as a working rule it is bad. It is especially bad for a person who has a tendency to internal congestions of any kind, whether it is colds, bronchitis, dyspepsia, or kidney disturbances. The skin should always be comfortably warm and normal, especially in cold weather, and insensible perspiration should not be prevented. On the other hand, any clothing that causes profuse perspiration and overheating of the body is deplorable; such overclothing predisposes to colds. Various cold water treatments are suggested to prevent the catching of cold. In individuals whose peripheral vasomotor system operates sluggishly, there is probably no better training or calisthenics for the skin than cold sponging or showers, or even at times cold plunges, with a quick, brisk rub immediately afterward. Especially of advantage is the morning sponging of the throat and chest with cold water.

Open air exercise, whether sports or work, is always of advantage in increasing the peripheral and muscle circulation and preventing congestion of the internal organs and hence colds. However, cold morning baths and much physical exercise without proper training or proper grading of such exercise is often a disadvantage to an individual, and may even predispose to colds. The condition of the child or the adult must be considered when strenuous exercise or the severer cold treatments are advocated. Many an adult and not a few children are predisposed to colds, and consequently other illnesses, by too strenuous bathing and too strenuous exercise. If the circulation is not good, whatever the cause, it must be improved by graded treatment, and the results should be watched; otherwise congestions of the upper air passages may predispose to the very colds that we wish to prevent.

Proper food is probably an important item in preventing colds. Anything that causes nervous excitation, as tea and coffee in young children, or too much meat, or a diet that allows constipation, may cause congestion of the mucous membranes and predispose to colds. In the adult, highly seasoned, rich foods, too much meat, and alcohol and oversmoking, may bring about conditions of the surface circulation and mucous membranes that will predispose to colds. It has long been recognized that constipation many times seems to produce congestion of the throat and nasal passages. Proper daily movements of the bowels will generally cause the tongue to be clean, the mouth to be properly moist, and the pharynx to be better color and have less secretion of mucus. Every practitioner has

seen the mucous membranes of the nose and throat improve on good catharsis and a rigid diet.

ABORTIVE TREATMENT.

The pathology of a cold is simply the various stages of inflammation of the mucous membrane—first, dryness, with congestion and swelling; later an outpouring of mucous secretion with increased leucocytes; and finally more or less purulent secretion. The local symptoms in the nose are tickling and sneezing; in the throat dryness and a feeling of thirst; in the larynx a feeling of fullness and the patient is hoarse; in the trachea a feeling of soreness, and soon there is more or less cough and expectoration.

A cold may be aborted in this stage. Primarily of importance is a brisk cathartic, a milk and cereal diet, and a greatly restricted intake of liquids, even if the patient is thirsty, though he may sip liquids, and take small amounts of lemonade, or eat oranges. To further this abortive treatment and stop the congestion of the mucous membrane from becoming greater and finally pouring out large amounts of mucus, 1/500 grain of atropine sulphate should be given, to an adult, every two hours, for five doses, and then every three hours for five more doses. A child ten years old could have this dose every three hours for five doses, and then every six hours for five more doses. The throat and mouth may be washed with a mild alkaline wash, as liquor antisepticus alkalinus, diluted with equal part of warm water. This may be used every two or three hours. Nasal sprays are inadvisable at this stage. Many colds are aborted by this treatment. Hot baths, body baking, and electric light baths, if one has the opportunity to take such treatment, by bringing the blood to the surface of the body and then relieving the congestion in the nose and throat, may aid in aborting a cold. If there is much fever, a dose of antipyrine may be advisable.

TREATMENT IF THE COLD PROGRESSES.

The object at this stage of the cold, as the congestion of the mucous membrane is severe and it will not abate until the secretion of mucus is free, is to hasten this secretion or excretion. Consequently, atropine should be stopped, and ammonium chloride may be given, best in syrup of citric acid and water. If there is an irritable cough, codeine may be added to this mixture. If there are apparently influenzal symptoms in the patient, viz., severe backache, headache, and more or less fever, one or two small doses of acetanilid may be given; or acetyl salicylic acid in two or three doses. It is not necessary to continue these drugs more than two days, at the most, perhaps not more than one day. Such a patient must remain in bed for two or three days at least.

If the cough becomes productive and not irritable, the ammonium chloride mixture may be continued, but without the codeine. If the expectoration is profuse, terpene hydrate may be substituted for the ammonium chloride. It should always be given in powder or in capsule, or if a tablet is given, it should be crushed before swallowing. If the patient has difficulty in raising the mucopurulent secretion from the bronchial tubes, and it is sticky and

hard to expectorate, sodium iodide in small doses is the best treatment. After any cold the patient requires a tonic, such as a capsule of quinine 0.10 gram, reduced iron 0.05 gram, and strychnine sulphate 0.0015 gram, three times a day, after meals. If there has been any congestion of the ears, the quinine should be omitted. Some liquid bitter tonic may be given, if it seems preferable.

A simple cold need not confine a patient to the house more than a day or two, unless he is debilitated. If he has had even a mild attack of influenza, great care should be taken to get him into good condition before he is allowed to go out, lest another cold develop or a pneumonia. A patient with a cold who is seen to have chronic infection of the mouth or throat, or is perhaps harboring more serious germs, especially the pneumococci, should be more carefully treated than one who has no such secondary infections. In fact, if more cultures were made from swabs taken from the nasal passages, from a bad looking tonsil, from an infected gum, or from a questionable pharynx, than is now the usage, the physician would know more surely how long the convalescence should be after what seems to be an ordinary cold.

REFERENCES.

1. MATHERS: *Journal A. M. A.*, January 1, 1916, p. 30.
2. HENRY L. SWAIN: *Medical Record*, June 22, 1918.

THE VENEREAL DISEASE PROBLEM*

From the Public Health Standpoint.

BY LOUIS I. HARRIS, Dr. P. H., M. D.,
New York,

Director, Bureau of Preventable Diseases, Department of Health.

The venereal disease problem is one of the oldest in the history of mankind. Its only new feature is the fact that it is no longer the exclusive subject of interest and study of the religious, the ethical, and medical leaders, and of a scattered few who were looked upon as violating the canons of good taste and polite breeding by public discussions of the problem. To a larger degree than ever before, those who have earnestly discussed the subject in whispers with their most intimate friends, may now feel secure of the good opinion of their fellows in conferring about the problem in formal gatherings which have a respectful regard for the social conventions. This publicity is not only an index of progress, but it may be regarded as prophetic of a profound and far reaching influence in bringing about an acceleration of measures for the reduction in prevalence of venereal diseases.

The difficulties in the problem created by the venereal diseases are multiplied because of the religious, social, economic and medical aspects which bear upon it. The awakening of the interest of the medical profession is a significant and important sign of the change in the attitude of society, as a whole, toward this problem,—a change, which may justly and in largest degree be attributed to the facts revealed by the condition of some of the men of our army and by the measures which were elaborated by our medical officers for the protec-

*Paper presented at a stated meeting of the New York Academy of Medicine, February 6, 1919.

tion of our military forces. The signal achievement of the medical guardians of our army and navy must not be allowed to end with the war, to become embalmed in history as facts of interest only to the members of our profession.

The public health service of the community has a distinctive place in the programme for the prevention and supervision of cases of venereal disease as we have now come to understand it. It stands in a peculiar relationship to the general public, to the medical profession, and especially to persons suffering from venereal disease. In so far as the general public is concerned, the prime duty of a health department is to lead an unrelenting and vigorous campaign of education, which, so far as practicable, shall begin with the young and be carried into every division or group of the community which may be benefited by proper instruction. The timid or *laissez faire* attitude of the intelligent parent, and the utter neglect by the unintelligent parent to instruct the young, leaving this most delicate duty to the chance street companion of more or less vulgar and perverted viewpoint, must be overcome by a well directed concentration of the forces of those interested in the problem, and inevitably, it seems to me, the health department of a community should be the pacemaker and guide in this. It should combine with social agencies in the city to provide for wholesome and well planned recreation that will give an outlet to turbulent emotions and thoughts and furnish healthful distraction to the young, and, being advised of the viewpoint of the best informed and most progressive leaders among educators and physicians, it should direct and counsel or stimulate our high school authorities, parents, and others, in proper methods of sex instruction.

The public health authorities should require the reporting of all cases of venereal disease, so as to make possible an intelligent and sane plan of action to safeguard the community from sources of infection that would otherwise be uncontrolled. The seal of silence which physicians have tolerated from mistaken motives of chivalry, or for fear of incurring the displeasure of patients, is out of date and a menace to the community. The veiled diagnoses made by physicians, out of solicitude for the feelings of patients, may do much harm to the patient, to the family, and to others. The reporting of all cases of venereal disease to the health department would make it a clearing house of reliable information as to the extent and prevalence of these conditions, and would establish the foundation for intelligent and more effective measures of prevention, and for the control of the occupations, the home conditions and the treatment of persons requiring such supervision, for their own good and also for the protection of others. At present, we have an extreme diversity of opinion and of estimates as to the prevalence of the venereal diseases and their sequelæ. To face the problem fairly and squarely and to discover the sources of infection which are subject to control, it is a prime requisite that we substitute careful records for surmises that fall wide of the truth.

The provision of laboratory facilities for the

diagnosis of venereal diseases is not only an aid to those who could not afford to pay for such work, but, it also assists the private physician materially in his work among those of limited means, and is an oblique method of obtaining reports of venereal disease cases. The fact that all reports of venereal diseases are held confidential by the health authorities, and further, the growing tendency toward a cordial and cooperative relationship between private physicians and health officers, should make in increasing measure for the full reporting of venereal disease cases.

The health officer should stand in especially close relationship to those who are affected with venereal disease, and to persons who suspect that they are so affected, or who desire information, and who would resort to the advertising "specialist" so called, or develop various neuroses for the lack of an authoritative guide and adviser.

The health department of this city established in 1914 a medical advisory station, which so far as tangible results are concerned has been confined to the Borough of Manhattan in its operation. In its brief and experimental career this medical advisory service, conducted by Doctor Barringer for a brief period and continued by Dr. L. Chargin, has advised 14,953 persons up to the beginning of this year. Omitting our statistical data relating to 1,429 persons advised during 1914, because of the lack of certain necessary information, the medical adviser was consulted by 13,524 persons from 1914 to 1918 inclusive, of whom 12,582 were male, and 942 female. It may be interesting to note that 2,642 of these were married and 9,340 single. Of this group 4,373 were found to be affected with syphilis, 5,059 with gonorrhea, 1,203 presented various sex neuroses, and 3,277 suffered from non-venereal diseases such as psoriasis, sycosis barbæ, scabies, acne, various forms of eczema, furunculosis, purpura, vaginitis, and cystitis. Many of these undoubtedly were prevented from falling into the hands of advertising quacks and so called "specialists," and directed to their family physicians or to well conducted clinics according to their means. In fact, 861 of these persons had previously been under the care of quacks and were attracted to our clinic by the advertisement which we had placed in newspapers which carried quack advertisements. Three thousand, eight hundred and ninety-six of these had been under the care of private physicians but came to learn whether their cases had been properly terminated or whether they were receiving appropriate care, or because their physicians desired the opinion of our medical adviser. Two thousand, four hundred and twenty-one had been under the care of dispensaries. In the last two years we learned that eighty-eight persons had received treatment at the hands of druggists, that 163 persons had no treatment whatsoever at any time, and that 215 had attempted to treat themselves. The sources of infection were as follows: 1,375 had contracted disease through clandestine prostitutes, 6,079 through public prostitutes and 512 through accidental infection. Information could not be elicited on this point in a large number of the cases (see Table I).

The information that the health authorities may glean from the full reporting of venereal diseases, should lead to a programme which will enable them to give physicians help for those patients who need special hospital care, or to follow up in a judicial manner those cases which drift from under the care of private physicians or dispensaries after inadequate courses of treatment and which constitute a source of community danger.

While it is true that most persons suffering from venereal diseases may properly be treated as ambulatory cases, there are undoubtedly a very large

offered no relief. The general hospitals and the infectious disease hospitals, should, it seems to me, amply provide for the care of those who need such accommodation.

The followup work, which is beginning to be recognized as a fundamental feature of dispensary service and of public health work, has for its object so far as the latter is concerned, the discriminating selection of the types of cases which need home visiting of nurses or special workers in order to enforce proper protection of those who are exposed to those venereally diseased, to give friendly

TABLE I.
RÉSUMÉ OF ADVISORY CLINIC WORK.

Year.	Prostitution—										Previous treatment—							
	Total.	Male.	Female.	Clandestine.	Public.	Accidental.	Married.	Single.	Syphilis.	Gonorrhea.	Sex Ven. diseases.	None em- treated.	Quacks.	Private Physicians.	Dispensary.	Irregulars.	No Treat- ment.	Self- treatment.
1915	3,734	3,560	174	510	1,463	41	1,025	2,709	1,101	1,520	511	602	455	1,015	690	..	..	..
1916	3,730	3,516	214	349	1,711	101	873	2,038	998	1,500	346	902	206	1,180	515	..	..	..
1917	3,216	2,986	230	276	1,518	172	748	2,468	1,087	1,150	222	757	135	882	607	29	37	145
1918	2,844	2,520	324	240	1,387	108	696	2,125	1,187	889	124	1,016	65	816	589	30	126	70
Total for four years.	13,524	12,582	942	1,375	6,079	512	3,342	11,110	4,373	5,079	1,203	3,278	601	3,896	2,442	88	163	355

EXAMINATION OF FEMALES.

	Total number examined from May 15 to Dec. 31, 1918.	Total number with 2 + or over Wassermann.	Number with clinical syphilis.	Total number with syphilis.	Number of smear positive.	Number with 2+ or over gonorrheal fixation test.	Number of positive smear and gonorrheal fixation test.	Total number of positive laboratory gon.	Clinical gonorrhea.	Total number of gonorrheas.	Number of clinical gon. with positive smear.	Number of clinical gonorrhea with gonorrheal fixation test.	Number with both.	Number with neither.	Fals. with chancroids.	Total number with gon and syphilis.	Total number with disease.
Jefferson Market Court	1,577	589	64	590	153	153	23	283	100	408	..	13	..	..	..	112	933
Government cases	234	95	3	95	36	45	5	70	22	85	4	6	..	0	..	4	133
Tombs Prison	7	3	0	3	..	1	0	..	..	..	..	..	..	..	..	..	..
District Attorney's cases	10	2	0	2	0	3	0	..	0	..	..	..	..	..	..	..	..
Fifth District Court	4	2	0	2	0	0	0	..	..	..	..	..	..	..	..	..	..
Workhouses cases	5	2	0	2	0	2	0	..	0	..	..	0	0	..	..	..	..
Fourth District cases.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Queens	16	3	0	3	0	6	0	1	..	6	..	..	..	..	..	..	..
District cases	42	11	1	11	1	4	0	..	..	5	..	..	..	..	..	4	..
Eighth District Court, Bronx	2	0	0	0	0	0	0	..	..	..	..	..	..	..	..	..	..
Raymond Street Jail.	173	56	0	56	6	22	1	27	..	..	..	..	..	..	..	1	81
Total	2,070	763	68	764	196	235	29	410	182	..	25	..	..	..	..	231	1,177

EXAMINATION OF MALES.

Fourth District Court	19	11	0	11	..	..	..	..	..	..	..	..	..	..	..	..	..
Seventh District Court	55	18	0	18	0	1	..	..	..	..	..	..	..	..	..	4	18
Total	74	29	0	29	..	5	0	..	..	..	..	..	..	..	..	4	18

number who are acutely ill and in urgent need of hospital care, and who have few or no facilities for proper isolation and treatment at home, but who practically cannot be admitted to any of the hospitals of the city unless the admitting physician conspires with them to conceal the real nature of the disease and admits them under a fictitious diagnosis. The number of hospital beds for venereal disease cases now available in this city is negligible. This lamentable condition calls urgently for correction. At present, by virtue of the newly enacted State laws, in this city we have provided hospital beds at Riverside Hospital, but only for those who are convicted on the technical charge of vagrancy, which is really defined as prostitution or immoral practice. The law abiding citizen who may be in most urgent need of hospital care is practically

counsel to the affected person and others; to prevent such person from continuing at an occupation in which he may prove a source of danger to others, or to induce such person to continue treatment until the period of infectivity and personal danger are at an end.

Although regulations establishing standards for the proper conduct of venereal disease clinics were enacted in December, 1917, there are at present scarcely more than a dozen of the nearly eighty clinics in this city which conform to these standards in all essentials. The strict enforcement of proper standards for the conduct of genitourinary clinics under penalty of closure when they fail to respond to good counsel and persuasion, should be insisted upon by health authorities.

The provision of an adequate number of night

clinics for the treatment of the venereally diseased is also urgently needed. This need is not met as it should be at present. Chapter 264, of the State law of 1918, requires that treatment be furnished free of charge by the local health agency to all indigent persons suffering from venereal disease, subject to subsequent investigation as to their financial status. This requirement will, it is hoped, be met by public health authorities throughout the State.

It has seemed to me that we might profit by the excellent results obtained by the army through its prophylactic stations where preventive treatment was administered to all applicants within a few hours after exposure. Until the educators, the religious, ethical, and social workers succeed in converging the force of their influence upon individuals to fortify them with character, education, exalted sentiments, diverting and refining recreation, as well as the wherewithal and the desire to lead a continent life or contract marriage at an early age, medical measures and particularly prophylactic treatment will continue to be essential. It therefore seems to me to be incumbent upon health authorities to maintain such prophylactic stations as a routine part of their work for those who cannot secure this treatment promptly at the hands of private physicians.

May I venture timidly, knowing as I do that not all physicians have agreed to join in a chorus of praise of the proposed Health Insurance Act, to suggest that if the framers of the measure would take a suggestion from the experience of our army, they might do well to provide that such prophylactic stations as I have attempted to suggest, should be visited by those insured under the act who have exposed themselves to infection, and that failure to obtain prompt prophylactic treatment should result in a denial of benefits. I believe, that it would thus enable the workers who may be exposed to venereal disease infection to profit by a most valuable protective measure, and that the penalty imposed would insure to a reasonable degree against their failure to avail themselves of such protection. There is a great opportunity open to health officers, who enjoy the good will and respect of industrial groups, and who avail themselves of this opportunity to bring their educational campaign to bear with full force upon such groups.

In our examination of food handlers in connection with the work of the Bureau of Preventable Diseases, we have laid the foundation, possibly, of a type of periodical medical examination which not only serves to protect the public from food handlers in an actively infectious condition, but may also be the means of educating a considerable number of persons in relation to the prevention of venereal diseases. If this work could be logically extended through occupational clinics conducted for the benefit of industrial groups, signal achievements in the prevention of disease, and of venereal infections particularly, might follow.

The rôle of the old family physician, who, in actual life as well as in novels, was the guide and mentor of those under his professional care, gave splendid opportunity for education and advice as to sex hygiene and other matters connected with the

prevention of venereal disease. The public health officer must stimulate his medical brethren in constantly larger measure to resume this intimate relationship toward the young especially, and to advise them as to sex hygiene, continence, eugenic laws and prophylactic treatment.

General Gorgas, in an address delivered in 1917 before the American Public Health Association, indicated an analogy between the control of yellow fever and venereal disease whose full significance can best be appreciated only by reading the address in full. He showed how yellow fever was at first limited in prevalence by efforts to screen the infected person, in a manner analogous to our isolation of the sick. Also, how they then leveled their attack upon infected mosquitos, just as we have attempted by repressive measures directed against the public prostitute and by prophylactic treatment of exposed males and by therapeutic measures as well, to limit the number of carriers. The third stage consisted in making an attack upon all mosquitos, just as we hope ultimately to reach all the sources of infection and by preventive measures shield all from these diseases. To the criticism that one or several of these methods had not succeeded in eradicating the diseases against which they were aimed, Gorgas made answer that while a measure was not perfect in practice, it might yet be entirely practicable and helpful.

For lack of time I will refrain from discussing other phases of this subject which engage the study and attention of the public health officer to a very great degree. I desire, however, before closing to make a preliminary report of our work in connection with the enforcement of Chapter 264 of the Laws of 1918.

In a period of seven and one half months terminating December 31, 1918, the Venereal Disease Division of the Bureau of Preventable Diseases examined a total of 2,070 women who are classed as convicted or suspected persons. Two hundred and thirty-four of these were brought to our attention through army officers. The results of the examination of these women to determine the presence of venereal disease may not be without interest to the medical profession.

Syphilis.—We found a positive Wassermann test, 2 + or over, in 765 cases, about thirty-seven per cent.; sixty-eight, or slightly more than three per cent. of this group had active clinical manifestations of syphilis; one of the latter had a negative Wassermann. The total number of those in whom we diagnosed syphilis as the result of laboratory test or clinical evidence was 795.

Gonorrhea.—In our examination as to the presence of gonorrhea, we obtained smears from the cervix in all of the women examined. In 196, or approximately nine per cent. of these women, the smear was positive for the gonococcus. In 241 women, about twelve per cent., we found a positive gonorrhea complement fixation test. It may be interesting to note in this connection that only twenty-nine women in whom a smear was positive, gave a positive gonorrhea complement fixation test. One hundred and eighty-two cases, nearly nine per cent., showed clinical evidence of gonorrhea, consisting of

a discharge from the urethra, Bartholin's glands, or from the cervix, together with cervical erosions and vaginitis. Of the 182 women who showed definite evidence of clinical gonorrhea, a positive gonococcus smear was obtained in only twenty-five.

These observations are of interest and importance in connection with the attempts made by certain advocates to have the periodical examination of prostitutes and their certification undertaken by city authorities. In spite of studied attempts to improve our technic and the conditions under which we have obtained our specimens, we have not been able to secure a larger proportion of positive gonococcus smears even though the presumptive evidence that a large number of these women are gonorrhea carriers is very great.

The total number of gonorrhea cases, including those that showed positive laboratory or clinical evidence, was 542, approximately twenty-five per cent. Although in a few cases ulcers were observed about the genitals, they were of indeterminate character, and a definite diagnosis of chancroids could not be made with justice in any of the cases examined. The total number who gave evidence of having both gonorrhea and syphilis was 240, about eleven per cent. The total number whom we found to give evidence of gonorrhea or syphilis or both was 1,209 or approximately fifty-eight per cent.

It is needful to bear in mind that dealing as we are in this instance with a social group who are notoriously carriers of venereal diseases, we are justified from an administrative standpoint in regarding each of these individuals as suffering from venereal disease even on the basis of a 2 + Wassermann, or a positive gonorrhea complement fixation test alone.

We did not begin to detain these women in the hospital for treatment of their diseases until late in August. Since that date we have admitted a total number of 439 patients, of whom 300 have been discharged, fifty-six in the custody of private physicians of whom we have exacted certain pledges as to treatment and supervision of the patient; and 244 have been discharged after receiving the minimum course of six salvarsan injections and as many mercury injections in the case of syphilis, and in the case of gonorrhea, after obtaining two negative cervical smears at intervals of one week, the first smear being taken very soon after the cessation of a menstrual period. Most of these women received an even more vigorous course of treatment.

Of the 439 women who have been convicted in the night court on the charge of prostitution some of whom have been taken to the hospital after they have completed their sentence at the workhouse, 154 are now in the care of Riverside Hospital.

Time does not permit a detailed analysis of the significance of our observations in connection with the care of convicted and suspected persons suffering from venereal disease. We have now arrived at a point where we should strive to create effective methods for the rehabilitation of these women, so far as that may be possible.

If, through the cooperation of social service

agencies and others who are fitted to cope with the problem, we can reclaim some of these women and have them engage in work that is respectable, many of these sources of infection will not only be eliminated, but a great step will have been taken to treat these women not as criminals, but as mental and social defectives.

The health department at the present time has no facilities whatever for the treatment of persons suffering from gonorrhea and syphilis, unless they are convicted or suspected persons under the terms of Chapter 264, of the Laws of 1918. The law specifically provides that the health department shall furnish free treatment for those suffering from venereal disease, who, upon investigation, are found to be really unable to pay for proper medical care.

An adequate programme for the control of the venereal disease problem is absolutely dependent upon a concert of forces of all those who have come to appreciate at its full value the havoc which venereal diseases are playing with individuals, and the degree to which they have brought permanent suffering, disability, and injury into many households in this community.

When all of those who have been enlightened and who have grasped the significance of these facts join hands in the common cause, and speak the truth unflinchingly, without exaggeration, with sanity, and with an understanding of the complex social, economic and personal factors which have to be taken into consideration in dealing with the problem, we shall be near a solution.

ARTIFICIAL PNEUMOTHORAX IN PULMONARY TUBERCULOSIS.

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In the past few years the use of artificial pneumothorax in the treatment of pulmonary tuberculosis has met with marked favor among many men engaged in this special line of work. The literature of the subject has been voluminous, there being as many articles as there were men using the method. Much that was good and instructive could be gleaned from a study of this literature, but, on the other hand, valuable time would be lost in an endeavor to sift the "tares" from the "wheat."

For the past six years I have been treating suitable cases by means of compression and, although I cannot be accused of being overly enthusiastic, at the same time I am an ardent admirer of this form of treatment. I have seen apparently hopeless cases cured, and have seen the last days of the dying consumptive made easier by a relief of distressing symptoms. These things alone would justify its use, but when you add to this the fact that we have at last a method of treatment that produces a tangible result, its value is at once apparent. When one considers the usual routine methods used for years in the care and management of the tuberculous patients, and then pauses to reflect on the actual results obtained, one cannot but be astounded

at the hopelessness of the advanced consumptive. It is true that early tuberculosis offers reasonable chances for recovery when treated or untreated in favorable or unfavorable climates, but the advanced lesion offers little but a prolongation of life, and that prolonged life usually being one of semiinvalidism.

With this bald fact staring us constantly in the face, why then should we not welcome a method that has proved successful, and, as I shall attempt to show, at least double the chances of the advanced consumptive?

The primary object of this article is to give facts based on a large experience, and to draw conclusions from these personal observations and a careful study of the literature, with the hope that more physicians will be induced to use a real means of aiding the tuberculous patient.

HISTORICAL.

The old adage that there is nothing new under the sun can well be applied to the treatment of tuberculosis by artificial pneumothorax. Like every other method ever suggested for the treatment of any disease, it took years for the medical profession to realize its merits. There followed a period of years in which it was tried spasmodically by a few members of the profession who felt the truth of the early writers, and largely to their efforts do we owe the present basis upon which the procedure seems to rest securely. True, time may teach us much that is not dreamed of at present, and, at best, we should be a backward lot of men if the future could hold nothing in store for us in the way of increased knowledge and improved technic.

Compression of the lung went through much the same highways and byways that tuberculin treatment was forced to travel before it found a sane footing with the profession. However, unlike tuberculin, pneumothorax was not at first used by all manners and conditions of men, nor in the final analysis can tuberculin even be placed as a close contender for first honors with this mechanical method of treatment. However, the various methods in the treatment of tuberculosis will be discussed in a later chapter.

As far back as 1821, Carson, a physician of Liverpool, England, noted the marked improvement and even cure in cases of tuberculosis sent back from war after having received a traumatic pneumothorax. How many of us, also, can remember cases of recovery from an existing tuberculosis complicated by a pleurisy with effusion and a resulting compression of the diseased lung. Immediately when such a complication occurs, the pressure of the resulting fluid begins a gradual compression of the lung with the result that complete rest by immobilization takes place and the affected part is put at rest. What more sensible manner of treatment could be devised? If one had occasion to treat a tuberculous knee joint, for example, a cast or splint would at once be suggested. Rest of the part with complete immobilization being the *sine qua non* to success. A large number of clinicians, during the past century, have reported cases of natural pneumothorax in which the patients have made complete recoveries. This I have seen happen in my own

practice before I began the production of an artificial pneumothorax. Here, again, we have rest of the affected part.

Having noted the results after a traumatic pneumothorax, Carson began experiments on animals, and published his first paper in 1822. In this he detailed experiments which were somewhat different from our present day procedure in producing a compression. Lacking the apparatus by means of which he could introduce nitrogen gas or sterile air, he merely made an incision between the ribs, using as his experimental animal a rabbit, thus allowing air to enter the pleural cavity. He states that the animal lay for a few seconds as though stunned by a blow, but at the end of a few hours resumed its normal status. This stunned state, of course, was due to the rapid degree of compression established in a short space of time. The breathing became short, rapid, and laborious, the animal being unable to stand alone. After a period of five days the breathing still showed some impairment, but aside from this the rabbit was apparently normal. Later the animal was killed and an autopsy performed. The incision was found perfectly healed, the diaphragm was pushed downward with a concavity toward the abdomen.

He notes two other similar experiments which gave him the same results. These attempts at a compression in animals drew from him the conclusion that a collapse of one lung might be made with perfect safety to the patient. He went even further and suggested the possibility of treating pulmonary hemorrhage by this same means, stating that a collapse of a lung would be as efficacious in controlling such bleeding as the contraction of the uterus was efficacious in controlling bleeding in childbirth. Some authorities state that Carson, working with Bickersteth, did actually treat tuberculosis in man by opening the pleura. Ten years later Ramadge punctured the pleural cavity for the treatment of pulmonary tuberculosis. He reports that his patient was doing well at the end of two years following the treatment. Constatt, in 1843, Parolo, in 1849, Wunderlich, in 1856, and Ehler, in 1867, all mention Carson's work and note particularly his conclusions. They speak of his animal experiments and his clinical observations on traumatic pneumothorax in the tuberculous, and of the effect of pleural effusions. However, there appears to be no mention made by any of these men of an attempt to perform the operation on man.

Forlanini, of Padua, whose death was recently reported, made his first report in 1882. He was led to take up the work by reason of the same clinical observations regarding spontaneous pneumothorax and pleurisy with effusion, that influenced the early writers already mentioned. He went further than these men and advocated the injection of gas into the pleural cavity in order to produce so called splinting of the lung. He did nothing more at this time than merely suggest the method, not actually compressing a lung until ten years later.

Here in our own country, little attention had been paid to this work. It remained for Murphy, of Chicago, to publish the first American report. At the meeting of the American Medical Association

June 7, 1898, he read his paper on Surgery of the Lung. And the following year his associate, Lemke, published a large series of cases. Murphy claimed to have originated the method independent of Forlanini. Up until 1906 Forlanini had treated only twenty-six cases and Murphy's method was but little used outside his own clinic. After the publication of Lemke's article, Professor Brauer, of Hamburg, was influenced to take up the work and has since published his results which, I believe gave a new impetus to compression therapy. At least this can be said of the profession abroad, for in the literature of Europe alone, up to 1914, there has been collected 384 articles. This, of course, has been greatly increased since.

As was stated previously, the work of Murphy and Lemke did little to arouse interest in this country, and, no doubt due to the untimely death of Lemke, little was done in the Murphy clinic afterward. It remained for Mary Lapham, together with Hamman and Sloan, Robinson and Floyd, to give the American profession the necessary stimulus for this work. Lapham's article, as well as the one by Hamman and Sloan, was published in 1912, having been read before the eighth annual meeting of the National Tuberculosis Association in Washington, May, 1912. The article by Robinson and Floyd was published in April, 1912, in *Archives of Internal Medicine*. Previous to this Rothschild, of San Francisco (1911), reported the compression for pulmonary hemorrhage in eighteen cases. The publication of this work by Lapham and Hamman and Sloan spread like a prairie fire and in a short space of time practically every American physician doing tuberculosis work and connected with an institution was beginning his education in compression therapy, since much was to be learned before artificial pneumothorax, as a treatment for tuberculosis, was to be placed upon a sound footing and made to take its place at the head of measures of known value in the treatment of this disease.

GENERAL CONSIDERATIONS.

It shall be my intention in this chapter to consider the question in a general way and in subsequent chapters take up the more important issues and discuss them at greater length.

When one reflects on the progress of medicine in its relation to the treatment of chronic disease, one cannot but feel that the profession has few, if any, valuable adjuncts aside from the usual routine. It is the old story of the doctor aiding nature, and many times nature would have accomplished far more had she been given full sway, and the guiding hand of medicine placed upon the shelf with other relics of the forgotten past.

However, one must give due credit to the horde of research workers who are adding, from time to time, much of value from the standpoint of preventive medicine. That really must be looked to as the one beacon light in medicine of the future. No matter how enthusiastic we may be as medical men, the real tangible results—the cures that speak for themselves—are those attained by surgical means. If one doubt the fairness of this assertion, one need but enumerate the known specifics, and less than the fingers of one hand will be

found necessary upon which to make such enumeration.

In tuberculosis the world has been startled again and again by the announcement of so-called cures, and in each instance the hopeful consumptive has had his dreams shattered, and the host of physicians who heralded the new cure were obliged to acknowledge to long suffering humanity the fallacy of the treatment. Yet the psychology of the human mind is most fearful and wonderful. Given sufficient newspaper notoriety and a clever advertising manager, a million more such cures could be put over a gullible public for aeons to come.

This element of quackery is not the only shatterer of hopes. Too many scientific and perfectly honest men rush into print with some new treatment before sufficient time has elapsed and before a sufficient number of patients have been treated, upon which the physician can base his conclusions and arrive at any semblance of an opinion that can be considered of value.

Tuberculin, after Koch's announcement, was heralded by thousands of physicians as a cure for tuberculosis, although Koch, himself, did not make any such extravagant claims. He felt that he had found something worth while, and that with careful use it might be made to produce results that would prove of value in overcoming tuberculosis. Any one who lived through those times will remember how widely and how illadvisedly it was taken up. Men who had no conception of its use or application, men who did not know a normal from a pathological lung, attempted the cure of patients by this means. The result was that tuberculin fell into disrepute and for a long while only a few patient workers kept the fires burning. Such men as Doctor Trudeau found out by care and study its limitations and were great believers in its potency. I have used it for ten years and feel that in the final analysis it will mean little as a curative agent. To use an Irish bull—the more I use it, the less I use it.

The same can be said of various other measures, both from the standpoint of serums and chemicals. Nothing, as yet, has been discovered which can be considered even as of great value.

These factors are touched upon in the treatment of tuberculosis merely to show the utter helplessness of the profession, and to show also a reason for my belief in the one treatment that has given us tangible results. Medicine is at best a matter of common sense and the physician who exercises this to the utmost is the man who gives to his patient all that is good within him.

In the treatment of acute disease, a kind Providence, aided by a careful doctor, finds at the end of a reasonable period that his patient is restored to health, or, if the fates are not so kind, he is at least allowed to depart for worlds unknown in peace, without having had all the so-called cures of a commercial or overscientific profession poured into his defenseless body.

In giving a prognosis to a tuberculous individual my opinion may be considered heartless. But for my part I want a result that will let me be of some economic value or, on the other hand, end the suspense as soon as possible. To restore a person to

a life of invalidism for a few years is not curing tuberculosis, and this is what is being done in countless cases. We either want economic results or we want as sudden a termination of life as possible. Halfway measures are only makeshifts and put undue hardships on relatives and friends, not to mention the individual himself.

Artificial pneumothorax offers to the suitable patient a means to an end—the end sought being a restoration, in the shortest possible time, to a workable basis. Here in the Southwest, more so probably than anywhere else in this country, one encounters hosts of consumptives who have spent their all in chasing a will o' the wisp in a vain endeavor to restore lost health. To this class of patients, pneumothorax offers a way out, providing they have left, as an inheritance of their past, a reasonably good remaining lung. There are many patients who come under this classification who are living now and enjoying a good degree of health, and who are perfectly able to make their own livelihood. There are those under my care who are practising law, driving taxies, and following many lines of endeavor, made possible only by this operative means. This is said advisedly, for most of them had been under observation for many months, sometimes years, and were at the time of operative interference considered hopeless cases.

Then there is a class of patients who have been under routine treatment for some time and apparently get neither better nor worse—remaining at a standstill. Probably left to themselves these same people might eventually attain a satisfactory result, but, on the other hand, they usually spell failure. This type, as a rule, can be treated most successfully.

High fever cases, showing a rapid or acute type of infection, should have but little time given them before a compression is attempted. If one waits too long the general resistance is at too low an ebb to hope for satisfactory results.

The question of early tuberculosis and pneumothorax treatment is one that has had little consideration. This is no doubt due to the fact that most of us believe that early tuberculosis will get well, in the majority of cases, when left to itself, a position which seems rightly taken. For my part I have never compressed a lung with an incipient lesion except in one case, and this patient turned out a failure. He consulted me when he first arrived in Albuquerque, and said frankly that he could remain idle but one month. His pulmonary condition showed only an infiltration of the left apex with numerous subcrepitant râles; remainder of the lung in excellent condition; temperature to 100° maximum. Pneumothorax was advised because of his financial status and he was perfectly willing to undergo the compression. There was a perfectly free pleural space and the compression was easily attained. At the end of a month he was working. The fillings were kept up for eight months when fluid formed with an exceedingly high fever, reaching 104° F. This fever continued for six weeks, the fluid level never getting high enough to produce pressure symptoms and for that reason never withdrawn. At the end of three more months the fluid became pus, but on culture proved to be sterile.

This was aspirated and later the temperature came to normal. Compression was kept up, all in all, eighteen months, but owing to the formation of adhesions after the fluid so little air could be injected that the fillings were given up. The man was indifferently well another two years but could do little work, never having regained his strength following the pyothorax. He became despondent and committed suicide in the county ward. All things considered, the case was classified as one of my failures. And never have I attempted compression in an early type case since. Whether or not he could have worked regardless of his condition on arrival, must be an open question.

Having but one early case to my credit, advice cannot be given from experience, but speaking from the standpoint of theory, if compression is a rational method in unfavorable or advanced tuberculosis, why should it not be rational in the early types? I believe that in the years to come we shall see the compression begun at the earliest possible date, rather than waiting for a hopeless prognosis as an indication for operative interference.

For a long time it has been my belief that it is unwise to do what might be termed a symptomatic compression in a hopeless consumptive. By symptomatic compression is meant just enough to obtain a lessening of symptoms in order that the patient may die more comfortably. We know, of course, when treatment is begun that the ultimate result spells failure. The patient may know this also, but not the countless multitude who are looking for a chance to decry any method no matter what may be its merits. The patient is bettered for a time and then is slowly progressive, death finally resulting. Attempts like this in too many instances merely deter a good gas risk from taking the treatment and has really accomplished nothing for the hopeless individual. In the beginning of my work many such cases were compressed, but for the past two years, and over, no such attempt is made unless there is reasonable assurance of some chance for the patient's ultimate usefulness. In other words, all treatment in tuberculosis is looked upon in terms of what it offers in the way of restoring the economic value of the individual. The restoration to a life of semiinvalidism is not a kindness but rather a curse, both to the individual and to society at large.

To this very fact—failure in such cases—is attributed the rather slow adoption of the method by the general profession. Here let me digress long enough to make myself perfectly clear. Compression is not advocated unless done by men trained in the treatment of tuberculosis, or trained in chest work in general, for there is far more than the operative technic in successfully compressing a lung. As a matter of fact, any tyro can inject air into a pleural space, but experience and judgment alone can tell you when to do this, and how, after having begun a compression, to follow it to a successful conclusion. On the other hand, considering the large number of sanatoria now using the method, any one interested can readily avail himself of the opportunity given to learn the essential factors in becoming a successful operator.

As one looks back over the years of work one cannot but shudder at the chances taken both in the

selection of cases and the amount of gas injected at one sitting. The pioneers in the work, especially Murphy, were in the habit of compressing the lung as rapidly as possible. And Doctor Lapham at first advocated the injection of much greater amounts that experience later taught her were not only unnecessary but, on the other hand, extremely dangerous. The only possible excuse for the injection of over 400 c. c. as an initial dose is in the treatment of hemorrhage when, of course, large amounts are necessary to insure a rapid compression and a sufficient pressure on the bleeding part to stop the flow of blood.

I remember a patient, one of my first cases, who was an excellent gas risk. The pulmonary condition was one of unilateral tuberculosis—very active—the patient running high fever, and having been under observation long enough to convince one of the hopelessness in her case unless some radical treatment were instituted. Pneumothorax was advised and begun by the injection of 800 c. c. This produced little discomfort and the filling was continued. Symptomatically the results were wonderful, as they are in so many cases. At this time Doctor Lapham was called in consultation on another patient and she very kindly went over all my compression cases. Her criticism was that not sufficient gas was being given and that in most cases the lungs were not sufficiently compressed. Acting on her suggestion, larger amounts were injected in all cases. Not having at that time the advantage of an x ray to check up findings, it is now apparent that infinite harm was done many patients. In the case in question the diaphragm was shoved down, and, being a right lung, the liver was pressed down with it. Pressure on the return circulation resulted in edema of the extremities, and, to make a long story short, uremic symptoms developed which proved fatal. There was no relief experienced from letting out the gas and surgical consultation failed to offer any suggestions as to a line of treatment that might prove beneficial.

During this time many cases were noted in which the mediastinum was pushed over and a partial compression of the opposite side established. One can imagine the discomfort to the patient from such an awkward occurrence. Many times, too, in this early work, high fever resulted from too high pressure. Toxic substances were squeezed into the lymphatics and the resulting toxemia was a very distressing symptom.

I now know that unless there is a large amount of fibrosis present a pressure maintained at neutral will compress a lung and give perfect results. Only in a very small number do I find it necessary to give a positive pressure, and then never to exceed a +4. Those needing a pressure of this nature are, as mentioned before, the cases that show a large amount of fibrosis. A positive reading must here be maintained in order to bring as much pressure as possible to bear on the scar area. Otherwise little good can be expected to result.

It is interesting to note in the more recent literature of this subject that practically all men in this line of work are agreed that too high pressure and too large amounts of gas at one filling are without question contraindicated.

Another point that is of great importance and one that spells success or failure more often than any other feature, is, with the compression once established, the necessity of keeping it complete. Forlanini recognized this in his early work. He even went further and stated that unless such compression were complete the disease tended to spread more rapidly in the compressed lung due, no doubt, to the increased irritation and the carrying of the products of inflammation into the normal alveoli by means of the lymphatic and blood stream. It is for this reason that when a compression is begun the fillings are given three times a week until I have the lung well tied up and then the intervals are never further apart than two weeks for nearly the first year. In but few cases have I been able to let the intervals go longer than a month.

Let me give as an illustration a patient referred to me from Asheville, N. C., who had been under the care of Doctor Ringer for a long period of time. Doctor Ringer stated in his letter that he had never been able to find but little evidence of trouble in this man's chest. He had apparently been able to attempt work at various times, but always without success. As Ringer had stated, the physical examination showed a very minor lesion and nothing further developed until he had been under observation about seven months. In the meantime, whenever he attempted exercise, immediately the temperature would rise. At the end of the time mentioned he had rather a severe reaction and for the first time was noted a very active hilus on the right side, posterior. The trouble spread rapidly and a compression was advised. The patient, by this time, was ready to have anything done that would offer reasonable chances for recovery. No trouble was experienced as far as the pneumothorax was concerned, the lung tying up with ease. Great inconvenience was experienced, however, on account of his general symptoms. Almost invariably after a filling his fever would run up, reaching many times 102°-103° F. There was no apparent cause for this, and no apparent harm resulted. The fillings were kept up. Trouble of this nature was experienced for nearly the first year, the man beginning work at the end of seven or eight months. After the fever attacks subsided, I could keep him in excellent condition, unless I let the interval between fillings go too long. If this occurred, the fever would return. Experience in this case taught me that it was absolutely necessary to give this patient gas weekly, and now, at the end of two years and a half of treatment, I still give his fillings every seven days. The explanation of fever probably lies in the fact that even in the beginning I had not a complete immobilization. This same patient continues his work, from which he had been barred by disease for nearly three years previous to the pneumothorax treatment, and enjoys a fair degree of health. In fact, this method and this alone made it possible for him to earn a living, and, as he himself puts it, "I shall keep up gas the rest of my life, since I know I can live and care for my family by this means."

Another case is recalled that recently came under observation, referred by another physician of my

acquaintance who is rather enthusiastic about the gas treatment. This patient had been under his care for fourteen months, having had his pneumothorax this length of time. In relating to me his past experience with this treatment, he stated that after every filling his temperature went to 101° F. This in one or two days dropped to normal and he was well again until the next filling. The interval, he stated, was four or five weeks. He was told that I believed his fillings were too far apart and that too much pressure was given at one sitting. This proved to be the case, since after the first injection or on three subsequent fillings he has had no fever. The interval has not been shortened, owing to the length of time he has been under treatment, but the pressure has been decreased materially. It may be necessary in this case to shorten the interval also, in order to keep the lung fully compressed. But that cannot be told until after having the man under observation a sufficient length of time.

There seems to be little doubt in the minds of the more experienced workers that complete immobilization is a necessity if cure of the tuberculous process is to be obtained. Some writers advocate a so-called symptomatic compression, but these are in the minority, and, from my own observations, there is nothing to justify the method. Things worth doing are worth doing well and, especially in tuberculosis, halfway measures are to be relegated to the scrap heap. Improvement of symptoms only are to be noted by such measures, but not the cure of the disease. Here, again, the argument resolves itself into one of common sense. Given a finger joint with a large open crack, and one's advice would be to immobilize such joint rather than to keep bending it with the hope of cure. The same can be applied to a diseased lung. Put it at complete rest and nature may or may not heal the wound, but merely goading the inflamed area by a partial compression can do nothing but spread rather than limit the infection. In a partial compression the action of the pus forming organisms is not stopped and respiratory movements are bound to occur. The whole framework upon which the theory of lung compression is based falls to earth, if partial compression is of value.

GENERAL CONSIDERATIONS.

In the foregoing chapter the possible effect on the individual in general, and upon the lungs in particular, has not been discussed. This phase seemed to warrant a separate consideration.

In dealing with any new treatment for chronic disease, one must not overlook the great value of mental suggestion. Nor is it necessary to confine this to the treatment of chronic disease alone. What is true of this is equally true of acute troubles, only in the latter the patient is either wholly recovered in a comparatively short space of time, or he has passed to the great beyond, where suggestion or any other treatment is supposedly a totally unnecessary adjunct to the enjoyment of life eternal.

There is no doubt that the average physician is woefully lacking in his appreciation of the value of mental medicine. True, whether he be a scoffer or

not, he unconsciously practises the art that has made famous all the faith cures from the early miracles of bible times, or the divine touch of kings, down to the present day Christian science, Emanuel movement, Dowieism, and what not. I say unconsciously practise this art, for the average member of the medical profession would feel that he had degraded himself, and reached the level of the quack and charlatan, if he even admitted the possibility of help from this source. But that help does come from suggestion cannot be denied, and the very fact that a physician can say to a patient, "I have something that offers tangible results in a certain proportion of cases" immediately implants in that individual's mind the hope of cure. And this same hope of cure, to me, is worth more than all the pills and potions of the pharmacopeia. It not only gives the patient hope, but the physician feels that he is really offering something that will prove of benefit.

Heaven forbid that I become a pessimist, but one cannot make a specialty of treating tuberculosis for many years without seeing the naked truth staring one in the face, and realizing the inability of the physician and his medicine chest to be productive of great good. Some one has said that doctors would die of starvation if the patients had as little faith in them as they have in themselves. Personally, I do not agree with such a bold statement of fact, but it may well give us pause to consider.

Let me not be misunderstood, for I know that humanity has been given greater length of life and the privilege to enjoy that life to a greater degree by means of the existence of the medical profession. However, let me cite a case as illustration of this suggestion. This patient had been in the sanatorium one year, under the usual routine of institutional life. At the end of that period she left and her condition could not be said to be materially changed. Her pulmonary status showed a very large involvement of the left lung, with some fibrosis of the right upper lung. Two years afterward she returned much better in every way. She stated that up to about nine months before she had done poorly, having hemorrhages and running a low grade fever. Pneumothorax was accomplished by her physician with excellent results. She wanted to continue the treatment. The doctor to whom she was referred tried to introduce gas but was unsuccessful. A hemorrhage occurred on the table. X rays of the chest showed there never had been any compression and that there was none present. The same patient later consulted me and the findings were verified. The fluoroscope failed to show that she had any compression whatsoever. What had happened was the introduction of air into the lung which passed through the mouth. The psychological effect, however, was wonderful. The patient was, without question, better than at any time since she was known to me, and all due to the fact that she thought she was getting a treatment that offered hopes of cure.

To go back, after this short digression, to the patient and we find that he has a renewed determination to attain a cure. Fifty per cent. of his chances of getting well are an accomplished fact by

virtue of this new determination. To aid him in this, we have at the very beginning of treatment a decrease in all symptoms. One does not need to use their imagination to see cough lessen, sputum decrease, and fever fall by leaps and bounds. It all happens, and as a result of the lessened toxemia the average patient at once begins to feel better, eat better, and the general metabolism is wonderfully benefited. The lessened toxemia alone gives the opposite lung (if the patient be a bilateral case) an opportunity to heal. It has been my experience to find many opposite lungs made better, rather than worse, by the compression. Forlanini goes even further and states that the increased mobility of the untreated lung may exert upon it a favorable prophylactic or even a curative influence. Whatever effect the compression may have, one need have little fear of lighting up an active process in the untreated lung. The reverse is more often true, provided one has been reasonably careful in the selection of cases. It is true that many times one may be mistaken as to the amount of trouble in the opposite side, as the following case will illustrate. This patient had "chased" a cure in Saranac Lake for some time and, getting no results, decided to try the Southwest. He was placed in the Methodist Sanatorium, inasmuch as there was little advantage in having him under constant observation. This afterward proved to be a mistake, for had he been admitted to the institution with which I was connected the radiograph would have shown my error. The right lung was completely involved with a general fibrosis of the upper lobe and an active infiltration of the middle and lower. Over the left could be heard scattered râles, although the breathing was not even impaired. His fever ran a daily maximum of 100°, sometimes going to 102°. For seven months he was watched in the hopes that he would clear up the left side sufficiently to permit compression of the right. At last he was moved to St. Joseph Sanatorium, where the radiograph showed a perfect lung on the left. I at once produced a compression and was surprised to find all the râles on the left had disappeared. This was a case in which the râles were probably transmitted, although I never could satisfy myself that this was actually the fact. Besides showing the possibility of transmitted sounds, it also showed the undoubted value of a radiograph in connection with one's physical examinations.

The effect of compression on the ultimate outcome of the disease varies with the degree obtained. No one can tell before compression is attempted whether adhesions exist or not, and even the x ray is of little value in such determination. The one and only way is to try. Percussion, Litten's phenomenon, auscultation, and what not give no positive proof. I have seen chests which seemed filled with adhesions give me excellent compression results, and, on the other hand, I have seen those I thought would literally fall in, be tied down from apex to base.

Many times adhesions of recent origin can be loosened by gentle pressure, but care must be taken lest one produce a rent in the pulmonary tissues with a resulting natural pneumothorax. Again, adhesions of long standing, if so situated that they

give one a relatively free pleural space for first injection, may be stretched to give one a fair compression. The best compression I ever obtained was in a woman whose lung was adherent at the diaphragm. This adhesion pulled out in a long band and looked not unlike a ribbon, reaching from the hilus to the base after compression was complete. The lung was compressed in a kidney shaped mass at the hilus. As a rule the lung lies along the spinal column in a more or less elongated mass. The theoretical compression around the hilus is seldom obtained. There are many cases in which one gets an anteroposterior flattening which seems to exert as good an influence on symptoms, at least, as the more massed compressions.

From postmortem work collected from the literature, one has an opportunity to note the changes which occur after compression has been established sufficient time for reparative process to take place. After a few months, in the fibroid type, there are marked fibrous changes, more noticeable in the parts subject to the greatest degree of compression, around the periphery, the bloodvessels, and the bronchi. Pneumonic areas as well as old caseating foci become encapsulated. One finds but few bacilli in the lesions. As a rule the pleura is much thickened. This one can note after repeated fillings, some pleuras becoming so thickened that it is hard to force the needle through them. In the more acute forms of the disease, such as the pneumonic type, much less attempt at fibrosis is noted. The normal alveoli are not obliterated but there is a change in the character of the epithelium. No fresh tubercles are found in the bronchial glands.

Experiments have been made as to the effect on the circulation. Bruns has shown that it is much diminished and that there is a stasis of poorly aerated venous blood with resulting sluggish lymph stream, which, of course, favors the formation of connective tissue. The absorption of toxic material is also reduced.

As to the opposite side it shows no such fibrosis as does the compressed lung. Owing to the increased amount of work, it becomes enlarged, elongated, and emphysematous. This is clearly seen in the fluoroscope or on the x ray negative. There is a marked hypertrophy of the right heart because of the diminished vascular area and the loss of the pump action of the lung.

After the fillings are discontinued, reexpansion of the lung may take place, and this is the rule if the condition was one in which the fibrosis was not marked. I have patients, discharged for over four years, in whom it is difficult to tell which lung was compressed. On the other hand, if there is much fibrosis or cavity formation, the lung usually remains in a fibroid mass, and the thorax contracts leaving the patient with a slight deformity. This, of course, is not noticeable and is a negligible factor when gas is indicated.

To sum up, it can be generally stated that the good effects of pneumothorax treatment are far in excess of the bad effects, and that, given a suitable case, time should not be wasted in effecting a compression.

(To be continued.)

RESISTANCE TO DISEASE

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Living bodies are distinguished from all other bodies by their powers of performing functions. That is true of all living things from the unicellular protista up to the largest combinations of cells in the whale and the sequoia. The object here is to consider how these powers are increased or diminished, and the relationship of such powers to health and disease. To get the facts into a shape in which they can be fully apprehended, it is necessary to go out of the beaten track and consider some things which are apparently remote.

When a man winds a clock he stores energy in the spring of the clock. The energy so stored is the energy known in mechanics, and comes under the laws of thermodynamics. But that identical energy came out of the muscles of the man, and it is certain that it was subject to those laws while it was in those muscles, and on its way to and from those muscles. By other examples of a similar nature it may be shown that the energy which gives living bodies their powers of performing functions is nothing else than some special form of mechanical energy. The intention here is simply to mention this relationship and pass on to other matters, but in passing it may be noted that it was a physician (Meyer) who first pointed out the nature of mechanical energy, and it is a mechanic who is now bringing that energy back to the physician.

If a man takes physical exercise he develops his physical powers, but if he follows a sedentary life his physical powers decline. While these facts are generally known and indisputable, they are not in the form demanded by scientific precision. But what we do not have in man we have in the trotting horse. With those animals we have trainers using a regular schedule of exercise each day for months and years in succession, and we have the mile track and stop watch by which we make scientific measurements of the amount of development coming from such exercise. Tables made from the official records show that trotting power continues to increase as long as intensive training continues up to at least seventeen years of age. There is abundant evidence that it continues to increase to a still higher age, but that evidence does not have the same force of scientific exactness.

The production of milk by a female is a function which requires energy. With the cow we use scales to weigh the amount of milk produced in a day, week, month, or year, and such weighing is an accurate scientific measurement of the cow's milk producing power. From official tests made on thousands of cows and extending over many years, it is found that as long as a cow is regularly bred and regularly milked, her milk producing power will continue to increase up to at least twelve years of age. As this is near the end of life for the cow we need not worry because the available official records do not extend to a higher age.

We cannot make corresponding tables for the development of mental power in man, but there are certain facts known to every one. It requires men-

tal power to carry anything in one's memory, and it requires more power to carry two things than to carry one. From childhood to old age we are continually learning things, some of which carry in our memory and some of which we forget because of limitations of our mental powers. What we remember is one measure of our mental power. Now it happens that a man of thirty can carry more in his memory than he could at twenty. At forty he can and does carry still more; at fifty yet more; and so on up to the breaking point which is different for different persons.

Let us go back to the horse. High speed at the trot is an artificial gait which had no existence in any breed of horses until forced there by the art of man during the nineteenth century. The natural high speed gait for the horse is the run, and the manner in which high speed at the trot was developed is not only a lesson in the evolution and degeneration of powers, but a lesson in the inheritance of changes artificially produced.

The records show that trotting races were common during the entire nineteenth century. Until very recently, whenever a horse in a trotting race was pushed to extreme efforts he would break into a run to relieve the strain upon his trotting muscles. As a trotting race can be won only at a trotting gait, the horse who broke into a run would be instantly pulled up and started over at the trot. As a result, trotting horses were continually used at the trot and not at all at the run, and this continued generation after generation. Continued exercise at the trot develops the powers of the trotting muscles as is clearly shown by trotting records. Continual failure to exercise running muscles causes a decline in the power of the muscles used in running. Now, after a good many generations of exercise of trotting muscles and idleness of running muscles, we have horses whose natural high speed gait is the trot and not the run. They are "natural born trotters" because it is easier for them to trot than it is for them to run, and in races they will stick to the trot no matter how hard they are forced. The idea that selection had anything to do with this change is all gammon and will not stand rigid scientific investigation.

Our cultivated plants have developed powers of producing things which are of more advantage to man than were the things produced by their wild ancestors. In this process of cultivation we have kept down weeds so that the cultivated plants would have elbow room in which to grow. Because the weeds have been kept down to something much less than exists in nature, it has not been necessary for these cultivated plants to fight for room in which to grow. Not having exerted themselves for many generations in fighting for room, they have lost the power to fight, and are not able to maintain themselves when deserted by man.

No element of selection comes into this matter. It is of no advantage to the plant or to man to have these cultivated plants lose their power of fighting for room against weeds. They lost their powers little by little because of failure to exercise them, the same as a sedentary man loses his physical strength, and an idle trotter loses his trotting power.

When man first undertakes to reproduce by cuttings plants which before were reproduced solely by seed, he frequently finds it difficult to make these cuttings grow. But when he takes a cutting from a plant grown from a cutting, and then another cutting from that, and so on for many "generations," he finds that by doing the same thing over and over these plants develop the power of growing that way and become easy to reproduce by cuttings.

There is no element of selection in this. By continually exercising the powers which it had the plant has enormously developed those powers. But mark the counter process going on at the same time. A plant continually reproduced by cuttings is not reproduced by seed, and when a plant is not reproduced by seed it is not exercising its seed producing powers. When plants are continually reproduced by cuttings they gradually lose the power of producing seeds, and they lose that power by reason of failure to exercise it.

The flagellata are unicellular animals which reproduce by fission. "Generations" of them are like generations of plants reproduced by cuttings. Dallinger subjected these animals to increasing degrees of heat in experiments extending over several years of time. Beginning at 60° F., and gradually raising the temperature, he found them dying at 73°. But by holding the temperature just below this point for several months and then gradually increasing it, he managed, by the end of a year, to get them to withstand 78°. From this point on progress was more rapid, and he finally got the temperature up to 158°, when the experiment was ended by accident.

Here is a clear case of these little animals (protozoa) gradually developing their powers of resisting the action of heat upon their protoplasmic substance by continually exerting the powers they had. There is no selection here. The term "acclimated" applied to this process is not a good one because it does not represent what really happens. The flagellata succeeded in meeting these changes in temperature by their own individual efforts, and that is true of every case in which a living body accommodates itself to conditions it must meet.

The "dope fiend" will take a quantity of poison large enough to kill several men who are not accustomed to taking it. The man who survives the taking of such large doses of poison does not do so because he was born with greater powers of resistance to that drug than other men. He does so because he began with small doses and then gradually built up his powers of resistance by continually exercising them. Saying that the man's system became "tolerant" to the drug does not represent the situation, because that would imply that the drug remains in the system. Some does for a time, but what really happens is that the system throws off the poison through the excretory organs.

If we should state things in terms of what we know instead of terms of actuality we would say that a continually increasing number of diseases are due to bacteria and other parasites. As what I have to say is independent of whether the pathological germs are of vegetable or animal origin, I will proceed as if all diseases were due to bacteria.

"It has been experimentally shown that fatigue, starvation, exposure to cold, etc., lower the general resisting powers and increase the susceptibility to bacterial infection." *Encyclopedia Britannica*.

Fatigue is due to partial exhaustion of that kind of bodily energy which enables a man to wind a clock spring, and that energy is the common energy of mechanics. Starvation is a process of shutting off the heat units which supply the body with energy, and heat units are a form of common mechanical energy. Exposure to cold is reducing the heat units of the body by radiation, and hence is simply another way of removing mechanical energy from the body. The entire quotation is to the effect that it has been experimentally demonstrated that any process which acts to remove energy from the body decreases the powers of resistance to bacterial attacks. It means that common mechanical energy in the body fights common mechanical energy in the bacteria, and that the result of the fight is determined by which side has the greater quantity of this energy. And this fight is a real fight and not a metaphorical one.

For man to be healthy, it is up to him to see that his supply of this energy exceeds that of any bacteria likely to attack him. To bring about and maintain this condition it is necessary to consider both the means by which energy is built up or increased in the living body, and how it is caused to decline. From the facts cited I have shown that the powers in living bodies are built up by exercising them, and that they are not built up in any other way. Also, that these powers decline by failure to exercise them, and that they do not decline under any other conditions. And further, these powers are nothing else than special forms of the energy we know so well in mechanics. The last step in identifying the powers of living bodies with mechanical energy is found in the fact that the increase of these powers by exercise and their decrease by idleness are in exact accordance with the laws of thermodynamics.

About 1880 Pasteur discovered that the anthrax bacillus cultivated in chicken broth at blood temperature lost its virulence after a few generations and ceased to kill even the mouse. Since then it has been learned that the virulence of many organisms became diminished when they are grown on artificial media. Let us consider what these facts mean.

When bacteria in small numbers get into the blood they are rapidly killed off. As far as we are at present concerned we need not stop to inquire whether this is by phagocytosis, chemiotaxis, or other means, or several means combined. The point here is that animal powers of some kind attack the bacteria, and for these bacteria to withstand these powers and make headway against them, the bacterial powers must be developed by exercise.

Now, when bacteria are raised on some nonliving substance, as chicken broth, they do not have to struggle for existence against a blood reaction and consequently they gradually lose the power of meeting such reaction. A stalled bacterium may be as fat as any other, but he does not develop individual power any more than does a stalled steer.

"Increase of virulence becomes marked when the

organism (bacterium) is inoculated from animal to animal in series." This is simply a case of causing the bacterium to develop its powers by causing it to exercise those powers over and over again. When pathological bacteria gain entrance to the body, a battle to the death is on. This battle begins as a skirmish, partly because the bacteria at first are not in great numbers, and partly because the animal's powers have not been developed to meet this particular kind of attack. But as the bacteria multiply, and as the animal's powers of resistance increase, the battle rages more fiercely until one side or the other succumbs and the story ends. At the beginning of such a battle, the bacteria make headway because they meet only feeble resistance, but they develop their own powers by overcoming such resistance as they do meet. If we take some of these bacteria away before they are overcome by the increasing resistance of the animal, and inoculate them into another animal of the same kind, we give them a temporary rest and a new opportunity to develop their powers by exercise in overcoming the resistance in a new animal. If we again interrupt the proceeding by removing some of the bacteria and planting them in a third animal, we put them through a third stage of training to develop their powers. After that has been done several times there is a "marked increase of virulence."

"Sometimes the virulence of a bacterium for a particular kind of animal becomes lessened by passing them through the body of another species." This corresponds to the process by which we produced natural trotters from natural runners. Also, to those cultivated plants which produce the things we want, but have lost the power to fight weeds. When a bacterium is removed from the body of an animal of one species to that of another species, it is forced to exercise and develop the powers necessary to meet a new kind of blood reaction. But by being removed from the first animal it no longer has to exercise its powers in meeting that kind of blood reaction, and those particular powers decline for the want of exercise. When the bacterium is later returned to an animal of the first species, its virulence is "lessened."

"Animals inoculated with attenuated bacilli proved curiously resistant to nonattenuated forms." The reader should be able to see the significance of this from what has preceded. The animal can and does overcome the weakened form, but before that job is completed he has to overcome large numbers of them. In that work the animal developed his powers of fighting this particular kind of parasite. When the "nonattenuated" form later puts in an appearance, it comes in relatively small numbers, and before the numbers can become great, the developed powers of the animal have overcome and destroyed the small numbers.

Solitary Kidney with Unusual Anomaly of the Ureters.—Rathbun (*Urological and Cutaneous Review*, February, 1919) reports a unique case. There was complete absence of the left kidney, but a large tortuous left ureter which bifurcated at the sacral promontory whence the two branches crossed over and led to the right kidney.

(Permission to publish given by the Surgeon General, U. S. Army.)

A COMPARISON OF THE BACTERIOLOGY OF PNEUMONIA, ANTEMORTEM AND POSTMORTEM.

Based on a Study of the Recent Epidemic at Camp Wadsworth, S. C.

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The recent epidemic at Camp Wadsworth, S. C., presented little out of the ordinary when compared with the epidemics occurring at other camps. Yet some of the bacteriological findings bring out clearly some points that have not been emphasized up to the present time. This paper is confined entirely to the bacteriological results obtained postmortem from 124 cases and antemortem from the sputum in sixty of these cases. These results seem to us to be the most important of the large mass of material at hand for several reasons; the results antemortem were checked by findings postmortem so that it was possible to determine the infective agent in the lung itself; furthermore it was possible to determine the real value of the present methods of "typing" pneumonia from the sputum.

The technic in determining the predominating organism at autopsy and from the sputum was the same, so that the results are comparable. The typing was done by the Avery method and by the inoculation of mice, but as the findings were in accord with each other by both methods no differentiation is made in this paper. The material from autopsy and in the sputum was grown on blood agar plates in order to determine the presence or absence of *Streptococcus hemolyticus*. In the case of sputum, inoculations were made directly from the sputum and from the Avery tube after incubation in order to confirm the results.

In the following table 124 cases that came to autopsy and from which cultures were obtained are analyzed as to their bacteriological findings; of these, sixty cases were typed antemortem; Tables II, III, and IV show the results in these cases.

TABLE I.
BACTERIOLOGICAL FINDINGS.

	Heart and Lungs.	Lungs Only.	Heart Only.	Per Cent.	Sputum.	Per Cent.
<i>Streptococcus hemolyticus</i> . . .	43	14	3	48.3	15	25
<i>Nonhemolytic streptococcus</i> . .	8	6	0	11.3	4	6.6
<i>Bacillus influenzae</i> (Pfeiffer) 0	12	0	0	9.7	2	3.3
<i>Pneumococcus</i> , Type I	1	0	0	0.8	2	3.3
<i>Pneumococcus</i> , Type II	2	1	1	3.2	2	3.3
<i>Pneumococcus</i> , Type III	1	0	0	0.8	2	3.3
<i>Pneumococcus</i> , Type III	13	2	0	12.1	5	8.3
<i>Pneumococcus</i> , Type IV	11	6	0	12.9	28	46.6

Table I shows a strikingly large number of cases in which *Streptococcus hemolyticus* was the predominating organism, and relatively a large number of cases in which it was the predominating organism antemortem. The discussion of the cases in which *Bacillus influenzae* (Pfeiffer) was isolated will be found in the discussion of Tables II, III, IV.

The relatively large number of Type III pneumo-

cocci recovered at autopsy coupled with the relatively small number found antemortem can be accounted for by the fact that a large number of specimens of sputum were poor when submitted for examination. The numbers of Type III pneumonias, confirmed by autopsy, is practically the same as the numbers of Type IV.

It has been assumed heretofore that only Type IV organisms are found in normal mouths unless the carrier has been in close contact with a case of pneumonia due to the type which he harbors. A search was accordingly made for healthy carriers of Type III pneumococci in an attempt to explain the cases found. Among 600 men examined two per cent. were found to harbor this type. These men gave no history of their association with pneumonia and were possibly the source of the cases entering the hospital.

TABLE II.

BACTERIOLOGICAL FINDINGS WHICH AGREED AT AUTOPSY AND ANTEMORTEM.

Total 27 cases.	Cases.	Per cent.
<i>Streptococcus hemolyticus</i>	10	37
<i>Nonhemolytic streptococcus</i>	1	3.7
<i>Bacillus influenza</i> (Pfeiffer)	1	3.7
<i>Pneumococcus</i> , Type I	1	3.7
<i>Pneumococcus</i> , Type II	1	3.7
<i>Pneumococcus</i> , Type IIa	0	....
<i>Pneumococcus</i> , Type III	4	14.8
<i>Pneumococcus</i> , Type IV	9	33.3

The cases which showed *Streptococcus hemolyticus* both antemortem and postmortem occurred early in the epidemic, when there were a large number of healthy carriers of this organism in the camp and most of the admissions to the hospital showed a predominance of this organism in the throat cultures. It can be considered, in these cases at least, as the cause of the infection and death. The large number of cases where this organism was isolated postmortem when it was not found antemortem shows its importance as a secondary infecting agent. See Table IV.

In the single case where a nonhemolytic streptococcus was found the organism was recovered from the sputum on the day of death, and may justly be considered as a terminal infection. The sputum was not "typed" previously, so that it is impossible to say whether or not this organism was the original infective agent. Pathologically the type of pneumonia did not differ from that found in the cases from which *Streptococcus hemolyticus* was isolated. The case from which *Bacillus influenza* was isolated was the only case which we saw during the epidemic in which this organism might possibly be considered as the etiological factor.

Bacillus influenza was isolated both from the sputum and at autopsy in eleven other cases, but only in connection with other organisms which were more virulent and which could account for the pathological changes found at autopsy; it is certainly unsafe to attribute to it an etiological relationship in preference to the other organisms found. The small number of cases from which pneumococcus Types I, II, and IIa were isolated either antemortem or postmortem suggests that these were sporadic cases and played no part in the epidemic itself.

Of the twenty-eight cases of Type IV pneumococcus found in the sputum antemortem only nine were confirmed by the autopsy findings. This would suggest that a large number of Type IV pneumonias

are not true pneumonias, but that this organism is found as the predominating one in poor specimens being submitted to the laboratory for examination. This belief is further brought out by the fact that a number of cases gave pneumococci of different types at autopsy, and invariably within a short time after the sputum was "typed"; see Table IV. It is our belief that a diagnosis of Type IV pneumonia from the sputum is valueless unless implicit faith can be placed in the technic of the collection of the specimens or unless the diagnosis is confirmed by autopsy.

TABLE III

SUMMARY OF CASES IN WHICH AUTOPSY AND SPUTUM DISAGREED.

	Sputum.	Autopsy.
<i>Hemolytic streptococcus</i>	4	14
<i>Nonhemolytic streptococcus</i>	2	4
<i>Influenza bacilli</i>	1	6
Type I	1	0
Type II	1	1
Type IIa	2	1
Type III	3	5
Type IV	10	2
Total	33	33

TABLE IV

CASES IN WHICH THE AUTOPSY AND SPUTUM FINDINGS DID NOT AGREE. COLUMN OF DAYS REPRESENTS THE TIME ELAPSING BETWEEN THE "TYPING" OF THE SPUTUM AND THE AUTOPSY.

Sputum.	Autopsy.	Days.
1. <i>Nonhemolytic streptococcus</i>	<i>Hemolytic streptococcus</i>	3
2. <i>Hemolytic streptococcus</i>	<i>Nonhemolytic streptococcus</i>	7
3. <i>Nonhemolytic streptococcus</i>	<i>Hemolytic streptococcus</i>	10
4. <i>Hemolytic streptococcus</i>	<i>Nonhemolytic streptococcus</i>	11
5. <i>Nonhemolytic streptococcus</i>	<i>Hemolytic streptococcus</i>	1
6. Type IV	<i>Hemolytic streptococcus</i>	12
7. <i>Hemolytic streptococcus</i>	<i>Nonhemolytic streptococcus</i>	0
8. <i>Hemolytic streptococcus</i>	<i>Nonhemolytic streptococcus</i>	2
9. Type IV	<i>Influenza</i>	3
10. Type IV	Type III	4
11. Type III	<i>Influenza</i>	11
12. Type III	Type IV	2
13. Type IV	Type III	5
14. <i>Influenza</i>	<i>Hemolytic streptococcus</i>	14
15. Type IV	<i>Hemolytic streptococcus</i>	7
16. Type IV	<i>Hemolytic streptococcus</i> and <i>influenza</i>	1
17. Type IV	Type III	1
18. Type IV	Type III and <i>influenza</i>	1
19. Type IV	<i>Influenza</i>	6
20. Type IV	Type III and <i>influenza</i>	2
21. Type II	<i>Influenza</i>	6
22. Type IV	Type II	2
23. Type IV	Type III	6
24. Type IV	<i>Hemolytic streptococcus</i>	3
25. Type IV	<i>Hemolytic streptococcus</i>	7
26. Type II	Type IV	0
27. Type IV	<i>Influenza</i>	6
28. Type IV	<i>Influenza</i>	2
29. Type IV	<i>Hemolytic streptococcus</i>	5
30. Type IV	<i>Hemolytic streptococcus</i>	5
31. Type IV	<i>Hemolytic streptococcus</i>	10
32. Type IIa	<i>Hemolytic streptococcus</i>	14
33. Type I	<i>Hemolytic streptococcus</i>	20
Total 33 cases.		

Undoubtedly in those cases in which a Type IV pneumococcus was found antemortem and a different type of pneumococcus was isolated at autopsy the original specimen of sputum was not from the lungs; this is especially true where the interval elapsing between the sputum findings and the postmortem findings was less than a week. When postmortem changes did not agree with antemortem findings and the time elapsing was more than a week the organism recovered at autopsy may be considered either as a secondary infecting agent or as a terminal infection. It is apparent that the character of the infection changes and that no dependence should be placed on a single examination of the sputum, especially if the case is a prolonged one.

Table IV shows the place that the *Streptococcus hemolyticus* played as a secondary invader, since it was recovered in fourteen of the thirty-three cases, the majority of these being prolonged ones.

SUMMARY AND CONCLUSION.

The *Streptococcus hemolyticus* was an important factor both as a primary and secondary agent.

The *Bacillus influenzae* was found, but only under conditions which lead to doubt as to its being the cause of the primary infection.

The evidence at hand points to the fact that Type III pneumococcus is found in healthy carriers, and this fact can account for the number of cases of pneumonia caused by this organism.

The prevalence of Type IV pneumococci recovered from the sputum leads to the belief that all such cases should be looked on with suspicion unless confirmed by very carefully collected specimens or at autopsy.

In prolonged cases, those extending well over a week, the disagreement in bacteriological findings antemortem and postmortem makes it apparent that repeated sputum examinations are desirable in order to follow intelligently the changing condition of the infection.

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REPORT OF INFLUENZA EPIDEMIC.

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On October 2, 1918, the Base Hospital Group of Camp Greenleaf became involved in the prevalent pandemic of influenza. On October 2nd one case was found in barracks No. 1107 of convalescent camp No. 7; the following day eighteen cases were isolated in an isolation camp erected for this purpose.

The camp was located in a clearing which proved an ideal location, being sheltered from wind and dust by woods on three sides and by a row of storehouses on the south. The camp was gradually enlarged until it comprised forty-nine tents.

In the woods north of the camp an ordinary horseshoe incinerator was erected. Urine and feces were disposed of in the latrine. The bed pans and urinals were washed out and boiled before returning them to the covered cupboard in which they were stored. Sputum was collected in sputum cups and later in tin cans, after the supply of cups was exhausted. The collections were disinfected with liquor cresolis compound solution for thirty minutes and then incinerated, after which the sputum cups were boiled and cans burned out before being returned for use. Twenty fly traps were distributed about the camp and a few flies were observed.

The enlisted personnel was derived from the various organizations in the base hospital group. The men, most of whom were in the service from two to six weeks, were inexperienced in the care of the sick, so that for five or six days the few medical officers on duty had to examine cases, keep records, take temperatures, dispense medicines, and often help with the general care of the patients. Basins of liquor cresolis compound solution were distributed about the camp and the enlisted personnel instructed to wash their hands after handling urine, feces, and sputum containers, and before

leaving for mess and relief. After the work became organized the corps men were taught to take temperatures and count the pulses, and became fairly proficient along these lines.

The question of masking the attendants in the isolation camp was discussed, and it was felt that as all the patients were treated in the open air masks might be dispensed with. The result seems to have justified this decision, for only two officers on duty in the camp and but thirteen out of eighty-six of the enlisted personnel became infected. When possible the streets of the camp were sprinkled. The camp was quarantined. The general method of handling patients included bed rest and isolation until the patient was afebrile for three days. He was then transferred to the convalescent barracks until the tenth day of the disease, or such time as he regained his strength. Subsequently he was discharged from duty with instructions to report morning and evening to the group infirmary. Organization officers were requested to give these men light duty for ten days.

All patients showing signs of great toxemia, pulmonary or other grave complications were sent to general hospital No. 14. After a few days pneumonia suspects were isolated until transferred to the hospital, and when several cases of pneumonia were noted as having originated in the same tent, said tent was evacuated, aired, and the cots exposed to the sun's rays.

Onset and course.—Two hundred histories were examined and the symptoms of the onset noted. The following table shows the relative frequency of the more common complaints.

Per Cent.				Per Cent.			
1.	Fever	75	10.	Epistaxis	10	10.	Epistaxis
2.	Headache	70	11.	Great weakness	10	11.	Great weakness
3.	Cough	42	12.	Pain in chest	5	12.	Pain in chest
4.	"Headache all over"	30	13.	Constipation	5	13.	Constipation
5.	Coryza	20	14.	Stomach ache	3	14.	Stomach ache
6.	Sore throat	15	15.	Hemoptysis	3	15.	Hemoptysis
7.	Chills	15	16.	Eye pain	4	16.	Eye pain
8.	Vertigo	15	17.	Delirium	1	17.	Delirium
9.	Backache	15					

The headache is very oppressive, with the localization varied. The two most common types of distribution of the pain were frontal and occipital; it usually lasted two or three days. The pain in the back lasted two or three days and was for the most part in the lumbar region. Many who were asked to describe their symptoms stated they "ached all over." The temperature rose rapidly, often to 103°, or even 105°, and remained elevated for three or four days, and then fell by lysis.

The pulse rate was disproportionately low to the temperature, ranging from 65 to 90, averaging about 80, in spite of considerable fever. Probably twenty per cent. of the patients showed a dicrotic pulse. Some observers have noted the apparent toxicity of the influenza organism, particularly with reference to the effect on the vagosympathetic system. Our patients showed evidence of such vagosympathetic effect, viz.: Slow pulse; dicrotism as evidence of marked vasomotor relaxation; and nausea, further suggested irritation of the toxin on the central nervous system.

Facies.—Patients frequently presented a stuporous appearance with flushed face, although the edema and diffuse erythema that are so characteristic of the early measles facies were absent. How-

ever, the conjunctivitis, sneezing, flushed face, and irritating cough, found on the third or fourth day, strongly suggested measles. A small number showed cyanosis.

Enanthem.—The problem of a differential diagnosis from measles led to a very careful examination of the mouth, gums, and throat in the first three hundred patients seen in our field hospital. The enanthem presented marked injection from anterior pillars of fauces, tonsils, over uvula, including the soft palate, well upward toward the superior dental arch. The uvula was frequently bluish and edematous, presenting a rather translucent appearance when illuminated by bright sunlight. The gums were dark red for the first day or so, and on the second or third day a pearly gray deposit (very similar to the one seen in measles cases) was noted on the gums of about seventy-five per cent. of the cases examined. This deposit increased in intensity up to the fifth or sixth day and then gradually came away, probably assisted by the use of the tooth brush, although the deposit was scraped away with difficulty during the first few days. The buccal mucosa of these patients showed no phenomena which might have been mistaken for Koplik's, although in some cases it was intensely injected, and then two or three days later showed a grayish surface, rather like the deposit seen on the gums. This gray appearance of the lining of the buccal cavity gradually disappeared in five to eight days. A large number of patients examined in the convalescent barracks, fourteen to sixteen days after the onset of the disease, still showed injection of the capillaries of the mucosa of the mouth and pharynx. About fifteen per cent. of the patients complained of sore throat. Tonsils were enlarged, but no exudates were noted. Most of them showed a furred tongue with bright red margins. Comparatively few showed labial herpes.

Marked conjunctival injection was observed in about eighty per cent. of our patients. In some instances this was accompanied by photophobia. Examination of the nose showed an intensely red mucosa and marked swelling of the lower turbinates. About five per cent. of the men complained of tinnitus aurium. This might have been the result of the administration of salol or aspirin to more or less susceptible individuals.

Cough.—For the first day or so about one half of the patients were annoyed by a dry, irritating, tracheal or laryngeal cough, which was accompanied by blood streaked sputum in three per cent. of the cases. The cough became looser in five or six days, but as a rule continued for eight to twelve days; the sputum at first thick, white, mucoid, later showed yellowish-green tinged masses. The patients in whom pneumonia developed showed a surprisingly small proportion of bloody sputa. About one third of the patients complained of pain under the sternum, further indicating the severity of the tracheitis. Nosebleed occurred at the onset in ten per cent. of the men, in several instances being rather severe and with a tendency to recur.

Chest findings.—The initial physical examination of most of the patients revealed no signs in the chest. On the second or third day indetermi-

nate râles were heard between the scapulæ. The râles gradually became more moist and coarse. The physical signs of pneumonia were often vague and transitory. Suppressed breathing, subcrepitant and crepitant râles over a small area, seldom small patches of impaired resonance, tubular breathing or egophany, suggested the presence of pulmonary infiltration. The following shows the relative frequency of the location of pneumonic processes—for the sake of clearness each side of the chest being divided into thirds.

Cases.			Cases.		
Left upper	2		Right upper	2	
Left middle	11		Right middle	6	
Left lower	19		Right lower	24	
	32			32	

Thirty-three patients were sent to the hospital as observation pneumonia, definite localizing signs not being clear. Hyperpnea and persistent subcrepitant or crepitant râles were the important criteria for sending these cases to the hospital. The following table shows the time of development of pneumonia with relation to the onset of influenza:

Day of disease pneumonia was noted: 1	2	3	4	5	6	7	8	9	10
Number of patients	4	10	9	8	8	7	9	5	2

Pneumonia was evident either on the second or third day of the disease, or followed later after a definite drop in the temperature and general improvement of the patient. The accompanying tables give examples of the two types found in the isolation camp.

Cardiovascular.—Although most patients showed a slow pulse, marked tachycardia suddenly developed in three. Pressure on the eye balls in all of these patients slowed the heart. Dicrotism was common during the stage of great prostration. Examination of the heart frequently revealed a late systolic murmur, heard best over the cardiac base, probably indicating myocardial relaxation. The murmur was transitory. No instances of marked dilatation were noted. When no complications arose, about the fifth or sixth day patients began to recover from the infection. They were then transferred to convalescent barracks. Here coughing was commonly noticed. Examination of the chest at this stage usually showed moist râles, particularly over the large bronchi, with some moisture in the more peripheral parts of the lung. Most patients were still very weak, many having apparently lost five to ten pounds; one officer lost seventeen pounds. Subnormal temperatures were commonly noted during convalescence.

Treatment.—On admission patients were given a cathartic—epsom salts or compound cathartic pills, bed rest, liquid diet, abundance of water and lemonade, aspirin or salol every three hours. A gargle mixture of Dobell's solution, lime water and peroxide was used every three hours. As patients felt better the diet was increased by the addition of cereals, custard, mush and vegetables. Brown mixture containing ammonium chloride and heroin were used to relieve the cough.

Vaccine therapy.—About 350 patients with influenza were given a polyvalent vaccine comprising: 100,000,000 pneumococci; 100,000,000 streptococci, and 100,000,000 staphylococci, to one c. c. One tenth

c. c. was given on the first day; two tenths c. c. was given four days later, and three tenths c. c. was given four days later.

Of the number sent to General Hospital No. 14, with a diagnosis of pneumonia or observation pneumonia, comprising ninety patients, sixty-four had been treated with vaccine. Of these, five had one dose of vaccine, forty-nine had two doses of vaccine, and ten had three doses of vaccine.

Laboratory findings.—As our organization functioned more as a detention camp than a hospital, we had no facilities for routine laboratory investigation. Lieutenant Lawson, Base Hospital No. 157, made some examinations of sputum, urine and throat smears; also white blood counts and air cultures.

1. <i>Sputum examinations.</i>	
Total number of sputa examined.....	57
Gram positive diplococci found in.....	36
Streptococci found in.....	32
Staphylococci found in.....	28
Pus cells found in.....	12
2. <i>Uranalysis.</i>	
Total number of urines examined.....	20
Specific gravity, lowest.....	1.015
Specific gravity, highest.....	1.028
Acid reaction.....	20
Albumin present.....	5
Sugar present.....	0
Casts present, granular.....	4
Casts present, hyaline.....	3
3. <i>Throat smears.</i>	
Seven cases showed organisms whose morphology and staining reactions corresponded to the bacillus influenzae of Pfeiffer.	
4. <i>Blood agar plates exposed to air.</i>	
Nine plates exposed, as follows:	
1. Outside tents in isolation camp for 30 seconds; 3 colonies.	
2. In tent 17 for 30 seconds; 5 colonies.	
3. In tent 27 for 1 minute; 6 colonies.	
4. Outside 1½ minutes; 13 colonies.	
5. In diet kitchen for patients, 1 minute; 75-85 colonies.	
6. In base hospital 73 barracks, 1 minute; 2 colonies.	
7. In base hospital latrine, 1 minute; 5 colonies.	
8. In convalescent group barracks, 1 minute, 1 colony.	
9. In convalescent group 11 latrine, 1 minute; 4 colonies.	

Attention is called to the following points brought out by the laboratory: 1. Out of fifty-seven sputa and throat smears examined, seven showed organisms of influenza, thirty-two showed streptococci, thirty-six organisms were probably pneumococci. 2. Only twenty-five per cent. of the urines examined showed albumin and casts; 3. Blood plates exposed to the air inside the barracks, latrine, and kitchen, of organizations in which influenza was prevalent, also in the isolation camp streets and tents housing the sick, failed to reveal the presence of microorganisms responsible for either influenza or pneumonia; 4. The white blood counts showed slight deviation from the normal, if anything a slight leucopenia. Mixed vaccine further reduced the leucopenia.

CASES, TRANSFERS, AND DEATHS.

Approximate enlisted personnel of base hospital group.....	1,500
Influenza cases sent to isolation camp.....	436
Transferred to hospital.....	116
Deaths in isolation camp.....	0
Deaths in General Hospital No. 14 to and including November 1.....	27
(Patients sent to hospital from this group.)	

CAUSES OF TRANSFER TO GENERAL HOSPITAL.

Toxemia.....	10
Pneumonia.....	57
Observation pneumonia.....	33
Old tuberculosis.....	1
Pleural effusion.....	1
Dry pleuritis.....	2
Otitis media.....	2
Acute urinary retention in pneumonia.....	1

OTHER COMPLICATIONS.

Myocarditis.....	1
Icterus.....	1
Salivary calculus.....	1
Marginal blepharitis.....	1
Subconjunctival hemorrhage.....	3
Toxic erythema.....	1

SUMMARY.

The disease is characterized by: Sudden onset; high fever; severe toxemia; enanthem, and a drop in temperature on the third to the fifth day, with or without a secondary febrile period; catarrhal symptoms involving respiratory tract—cough, tracheitis and at times cyanosis. In a large percentage of cases signs of a rapidly developing bronchopneumonia evidences extension into the lungs.

Hyperpnea is the most reliable early indication of the pneumonia, as it occurs before definite signs of pulmonary infiltration are evident. Cardiovascular anomalies—slow pulse, high incidence of diastolic, basal late systolic heart murmur, signs of myocardial relaxation; digestive anomalies—anoxia, constipation, nausea; epistaxis in about ten per cent. of the case; conjunctival injection; and subconjunctival hemorrhage as a result of severe cough (in three instances).

Note.—The pneumonias occurred early in the disease or after a drop in the temperature and an apparent improvement in the patient's general condition.

Therapy.—The disease resulted in great weakness and loss of weight, a slow convalescence during which time the catarrhal signs in the lungs cleared up slowly, the temperature was subnormal and the mucosa of the mouth showed marked evidence of its previous injection. A polyvalent vaccine, as a prophylactic against pneumonia, was apparently valueless in patients already infected with influenza.

DIABETES MELLITUS.

BY T. WEBSTER EDGAR, M. D.,
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In offering this paper I advance no novel ideas as to the etiology and treatment of diabetes mellitus. The following data were gathered by keen observation, and investigation extending over a period of two years: the cases cited being taken from my office index system. Up to the present time, no scientific worker disputes the fact, that to a certain extent the pancreas is not concerned in carbohydrate metabolism. Many state that this ductless gland is the exciting cause of glycosuria, and have endeavored to prove their assertion. The fact has been established that in the majority of fatal cases of diabetes, there is a degeneration of the islands of Langerhans. Chemical experimentation with glucose solution plus the expressed juice of the pancreas, when properly activated, splits the sugar molecule, thus the pancreas plays an important rôle in sugar metabolism, and is considered by present day investigators to be materially concerned in this most important body function.

The predisposing cause is still debatable, and is a much discussed and investigated subject. In view of this fact I offer the following conclusions for your consideration. Quoting Sir Arbuthnot Lane, of London: "Chronic intestinal stasis which I believe to be the prime factor in the production of very many diseased conditions, is of enormous importance, and we can not spend too much time and

thought in unraveling the many problems, which it presents." Intestinal stasis has a direct bearing on the great proportion of glycosuria cases, and in my mind the solution of the diabetic perception is to be found in the lower bowel. From a therapeutic point of view intestinal stasis may be divided into four main groups or classes: 1, Cases in which the symptoms are physical signs, and which yield readily to therapeutic measures; 2, in which the symptoms are more pronounced and accompanied by objective indications of an abnormal state of the digestive tract, but which are amenable to medical treatment; 3, cases which present extraintestinal objective and subjective symptoms, amenable to specific and prolonged medical treatment and 4, in which the condition of the intestinal canal is so abnormal (?) that therapeutics fails and surgical interference becomes necessary or inevitable. I place all glycosuria patients, excluding the experimental, under the third classification, and have treated successfully, twenty cases of definite diabetes accepting this as the predisposing etiological factor, namely, chronic intestinal stasis and toxemia.

A thorough physical examination of a diabetic patient reveals the fact that he is suffering from the effects of a chronic intoxication. All evidence is presented that the individual is laboring under symptoms referable to the intestinal tract, and if it were not for the fact that we know the urine contains sugar, we should make a tentative diagnosis of autointoxication or chronic intestinal stasis.

In going into the histories, of many, if not all of my glycosuria cases, I have been able to elicit histories of intestinal stasis and intoxication in over eighty per cent. of the cases, ranging from mild prolonged constipation, to severe fermentation and putrefaction, as evidenced symptomatically, and by laboratory tests. In people of middle age the history usually extends back from ten to twenty years, the constipation increasing as maturity approached; first referable to the intestinal tract proper, then gradually assuming a more generalized form. Thus I state rather firmly that glycosuria is but one sequela or complication of chronic intestinal stasis, and is to be looked for as a complication in this condition. The prodromal or incipient stage of diabetes mellitus is intestinal stasis and toxemia, and if prophylactic measures are instituted, the complication may be avoided, or obviated.

Heredity plays its part more by environment and association, than by actually being a predisposing factor. A son who is accustomed to see his father make a glutton of himself at the table will directly place himself in an environment which is liable to lead to excesses; so the son, like the father, through association places himself in an environment which favors intestinal trouble later in life. Thus in early adult life any predisposition, or history of intestinal stasis should be investigated and the assimilation limit for carbohydrate carefully computed.

I have found that the assimilation limit is greatly decreased in cases presenting symptoms of intestinal stasis and toxemia even when the patient is aglycosuric. Coincident with this condition I have found the blood pressure correspondingly high, depending on the duration of the history.

This prodromal condition typifies the preglycosuric stage and was present in ninety-per cent. of my cases. The average number of grams of sugar that any one of the five preglycosuric cases could take care of without sugar appearing in the urine was in relation to the condition of the intestine, and in direct proportion to the time the individual suffered from manifest symptoms of intestinal stasis:

History of stains.	Age.	Pressure.	Assimilation limit. Grams glucose.	Control never suffered glycosuria. Grams glucose.
20 years.	52	180-130	80	240
10-15 years.	45	160-100	110	200
5 years.	48	165-105	165	250
2-3 years.	36	150-90	160	285
6 months-1 year.	32	145-85	170	210

Putrefactive and fermentative processes in the lower bowel, by virtue of the media created, produce an overabundance of growth of the normal habitat, in the great majority of cases the *Bacillus coli communis*. This ordinarily harmless organism when nurtured by the conditions existing multiply in great numbers, and assume the rôle of an army of invasion, with resultant retardation and destruction of local tissue, and by toxins generated inhibit or destroy all tissue functioning with which they come in contact.

In many if not all of the fatal cases of diabetes we find a hyaline degeneration of the islands of Langerhans; the exception being in fatal cases of acute hemorrhagic pancreatitis, where death results quickly, insufficient time elapsing for hyaline degeneration to take place. The colon bacillus is capable of producing absorbable toxins which act first on tissue proximal to the seat of generation, gradually causing an atonic condition of the nerve endings in the lower bowel. This process lowers the threshold of normal stimulation in the rectal nerves, normal defecation is interfered with, and the individual becomes constipated, setting up a culture media acceptable to the growth and multiplication of the invading organism.

This toxin by virtue of constant regeneration, is gradually absorbed by the lacteals and vessels producing a degeneration throughout the entire body. There is no specific predilection for attacking pancreatic tissue. The action is generalized, and attacks each form of tissue with which it sooner or later comes in contact. The ductless glands by virtue of their peculiar nervous influence are the first to suffer, with the resultant interference of their delicate mechanism. Thus we have an interference with ductless gland equilibrium. With first an overproduction of secretion, then a consequent retardation and a beginning degeneration; finally becoming functionally inert. A vicious cycle is established, which first by its action on nervous tissue inhibits function, and then by increased production, causes cessation of glandular activity.

In those patients who were suffering from an incipient or mild diabetes, I found that on normal diet, exercise had a direct bearing on sugar metabolism, especially the percentage of sugar excreted in the urine when combined with intramuscular injections of my diabetic serum, e. g., serum prepared from normal blood after the animal is exercised to the point of fatigue. I was able to increase to a considerable extent the carbohydrate tolerance,

in four cases establishing an equilibrium between the sugar intake and the sugar excretion above the previous carbohydrate point of tolerance.

Before exercise. Per cent.	After exercise Per cent.	After the injection of serum. Per cent.
1.5	1.0	0.8
0.5	0.4	0.2
0.1	0.5	0.0
2.0	1.0	1.0
0.8	0.5	0.0

I was unable to affect the carbohydrate tolerance in any case by the injection of the serum alone; but combined with treatment of the lower bowel these results were obtained. The injections were withheld until the condition of the lower bowel responded to treatment, which in the majority of cases was from six to eight weeks. In view of this, it would seem that the musculature of the body is able to produce, in some manner, which I am unable to explain, a carbolytic enzyme or sugar splitting body which is capable of taking care of the excess sugar in the blood, either by enzymotic or oxidative processes. The injection of the serum intramuscularly acting as an activating agent.

I was unable to get any lasting results by muscle stimulation or exercise in the diabetic patients themselves. In other words they were not able to produce an antibody which was capable of influencing their hyperglycemia. This I attribute to the fact that there is a certain anaphylactic action produced by the injection of a foreign serum, which causes a revolution in the metabolic processes, which is not possible to produce by auto-inoculation. Secondly, the tolerance of the diabetic receptors being lowered they are not capable of receiving stimulation in the form of self manufactured antibodies. Thus, it seems to me that true diabetic glycosuria is due more to functional inability of the body to care for its carbohydrate content than an overproduction of sugar.

I ascribe the action of the injections as follows: The muscles under stimulation and exercise produce paralactic or sarcolactic acid, which is a product of fatigue. Thus, I artificially influence the glycogen in the muscles, and the excess sugar in the blood. They are destroyed by an amyolytic enzyme which has been activated by the injection of my serum. First the glycogen is converted into sugar, lactic acid, and finally carbon dioxid and water, as $C_6H_{12}O_6 = 2(C_3H_6O_3) = CO_2 + C_2H_5OH$.

I have been able to influence materially twenty cases of true diabetes mellitus by using this hypothesis as the basis of my treatment, causing the sugar to disappear from the urine in four cases entirely, the patients remaining aglycosuric from the time of their discharge up to the writing of this paper. The tolerance in all cases is gradually increasing for carbohydrates. They are gaining weight. Diabetes mellitus is a sequel of chronic intestinal stasis.

Has There Been an Increase in Carcinoma during the War?—J. Amberger (*Zentralblatt für Chirurgie*, Nos. 14, 15, 1918) states that at the Hospital of the Holy Ghost at Frankfort he has noted an increase in the number of cancer cases, not only of the gastrointestinal tract, but of the viscera, and especially of the breast, during the war.

DIFFERENTIAL DIAGNOSIS OF CUTANEOUS LESIONS.

BY CHARLES GREENE CUMSTON, M. D.,
Geneva, Switzerland.

The dermatological school of Bordeaux has given much attention to the study of porokeratosis, a cutaneous lesion which should be distinguished from Wilson's lichen, ordinary verrucæ, verrucous or horny nævi and lastly verrucous lupus. The following table, compiled by Dr. Adrien Larrodé, of Bordeaux, of Wilson's lichen and porokeratosis, is interesting and valuable in aiding in the differential diagnosis of these two conditions.

CUTANEOUS LESIONS.

Aspect of Lesions.

WILSON'S LICHEN.

A limited projection varying in size from one to four millimetres, mean dimensions two millimetres, smooth, brilliant, rose or copper red in color.

POROKERATOSIS.

A variable, limited projection, sometimes formed by a uniform or irregular squamous line, or by a thick dam on the integuments with a broad, regular or mammillated base; a dirty white or yellowish color, passing through the intermediary tints.

Enclosed Area.

Dark brown or violet and blackish in its entire extent. Atrophy of the skin in the annular spots hardly appreciable. No completely callous spots; no lesions with a centrifugal progress developing in the enclosed area of the annular spots.

Color not uniform; occasionally reddish brown, or may not differ from the normal skin or may be hypochromatic. The internal border may offer a brownish outline. Atrophy may be very marked, visible at a distance. Spots completely callous with a furrow. Frequently other lesions with a centrifugal progress develop in the central area.

Limiting Projection.

Absence of a furrow; never offers alternatives of growth and retrogression outside of the normal evolution of the total element (enclosed area and limiting projection).

At long intervals the limiting projection becomes more marked and *vice versa*. Furrow almost always present from which a border of imperfectly corneous cells start.

Onset Lesions.

Papular, flat or acuminated projections, which may offer a punctiform umbilication, round or polygonal, light red color.

Small conical projections, grayish white in color, with a horny appearance and consistency, hardly raised and soon surrounded by a grayish corneous collar.

Common Sites.

Surface of the flexion of wrist and elbows, Face, extremities of limbs, particularly dor-

Common Sites (Continued).

glans penis, scrotum, upper thigh, popliteal space, anteroexternal aspect of legs and instep. Face rarely involved, scalp, palmar surface of hands and feet, still less so.

Evolution.

Each papular element develops and retrogresses in a few weeks leaving a small depression. The atrophic aspect, brown at first finally changes to a brilliant white.

Subjective Symptoms.

Rarely absent; more or less intense pruritus, irritability, insomnia, sensations of pricking or burning, finally emaciation.

Transmission.

Is not hereditary. Observed as isolated cases.

Sex.

Commoner in females than in males.

LESIONS OF THE MUCOSÆ.

Frequency.

WILSON'S LICHEN.

Most frequent localization; observed in seventy per cent. of the cases. Sometimes appears before the skin lesions.

POROKERATOSIS.

Less common; present in twenty per cent. of the cases. They may appear before the cutaneous lesions.

Aspect of Lesions.

Usually in the form of slightly projecting white points, isolated or in clusters, confluent or in chains. The few rare annular spots are grayish white, opaque, without a peripheral annular furrow; hard to the feel.

Only annular lesions exist with an opaline centre and a periphery sometimes offering a characteristic furrow having the same consistency as the normal mucosa.

Common Sites.

Lips, cheeks, back of tongue. Rarely on the under aspect or borders of tongue or on pharynx

Dorsum of tongue never involved. Any part of the mouth, no particular predilection for any one area.

Subjective Symptoms.

Mucosa very sensitive to acid or alcoholic drinks and spices.

Absent.

The differential diagnosis between porokeratosis and flat verrucæ is as follows: If the lesions are limited to the skin in making the diagnosis other dermatoses should be considered, especially in flat

verrucæ which likewise have a predilection for the face, and the dorsal aspect of the hands and feet and scalp. The process may also produce deformity of the nails when situated in the perionychial region or when it extends to the bed of the nail.

But besides the fact that flat verrucæ, especially when they are small, have a special yellow tint and appear almost translucent, the minute cylindroconical point with a distinct furrow marking it off from the limiting annular projection is never met with. Finally, verrucæ never offer a central atrophic area completely surrounded by a narrow marginal projection. Verrucæ never attain the size of the lesions of porokeratosis, and they may always be distinguished by the fact that the former lesion when seated on the palmar aspect of the hands and plantar surface of the foot or elsewhere, there is an absence of the furrow on the peripheral border and above all the imperfect corneous line which is the characteristic feature of porokeratosis. From the histological viewpoint there are no disturbances in the process of keratinization in verrucæ and all that is found is an elongation of the papillæ and an increase in the thickness of the various epidermic strata.

The differential diagnosis between verrucous and horny nævi is that they never assume an annular form. Their growth is never centrifugal and their central area never undergoes successive changes. They also differ from porokeratosis by their localization and systematization in the form of plaques along the track of a nerve and correspond to a metameric territory. Besides, verrucous nævi do not present atrophy of the central portion and they are bordered by a hyperemic aureola. Verrucous lupus is met with on the hands and lower part of the forearm, and suppurates frequently. But the diagnosis will be instantly made by microscopical examination of the tissue.

Very little has been written concerning the treatment of porokeratosis. It is evident that trichloroacetic acid, Vigo's plaster, or salicylic and pyrogallol acids will cause the crusts to fall, but the hyperkeratosis products reform in a few days. The divers arsenical preparations given internally for months are devoid of any beneficial lasting effect and the proper treatment is that of the Bordeaux school which is as follows:

After general narcosis, which is not always necessary, the parts are carefully aseptized and the lesions are removed by the curette. The scraping must be energetic and one need not fear to go too deeply, because it would be quite an undertaking to go beyond the limits of the hyperkeratosis. The hemorrhage does not amount to a great deal and a gauze dressing will stop it. When the curettage has been done the raw surfaces are dressed with dry aseptic gauze which is left *in situ* for ten days. This treatment has given excellent and permanent results, but it is to be mentioned that several operations are required. Recurrences take place usually in about two months, but with each return the lesions are lessened and with care the patient will finally be cured.

Some of the details concerning the acrodermatitides have been carefully worked out by the Bor-

deaux school. Thus the cutaneous lesions have been divided by Hallopeau into three varieties, viz.: the vesicular; the pustular, and the mixed. The latter differentiation appears unnecessary because at the onset the process presents itself in the form of a small vesicle which shortly becomes transformed into a pustule and becoming purulent, undergoes the evolution met with in the so-called mixed variety; at least this is the teaching at Bordeaux. The first and second varieties are maintained, especially for facilitating the clinical description of the process, because the acrodermatides appear to form a single family.

The vesicular form of acrodermatitis is composed of vesicles resting upon a red surface. These isolated vesicles persist for a certain time after the eruption, which at first is only partial. When the vesicles burst they leave excoriations which soon become covered with crusts or by rather thick lamellose squamæ. The underlying skin is red and tumefied and when the crusts become detached the epidermis will be found thin, smooth and brilliant. Occasionally, however, it is thickened.

The nails suffer in their nutrition, lose their shine and deep vertical furrows appear upon them. They also present transverse flattening and numerous punctiform depressions. The patient complains of an unpleasant burning sensation but never of pruritus. This form never occurs on the toes.

The pustular form almost invariably commences with a whitlow around the nails. The whitlow develops normally, undermines the epidermis, causes the nail to drop off, and without further trouble, heals without difficulty. Occasionally only a simple blackish spot is seen on the side of the nail, indicating defective nutrition, but the order of the nail becomes progressively detached, giving exit to the pus collected beneath it. In other cases a small vesicle occurs near the matrix of the nail, changes to a pustule, becomes purulent and undergoes a normal evolution.

After a variable length of time and by the same process, another digit becomes involved; then another until all the fingers are afflicted. During this time similar lesions may, and probably will have developed on the palm of the hand and foot. There is first of all an erythema upon which one or several pustules arise, affecting polycyclical contours; they burst and give issue to an abundant oozing.

The pustules dry quite quickly, but at the periphery of the little patch others appear which undergo the same evolution. The patches thus increase in extent; from the size of a lentil to a ten cent piece at the onset, they soon reach that of a fifty cent piece or more and becoming confluent they at length involve the entire palmar surface and fingers. On the feet, the process may begin on the small toe, or on the retromalleolar area and in one case at the Bordeaux clinic it began by a small patch seated in the middle of the plantar surface of the foot.

The lesions are, therefore, composed of small miliary pustules forming a patch having an eccentric extension. The pustules contain a whitish yellow, thick, fetid pus and repose upon a red, thin, inflamed epidermis. The epidermis may disappear

with the pustules, leaving a vast excoriated area with a dark red smooth dermis over which are scattered some small miliary pustules which have survived, or it may present a few crests of the papillæ and offers a slight desquamation in the form of small farinaceous lamellæ. But a time comes when the lesions seem to become stationary and offer quite a distinct contour. In regions where the epidermis is thick an edge of this epidermis will be undermined, covering a collection of pus, but adherent to the healthy skin. On the other hand, if the epidermis is thin there is simply a reddish inflamed areola which indicates the transition between the two parts.

On the dorsal aspect of the hands the lesions do not extend beyond the last phalanges and are formed by an erythematous epidermis on which a few pustules develop which disappear without leaving any trace. But the most important lesions on the dorsum of the hand are those of the nails. Impaired in their nutrition either primarily or by the suppuration of the whitlow, they usually fall. On the bed of the nail very fine crusts or small squamæ are usually seen which when raised allow a thick, lumpy, foeted pus to well up, exposing a red, inflamed ungual bed. The surface is red, edematous, slightly oozing, but shows no other morbid change. If the nail remains, the basal portion to the extent of several millimeters is soft, scaly, depressible, but the portion which has remained normal is finally eliminated and is not immediately replaced by a new nail. When the lesions improve with or without treatment, a sort of swelling of the ungual bed occurs, which becomes slowly covered by a thin, delicate epidermis which hardens slowly and finally becomes quite hard, but it is far from being a nail. Sometimes one sees minute punched out holes seated around the borders of this epidermic layer and there is always the same varinaceous desquamation taking place. Finally, with time, these deformities disappear and the nail recovers its characters, although its polish does not return.

A point upon which the Bordeaux school insists is the peculiar odor of the lesions and which is described as that arising from improperly washed dishes in a cheap restaurant. The French have a gift, as no other people have, of depicting the various sense impressions. The nearest expression we have in English for describing this particular odor would probably be flat or stale and still we should be far from the mark.

The lesions of the hand retrogress. The epidermis then freely desquamates in fine white lamellæ, while small punched out holes appear which seem to correspond to the orifices of the sudoriparous glands. The palms and lateral aspects of the fingers offer the largest number. Slowly the desquamation diminishes, the holes disappear and a healthy epidermis at length develops.

These lesions are usually painless with but few exceptions. They are accompanied by pruritus and occasionally burning. The movements of the hand become limited on account of the swelling, but that is about all. Acrodermatitis is apyretic and in only one case was there a rise in temperature, this being due to a generalization of the lesions.

The duration of acrodermatitis is variable and its evolution is far from being continued, as it is often intermingled with periods of remission. Then suddenly the condition becomes more marked. Therefore the prognosis should be reserved. In three cases observed at Bordeaux which ended fatally, two succumbed from complications resulting from cutaneous infections, while the third death occurred in unknown circumstances. Consequently, the prognosis depends upon the generalization of the process.

In the acrodermatitis, as in the majority of cutaneous affections such as pemphigus, herpetiform impetigo, or pemphigus vegetans, no therapeutic measure appears to modify the course of the process. In one case at Bordeaux in which arsenic was used in the form of Fowler's solution no result was obtained, and furthermore, the patient stated that the visual disturbances resulting from the medicament were such that he could not continue.

For the local application all antiseptics are good if they are tolerated by the patient, as they produce, at least momentarily, some amelioration. The following ointment can be tried:

Ichthyol. 1 part;
Zinci oxid. 3 parts;
Petrolatum. 15 parts.

The best results seem to have been caused by moist dressings with a five per cent. creolin solution, one per cent. picric acid lotions and lastly oxide of zinc ointment. But none of these, as may be supposed, are specific.

RECENT GLEANINGS RELATIVE TO THE PROPHYLAXIS AND TREATMENT OF INFLUENZA.

By LOUIS T. DE M. SAJOUS, B. S., M. D.,
Philadelphia.

(Continued from page 553.)

II. TREATMENT.

The therapeutic measure as to the value of which the greatest unanimity of opinion has been formed through experience in the recent epidemic is the putting of the patient promptly to bed upon the earliest appearance of symptoms and the insistence upon his remaining abed well beyond the febrile period. The peculiarly debilitating effect of influenzal infection on the body functions in general has long been realized. This effect logically should, and does, express itself in a lowered resistance of the body to various types of secondary or complicating infection, and under such conditions the unusual significance and value of husbanding the defensive resources of the system to the utmost by early, complete rest of the entire body cannot but make a forcible appeal.

H. A. Christian, 1918, has emphasized the fact that pneumonic changes in epidemic influenza often exist where unsuspected by the attending physician or, at least, are apt to be more widespread than the physical signs would lead him to suppose. In actual postmortem studies conducted at the Peter Bent Brigham Hospital, Boston, pulmonary changes were found as a rule more extensive than the physi-

cal signs during life had indicated. If many fatal cases pass with their pneumonia unrecognized, Christian deems it fair to assume that in a large proportion of nonfatal cases pneumonia likewise passes unrecognized. Again, not infrequently he found physical signs of a patch of pneumonic consolidation in the absence of high fever, pain in the side, dyspnea, cyanosis, or blood tinged or abundant sputum. Careful and repeated examination of the lungs alone permitted the discovery of pneumonia in many such cases. Often an influenza patient, after being in a febrile state for some days, would show a drop in temperature, experience marked relief from his discomfort, and indeed, even feel sufficiently restored to rise from bed and go out; a rise in temperature would then again occur, signs of pneumonia be discovered, and sometimes an early fatal termination follow. Hence the advisability of keeping influenza patients in bed for a considerable time after defervescence. The rule formulated by Christian in this connection is to require the patient to remain abed for one week after his temperature has returned to normal, in every case in which the temperature at any time has risen above 101° for more than observation during the twenty-four hours. Uniform observance of this rule would, as he suggests, seemingly with ample justification, diminish the mortality from the disease and probably prevent pneumonia from developing in a number of patients. Evidence tending to substantiate this view, if any be still needed, is afforded by the instance he cites of about sixty nurses and interns put to bed as soon as they were sick, none of whom died, while all about them the wards were filled with dying patients, many of whom had been sadly neglected before admission and unable to have continuous rest in bed. Fussell, 1918, similarly reports a series of eighty-three nurses ill with influenza in two hospitals, all of whom recovered, in spite of the development of pneumonia in several instances, instructions having been given that they should be put to bed the moment the first symptom appeared, and kept there till the attack was entirely over.

J. E. Dubé, of Montreal, 1919, has called especial attention to the advantages attending universal use of the clinical thermometer as a means of detecting the disease in its incipency and obviating complications. The value of this procedure rests upon the frequently insidious onset of the disease, which may have been present for some time—in some instances for several days—with slight, unnoticed temperature elevation, before the patient actually becomes aware that he is ill. Recommending this procedure to the families under his care in private practice, Dubé met with no case of influenza, among those who took their temperature regularly and went directly to bed upon the slightest appearance of fever, in which recovery did not follow in a few days, without lung complications. Of forty pupils with influenza in an institution in which regular use of the thermometer three times a day by all the classes had been ordered, with prompt confinement to bed where fever was detected, all recovered without pulmonary involvement.

(To be continued.)

Editorial Notes and Comments

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PUBLIC HEALTH AND RECONSTRUCTION.

Students of government have frequently marveled at the fair degree of success attending our governmental activities in spite of what they consider our peculiar conception of State and Federal governmental functions. Especially surprising, to most Europeans, is the large degree of autonomy enjoyed by the several States, and the jealous care with which State rights are guarded. With the rapid growth of the country in the last three or four decades, however, a tendency toward centralization has become more and more apparent, and there have not been wanting those who have advocated Federal control in various activities of government. Striking examples of this are furnished by the railroads, the meat industry, and the wheat market.

The administrative supervision and control of the public health is an extension of the police power and as such is lodged with the State. For years, to be sure, it has been recognized that certain phases of this work also constitute federal functions; among such may be mentioned maritime quarantine, interstate quarantine, and the health supervision of immigrants. Nevertheless, in spite of the fact that public health is a matter of national concern, Federal health authorities have, until recently, had little share in its administrative control. Under these circumstances, the unedifying spectacle was presented of States in which public health administration reached a high level of efficiency and where health conditions were excellent, side by side with States

where little or nothing was done and where, consequently, most unsanitary, unhygienic conditions prevailed. No wonder, then, that drastic action by the Federal Government was repeatedly urged; but under existing forms of government such suggestions were impracticable.

To those who have faith in the ability of the American to find practical solutions for difficult administrative problems, the more recent achievements in Federal public health administration will not be without interest. Like so many developments in other domains of governments, these had their origin, or rather derived their principal impetus, from the war.

With the outbreak of the war, yes, even before, health authorities realized the surpassing importance of controlling venereal infection among our fighting forces. Experience everywhere had revealed the great havoc wrought by venereal disease in armies. Here, obviously, was a national problem. There was little apprehension concerning any difficulty within the army itself, for the military forces were, of course, under Federal control, but it was realized that venereal disease would have to be controlled also among the civilian population with which the soldiers came into contact. What was to be done in the face of the firmly established tradition that health administration was a State function? It was clear that some sort of Federal control was necessary in order to ensure the maintenance of a proper standard of effectiveness. Accordingly, on the initiative of the United States Public Health Service, Congress enacted what is known as the Kahn-Chamberlin Act, which provides Federal moneys to be allotted to States which cooperate with the Federal health authorities in an effective campaign against venereal diseases. The allotments made under this act for the past year range from \$2,000 for Delaware to \$99,000 for New York. A similar arrangement of Federal aid extension is provided in a bill introduced at the last session of Congress by Representative Lever, to promote rural hygiene. In this case Federal funds would be allotted to an amount equal to that supplied by the State. Under an arrangement of this kind the Public Health Service has already conducted a number of demonstrations in rural health administration in various parts of the country, demonstrations which have been attended with great success in improving the health of rural communities.

With the increasing recognition of the nationwide interrelations of public health conditions, the

time would appear to have come to reorganize health administration throughout the country. To begin, the Public Health Service, now a bureau in the Treasury Department, should be constituted in law, as it practically is in fact, a Federal department of health. To the end that the interstate spread of disease be better controlled and that the people of the United States would everywhere be afforded good health protection, this department should establish standards to be observed by State health authorities in their work. To secure the adoption and observance of these standards, Federal allotments should be provided, to be made along the lines already described. As far as possible, all agencies, Federal, State, and local, now engaged in some form of health work should be brought within the control and supervision of the duly constituted health authorities, Federal, State, and local. The usurping by semiprivate organizations of administrative health functions which properly belong to the health authorities should be discouraged on the ground that such organizations are not responsible to the people. On the other hand, such organizations should be encouraged to conduct experimental health demonstrations, especially in fields not yet covered by the health authorities. In this way the application of the principle of Federal and State aid would effect a strengthening of the work of health authorities which could not fail greatly to improve health conditions throughout the country.

POISONING FROM BISMUTH SUBNITRATE PASTE.

The therapeutic results obtained by the use of Beck's bismuth paste are unquestionably very satisfactory, but that the procedure is not devoid of danger is equally true. There are a number of surgeons who maintain that iodoform ether, iodoform oil, or camphorated naphthol are quite as satisfactory in the cases which are suitable for bismuth paste. They likewise point out that bismuth intoxication may occur and that before resorting to its use the condition of the liver and kidneys must be carefully ascertained. It is an undoubted fact that all the toxic accidents produced by bismuth subnitrate are due to the transformation of insoluble salts into soluble ones, this transformation resulting from the action of the liquids of the organism and from the absorption of the newly formed salts thus produced. Dalché has pointed out that the presence of albuminoid matter favors the solubility of the metallic oxide, and, absorption continuing, the toxicity of the bismuth subnitrate is explained.

Bismuth subnitrate should not be used as a dusting powder for extensive wound surfaces on ac-

count of the toxic accidents which have been reported, while the use of Beck's paste, regardless of the successful results obtained, must be carefully watched and the possibility of poisoning guarded against. The preventive measures consist, in the first place, in not injecting large quantities of the paste and in attentively watching for the very first symptoms of intoxication, in order to remove at once the mass of unabsorbed bismuth. To accomplish this, the fistulous tract or cavity need only be syringed out with sterile olive oil and then filled with the oil for about twenty-four hours in order to make an emulsion which can be removed by aspiration. The removal of the paste with the curette is a dangerous procedure because it opens the door to further absorption. However, when the paste has been eliminated the symptoms of poisoning quickly fade away, and one should not place too much importance on the appearance of a mild cyanotic tint of the gums, as this symptom has been noted by the Becks in some twenty per cent. of the cases, and none of the patients offered any other evidence of intoxication than this. Quite on the contrary, these cases have given the best therapeutic results.

Acute suppurating processes should never be treated by bismuth paste for obvious reasons; the treatment should be limited to old fistulous tracts with thick fibrous walls. If one closely follows the directions given by Beck the danger of bismuth poisoning will be avoided to a large extent, but some surgeons are inclined to believe that the use of some other bismuth salt, the carbonate, for example, would give more security from intoxication.

THE FAMILY DOCTOR AS A SANITARY ADVISER.

The outstanding fact of the sanitary history of the world war is that the sputum borne diseases caused the majority of the deaths. In previous wars, improper diet and the fecal and insect borne diseases caused most of the sickness and resultant deaths. What has brought about this change?

We made many sanitary advances before 1898 and the Spanish War was not attended with scurvy and the other dietary diseases as was the Civil War. The work of Manson and Ross placed the control of malaria within our grasp, and out of the war with Spain came the conquest of yellow fever. The Reed-Shakespeare-Vaughan report quickened the sanitary conscience regarding typhoid fever, and Russell's work on antityphoid inoculation banished this scourge of armies. The dietary diseases and fecal borne infections were practically absent among the men engaged in the recent conflict. The meth-

ods of modern warfare are conducive to the spread of the louse borne diseases.

The maintenance of a properly balanced diet, the destruction of insects; the sanitation of the environment; the control of chronic disease carriers, and the use of prophylactic inoculations are mass hygienic protective measures. They may be applied to the entire military organization without any volition on the part of its individual component units.

The control of the sputum borne infections is to a greater extent a matter of personal hygiene. This includes individual hygienic volition. Sanitary messes, clean cooks, sterile dishes and eating utensils, clean table service, head to foot sleeping, and sanitary drinking apparatus are mass hygienic measures which may be applied to the entire command. The control of sputum distribution, the maintenance of hand cleanliness, and the avoidance of contact with things which have been touched by sputum contaminated hands are measures of individual personal hygiene. The widespread occurrence of pneumonia, influenza, measles, and mumps since April 6, 1917, indicates the state of personal hygiene in America.

The general public has come to expect expert sanitary advice from practitioners. How many physicians inspect the kitchens of their patients? How many insist that dishes, glasses, forks, and spoons be sterilized after each using? How many give instruction in real hand cleanliness to their clientele? How many emphasize the danger of the sputum laden palm?

MONEY WELL SPENT.

The budget of expenditures for 1919 announced by the Rockefeller Foundation is most interesting and promising. It is estimated that the income of the foundation for the coming year will amount to about \$6,750,000. Of this sum \$2,367,130 will be expended for public health and \$3,726,504 for medical education, the remainder of the income being devoted to miscellaneous items and expenses.

General William C. Gorgas, formerly Surgeon General of the United States Army, will soon sail for Central and South America as the head of the commission appointed to study the yellow fever situation. It is confidently expected that this commission will be enabled to provide plans which, with the assistance of the local authorities, may eventually banish yellow fever from the mainland of South America as effectively as it has been banished from the Island of Cuba. The commission on tuberculosis is to continue the work in France which it began during the war and which has already yielded most satisfactory results. The work of the foundation in the study of malaria and hook-

worm disease will also be carried on. The campaign against hookworm disease will be prosecuted in twelve of the Southern States and in twenty-one foreign countries.

The International Health Board of the foundation has made an appropriation for studies in mental hygiene at Johns Hopkins University and for the development of public health nursing. Large sums are to be expended in medical education, the largest single item being for the establishment of a medical teaching centre in Peking and the opening of another medical school and hospital at Shanghai. The China Medical Board of the foundation will also cooperate with other agencies in the establishment of medical scholarships in the United States to be awarded to Chinese students, physicians, and nurses. Further sums have also been set aside for the Rockefeller Institute of Medical Research and for the continued development of the Medical School of the University of Chicago.

The expenditures for 1918 amounted to more than \$15,000,000. The special work done by the foundation in connection with war service, and humanitarian enterprises rendered necessary by the war, involved the expenditure of some of the capital in addition to the entire income of the foundation. This year it is planned to restrict the expenditures to the income.

This is indeed an ambitious programme one which involves enormous expenditures in many different directions. A survey of the programme shows that the expenditures have been most wisely planned, for they are to be made in a manner which will yield permanent results.

CLEANLINESS, FILTH, AND IMMUNITY.

In the early days of the war, an epidemic of typhus fever ravaged Serbia. It swept over the country in a mighty conflagration and there was not a family in the entire country that did not lose one or more of its members from the disease. The entire country was a fever bed. Physicians and nurses worked among the stricken people until they also became victims of the malady. The few that escaped occupied themselves in assorting the still dead from the writhing masses of the dying which choked the hospitals. Until the foreign missions arrived the population was without medical assistance. There were seven available clinical thermometers in the entire kingdom. It was impossible to secure men who were strong enough to bury the dead, and the ever increasing mounds of lifeless bodies were placed on the roadside and covered with quicklime. Finally when the fever had burnt itself out, every hamlet in the country had a new graveyard.

and as far as one could see there were fresh wooden crosses with quaint Cyrillic lettering in the upturned sod, and beyond these the Turks were buried; straight sticks marked their last resting place, for they were not Christians.

The disease had been spread by the body louse. As long as it was possible to keep the lice away from the body, immunity was secured. This was usually accomplished by frequent bathing. The Serbian people fasten their underwear at the wrist and ankle in the fall of the year and remove it for washing in the spring, so it is readily seen why the disease spread so rapidly and why so many people were afflicted. The question of immunity by cleanliness for this particular disease had been solved, but under the existing conditions it was impossible to apply the knowledge.

Throughout the Balkans and spreading into the adjoining countries of Bosnia and Russia, the Ziginar or Gypsies are found. These, as a rule, are not wandering tribes and they usually live on the outskirts of the small villages. These Balkan villages are not overclean. In wartime whatever slight veneer of cleanliness exists is rubbed away. But the Ziginar were so dirty that the Serbs would not allow them to live in the villages. The filth beggared description. There was no semblance of sanitation; an old colony of sea gulls on a cliff is clean by comparison. The Ziginar were underfed and did not have proper clothing or sufficient shelter. Strange as it may seem, these Gypsy villages were scarcely touched by the epidemic.

Salonika, until it was captured by the Greeks, in the last Balkan war, was a Turkish city for many centuries. It was also the dirtiest city in the world. The great epidemics which had spread over Europe for hundreds of years generally originated in Salonika. During all of these varying epidemics the Balkan Ziginar had been immune. During the last typhus epidemic, when they were examined, it was found that their bodies were covered with lice. It was demonstrated that these lice had frequently bitten their hosts, apparently finding these swarthy people a satisfactory diet. So their immunity was not due to the absence of lice or any inactivity on their part. Many explanations have been advanced to explain this extraordinary phenomenon. Was their immunity due to filth?

FOREIGN MEDICAL LITERATURE.

Medical men returning from overseas will have a greater interest in the work of their European colleagues than before the war. In many special fields of medicine there are valuable lessons to be gained. At any rate, it is always interesting and refreshing to get the point of view of men who are working abroad along similar lines. It often acts as a

stimulus, in addition to the direct knowledge gained. These lessons are not limited to war surgery, which the physicians in Europe have developed through their extensive experiences, and which our own military surgeons have accepted. In the past we have borrowed extensively from the European medical profession. Medicine has become one of the truly international sciences, for, with the realization that diseases did not recognize artificial national boundaries, medical men freely exchanged the results of their experiences.

One of the fields in which French physicians have been pioneers, is that of urology. Among the most eminent workers in the domain of French urology is Georges Luys. For many years he has advocated and developed the extremely useful method of direct urethroscopy and cystoscopy. He has contended that the indirect methods of examination are cumbersome and are not free from the possibilities of an erroneous diagnosis. He has used the direct vision method for treatment, which enables the operator to apply medication to the part visually; noting the progress of the treatment and from time to time comparing the existing conditions.

In *A Treatise on Cystoscopy and Urethroscopy* [St. Louis: C. V. Mosby, 1918] the results of Doctor Luys's work are admirably presented in an English version translated by Dr. Abr. L. Wolbarst. There are many illustrations, photographs, and reproductions in color, which give accurate pictures of the author's findings and from the artistic and realistic manner in which they are reproduced they may be utilized by the practitioner as aids in the determination of various urethral and cystoscopic conditions. Doctor Wolbarst has included many additions in the English edition of this book, which serve to make it more useful and suitable for American physicians. The publishers are to be commended for the splendid workmanship and the general appearance of this volume, which was produced under the adverse conditions of wartime. The book should prove to be of great value to the general practitioner as well as to the urologist.

THE THERAPEUTICS OF INFLUENZA.

A special number of the *Practitioner*, February, 1919, is devoted to influenza and is of great interest as showing the wide diversity of views held regarding the treatment of this disease and its sequelæ. Dr. Hector MacKenzie advocates symptomatic treatment along classical lines, using morphine and heroin in a cough mixture, solution of ammonium citrate with a small quantity of ipecac for the treatment of bronchitis, poultices, stupes, and similar applications to relieve the pain on breathing, and alcohol, strychnine, digitalis, strophanthus, caffeine, and camphor as stimulants in cases of prostration. In the same issue, another distinguished authority, Dr. W. W. Wynn, specifically warns the practitioner against the use of alcohol because it is depressant and against digitalis because it is a heart poison. He takes the rather pessimistic view that "only the confirmed therapeutic optimist can face with equanimity these cases of failure from toxic exhaustion. Our real hope lies in the establishment of sound lines of specific treatment."

News Items.

Air Service Casualties.—Casualties in the United States Air Service Personnel, serving with the Allied and American Armies, number 554, of these 171 men were killed in action, 135 were taken prisoner, 129 wounded, seventy-three missing, forty-two were killed by accidents, and four from other causes.

Memorial for Doctor Cragin.—More than half of the proposed \$100,000 memorial fund which is being raised to enlarge the work of the social service department of the Sloane Hospital for Women, in memory of Dr. Edwin B. Cragin, New York's famous gynecologist and obstetrician who died last October, has been subscribed.

Pittsburgh Unit Demobilized.—Base Hospital Unit No. 27, which was organized at the University at Pittsburgh, is being demobilized at Camp Dix after eighteen months of service abroad. It cared for 19,500 wounded. The following members of the unit were cited for heroism: Captain Bender S. Cashman, first sergeant Charles D. Storck, and two nurses, Mary De Lozier, and Marguerite Aaron.

Narcotic Drug Commission to Continue.—A bill introduced at the suggestion of the Governor of the State of New York providing for the discontinuance of the narcotic drug commission which was established by the last legislature and which took office in last November, has been defeated in both the Senate and in the Assembly of the Legislature of the State of New York.

Philadelphia Medical Societies.—The following medical societies will meet in Philadelphia during the coming week:

TUESDAY, April 1st.—Medical Examiners' Association.

WEDNESDAY, April 2d.—College of Physicians of Philadelphia; Laryngological Society.

THURSDAY, April 3d.—Aid Association (board of directors); Obstetrical Society; Physicians' Motor Club (directors).

FRIDAY, April 4th.—Kensington Branch of the County Medical Society.

Physicians' League Meeting.—The Physicians' League of Washington Heights has called for a mass meeting to be held April 9th, in the auditorium of Public School No. 132, at 182d Street and Wadsworth Avenue, for the purpose of calling to the attention of the city authorities the need for additional hospital facilities on the Heights. The Washington Heights Civic Federation and the Washington Heights Tax Payers' Association have united with the Physicians' League.

Lethargic Encephalitis Puzzle.—Dr. Simon Flexner stated that for the present the disease should be viewed as of unknown causation. Its relation to other diseases, e. g., influenza and infantile paralysis, is merely conjectural. None of the European observers ascribe the cases occurring in their respective countries to influenza or other well known diseases, although the resemblance of the pathological lesions in the nervous system to those occurring in infantile paralysis has led to a discussion of the correspondence and difference of these two afflictions. It is highly important that the suspected cases of lethargic encephalitis should be studied, both clinically and pathologically.

New Head for McGill University.—Sir Auckland Geddes, British Minister for National Service and Reconstruction, has accepted the offer of the principalship of McGill University. Sir William Peterson, who has been ill for weeks with a paralytic seizure, has resigned.

Presbyterian Hospital Unit Commended.—The Surgeon General of the United States Army has addressed a letter to the trustees of the Presbyterian Hospital commending the work done by the Presbyterian unit as Red Cross Base Hospital No. 2 and of Colonel George E. Brewer as director of the hospital.

Amputation Cases in United States Forces.—An estimate made by the Federal Board for Vocational Education places the number of major amputations in the United States to date as 3,034, of which 2,308 are arm and leg cases. Of these approximately 600 are arm amputations and 1,708 are leg amputations. The remaining 726 cases are of hands, feet, and two or more fingers. Not all of these men require special training to enable them to make a living. In the main those who require reeducation on account of leg or arm amputations are farmers, artisans whose trade required great activity, such as carpenters, teamsters, structural iron workers, and the like.

Hospitals Ask for a Hearing.—In order to have a voice in the determination of their future, the Hospital Conference of the City of New York, which represents forty of the largest hospitals in the city, has appealed to the acting commissioner of education for a hearing on the proposed legislation affecting the hospitals. It was stated that several bills had been introduced in the State Legislature during the last few years which, if passed, would revolutionize the training of nurses in the hospitals. At the present time, there is an amendment to the nursing bill at Albany which provides, among other things, for the training of short term nurses or attendants. The hospitals are of the opinion that this type of attendance would be useful, but as they will train these students, they feel that they should be consulted in the matter. In the past, the hospitals have been ignored.

State to Study Lethargic Encephalitis.—A special meeting of the State Public Health Council will be held in the near future to consider the origin of the so called sleeping sickness. An announcement has been made by the State Department of Health that they are awaiting a report from Dr. Simon Flexner, of the Rockefeller Institute, on the origin of the malady. There is a possibility that the council may declare the malady to be a reportable disease, to allow the health authorities a greater opportunity of checking up the situation as regards this new ailment, which many declare to be assuming an epidemic form. Some of the authorities in the Health Department are of the opinion that reports from various sections of the State regarding sleeping sickness are well founded. The United States Public Health Service has informed health officials throughout the country that it is desirous of knowing if cases of lethargic encephalitis have been observed in the various States and to what extent the disease prevails.

Cancer Report.—Dr. Charles S. Fairchild, chairman of the board of trustees, for the State Institution for Malignant Diseases, in Buffalo, has filed his annual report. The report indicates that a considerable advance has been made in the study and treatment of cancer. The institute has been able to put patients on diets which have kept their weight normal and prevented emaciation. The report states that the effect of the x ray on blood chemistry and the metabolism of cancer patients has been studied and will be published.

Aid for Tuberculosis Hospital.—An appeal has been made by Mrs. Royall Tyler, of Paris, wife of Major Tyler, and vice-president of the Paris Committee for Edith Wharton's War Charities for the tuberculosis work to be carried on by that organization in France. The government is also cooperating with Mrs. Wharton's committee in a model tuberculosis dispensary in one of the poorer parts of Paris.

Casualties Among American Medical Officers in France.—According to a statement issued by the surgeon general of the United States Army, there were 442 casualties among medical officers of the American Expeditionary Forces in France from July 1, 1917, to March 13, 1919, divided as follows: Died of wounds, twenty-two; died of accident, nine; died of disease, 101; killed in action, forty-six; lost at sea, four; missing in action, seven; prisoners not wounded, thirty-eight; suicide, three; wounded in action, degree undetermined, forty-seven; wounded in action, severe, ninety-three; wounded in action, slight, seventy-two.

Meetings of Local Medical Societies.—The following medical societies will meet in New York during the coming week:

TUESDAY, April 1st.—New York Academy of Medicine (Section in Dermatology and Syphilis); Clinical Society of Harlem Hospital (annual); New York Neurological Society; Society of Alumni of Lebanon Hospital.

WEDNESDAY, April 2d.—New York Academy of Medicine (Section in Historical Medicine); Bronx Medical Association; Harlem Medical Association; Psychiatric Society of New York; Society of Alumni of Bellevue Hospital; Brooklyn Hospital Club; Brooklyn Society for Neurology.

THURSDAY, April 3d.—New York Academy of Medicine (stated meeting); Brooklyn Surgical Society.

FRIDAY, April 4th.—New York Academy of Medicine (Section in Surgery); New York Microscopical Society; Practitioners' Society of New York; Society for Serology and Hematology; Alumni Association of Roosevelt Hospital; Gynecological Society of Brooklyn.

SATURDAY, April 5th.—Benjamin Rush Medical Society.

Aid for Crippled Soldiers.—The problems confronting crippled American soldiers were discussed by Charles Evans Hughes and other authorities on physical reconstruction at a mass meeting held at the Hippodrome on March 23d, which was conducted by the New York County Chapter of the American Red Cross. There was an exhibition of buck and wing dancing with artificial legs, and other skilled cripples showed how it was possible to eat, box, and sign checks without hands and arms. Addresses were delivered by Chaplain Almon A. Jaynes, of the 27th Division; Mitchell J. Dowling, ex-speaker of the Minnesota Legislature; Douglas C. McMurtie and Walter Jennings, chairman of the New York County Chapter.

Personal.—Major Luke B. Peck, Medical Corps, U. S. Army, has just been promoted to the rank of lieutenant colonel and decorated with the Croix de Guerre. He was under fire for two months and a half while serving with the 7th United States Infantry, 3d Division, under General Joseph T. Dickman, during the battles of Chaumont Thierry, Belleau Wood, and the second battle of the Marne, and was gassed on July 15. Since returning to duty Lieutenant Colonel Peck has been in command of Convalescent Hospital No. 5, Menton, Southern France, and is now in excellent condition.

The Sale of Habit Forming Drugs.—Dr. Royal S. Copeland, health commissioner of the city of New York, states that in the month of January manufacturers sold more cocaine to wholesalers in New York city than was sold during the entire year of 1918. The February demand was so great that manufacturers had to limit their sales. A record of the legal sales in December in thirty-three of the 2,600 drug stores in the city indicated the sale of 876 ounces of morphine, seventy-two ounces of cocaine, and 1,690 ounces of heroin, the total of which would be sufficient to give twenty grains of these drugs each day for a month to 2,000 drug addicts. On the basis of the normal medicinal dose, one sixth to one fourth of a grain each day, these sales would be sufficient to furnish drugs to 40,000 persons if it were administered medicinally. One drug store is reported to have sold 585 ounces in a month. It is believed that the large sales of the thirty-three stores cited indicated that a large part of these sales were made to addicts. It was emphasized that drug addiction is a disease that is not confined to the poor but which extends to every strata of society. It has been shown that fifty per cent. of those addicted to drugs have criminal histories.

Praise for Medical Corps.—General John J. Pershing, commander in chief of the American Expeditionary Forces, has written the following letter to Brigadier General Walter D. McCaw, chief surgeon, American Expeditionary Forces:

"Now that active operations are at an end, and many officers and enlisted personnel are preparing to sever their connection with the military forces and return to civil life, I desire to express my personal appreciation and thanks and that of your fellow members of the American Expeditionary Forces to you, and through you to the members of your department, for the splendid services they have rendered. At the front and in the long chain of hospitals extending down to the base ports, I have watched the fine and unselfish character of their work, and the achievements which have added new glory to the noble professions they have so ably represented. Many of them have shared with the line troops the hardships of campaign conditions and have sustained casualties and privations with fortitude that is beyond praise. No labor has been too exhausting and no danger too great to prevent their full discharge of duty. A special word of thanks is due to those members who were attached to and served continuously with the armies of our Allies. Their efficiency and high ideals have called for the highest praise of the Allied governments under whom they have served. Before they leave France, will you convey to all ranks under your command the deep sense of my personal appreciation of their splendid services and my regret at the impracticability of sending each and every one of them a letter of thanks?"

Miscellany from Home and Foreign Journals

Phlebitis and Septicemia.—Dehelly (*Presse médicale*, January 2, 1919) deplores the vagueness of the term septicemia, which leaves one in doubt as to whether there are merely living bacteria in the blood which are not acting harmfully upon the latter or whether there exists an actual disease of the blood due to their presence. Bacteria in the blood no more signify infection of the blood than the presence of germs in the mouth or intestines in germ carriers signifies infection of these organs. A case is reported, of the type commonly termed septicemia, but in which the actual condition was a localized focus of infection in a certain section of the circulatory apparatus, discharging bacteria into the blood stream without producing, properly speaking, a disease of the blood. The left foot and portions of the left leg of a man became gangrenous as the result of an accident, and amputation was done at the middle of the leg. Chills and fever followed for some days, and a blood culture was positive, showing hemolytic streptococci. No opportunity apparently existing for improvement of the condition by local treatment, expectant treatment was adhered to for several days. Finally edema of the stump appeared, a little pus was discharged from the vicinity of the cut posterior tibial vessels, and amputation at the middle of the thigh was decided upon. On the day after the operation the temperature fell to normal and a blood culture proved negative; uninterrupted recovery followed. Examination of the amputated limb revealed the cause of the disturbance in a suppurative phlebitis of the thigh. Complete study of the limb showed no other disease focus. The case proves that a positive blood culture does not necessarily imply infection of the blood, but that there may exist a local focus which must be removed if success is to be obtained. The author is tempted to incriminate the phagocytes as carriers of bacteria from the periphery into the venous circulations.

Metallic Tin and Tin Oxide in the Treatment of Breast Abscess or Lymphangitis.—E. Chomé and A. Frouin (*Paris médical*, January 4, 1919) found staphylococci in pure culture in all but three of twenty cases of breast abscess. In these three there were present in addition, respectively, the streptococcus, the bacillus of Friedländer, and the pyocyaneus organism. Tin and tin oxide having been used with marked success in the treatment of staphylococcic infections in general, the authors used them in these twenty cases of breast abscess, likewise with gratifying results. In addition to the internal use of the remedies, the incised and drained abscess was washed out each day with a 0.3 to 0.5 per cent. solution of protochloride of tin in a fluid containing glycerin. All the cases, except the three harboring organisms other than staphylococci, recovered within seven to sixteen days. Prevention of abscess formation by treatment of the lymphangitis, which is the first manifestation of trouble, was also attempted, with good results. Eight tin tablets were given every day and continued, what-

ever the state of apparent improvement of the lymphangitis, for eight or ten days. Not a single case of abscess followed this prophylactic measure. Where the mammary gland was large and painful, hot compresses dipped in a 0.5 per cent. solution of protochloride of tin were kept applied for twenty-four to forty-eight hours. Out of forty cases of breast lymphangitis seen in the year, 1918, twenty-one had only a superficial lymphangitis, while nineteen presented from the onset a marked enlargement, with deep induration, of an entire segment of the mammary gland. All the cases of lymphangitis recovered within six days, and generally between the third and fourth days. Milk secretion became normally reestablished about the fifth or sixth day, and maternal feedings of the child were subsequently continued. The tin treatment is well borne by infants, who, indeed, may on occasion take the remedy by mouth without difficulty. Three tablets a day, broken up in a little water, were given to nurslings aged sixteen and twenty-six days, suffering from multiple staphylococcic abscesses. These infants recovered in five and twelve days, respectively.

Arsenic in Syphilis.—Lockhart and Atkinson (*Canadian Medical Association Journal*, February, 1919) answer the objections which have been raised to the use of arsenic in the treatment of syphilis, on account of the technical apparatus which was required being elaborate and expensive and troublesome to operate, by explaining that in the majority of clinics gravity appliances were still used in which large quantities of water were required. In addition, the alternate tubes contained a considerable amount of normal saline solution, for the purpose of indicating that the vein had been penetrated and for washing out the portion of the dose below the Y tube at the completion of the administration. They state that this method of administration required a special still, much sterilization of the apparatus used and possession of the equipment. Methods for convenient internal medication by arsenical preparations, by mouth or rectum have proven of little value, on account of the instability of the drug and the difficulty in measuring the dose. It has been attempted to combine the drug with various local anesthetics so as to lessen the pain when the preparations are injected subcutaneously or intramuscularly. The apparatus recommended is a hypodermic syringe and a few small basins, and if a large number of injections are to be given a few additional articles may be added to facilitate the work. The needle used is a trifle shorter and thicker than the ordinary hypodermic needle, as this makes it more firm when it is injected into the vein and there is less danger of penetration, while it is easy to pick up the vein with the shorter needle. The following method of administration is used: A thirty c. c. burette containing the sterile water is held upright by a stand and terminates in a piece of rubber tubing to which is attached a pinch cock and has a glass nozzle at the end. The outside of

the ampoule is flamed over an alcohol lamp and the tapering end is filed off and two c. c. of water from the burette is run in and a small piece of glass tubing with a rubber connection at one end and a few filaments of wool, similar to the galyl ampoules, near the centre is attached. The ampoule is then gently shaken. Solution is complete in a few seconds. The ampoule is placed upright on a small board which is penetrated with small holes for the required number of ampoules. The syringe is then picked out of the small basin containing alcohol with dressing forceps and washed in a sterile saline solution and the contents of the ampoule are aspirated by means of the rubber connection to the glass tube and a needle is selected from the boiling water and attached to the syringe. The arm of the patient is prepared in the meantime by a light rubber band which is attached to the arm, and the area below this is painted with iodine. The arm of the patient is placed on the table and the needle is introduced into the vein. The plunger is slightly withdrawn to make certain the needle is in the lumen of the vein. The tourniquet is removed and the injection completed. A seal is not required for the wound as it is too small to bleed. Owing to the small size of the needle there is a minimum of pain. Not a single case of thrombosis of the veins has been reported, and no anaphylactic reactions have been noted; as are frequently present when large quantities of water are employed. By the use of this method smaller veins may be entered. A microscopic examination of the patient's blood, which had been withdrawn into the syringe containing the arsenical solution, showed the blood cells apparently normal even some hours after withdrawal. The drugs used were novarsenobillon and novarsenobenzol.

Negative Wassermann Reactions.—Douglass Montgomery (*American Journal of Syphilis*, January, 1919) gives the history of two cases in which a clinical survey would lead to the expectation of a positive reaction, but which gave a negative result. The first was a case of lichen planus which simulated syphilis and mycosis fungoides. The patient was a woman of fifty-one. Eleven years previously she had many "lumps," in both breasts, which had been dispelled by x ray treatment. At the age of eighteen she had had a scaly eruption on the outer surface of both forearms. On examination her skin was ichthyotic, the palms were red and the palmar lines were very marked; the cuticle was soft. There were patches of light red erythematous eczema over the front of the right leg accompanied by an edema of the legs. Over the anterior and inner surface of the right thigh were two groups of suppurating, crusted lesions, which were the result of horseback riding. These lesions were thought to be syphilitic in origin, but a negative Wassermann reaction cast a doubt on this surmise. Then, the lesions were supposed to be those of mycosis fungoides, but the absence of any intense itching was against this. Antiluetic treatment did not better the condition, but the patient began to complain of an itchiness. During the following winter there appeared red, rough, itching patches which

involved the scalp, face, palms and soles. A great improvement was noted on the use of hypodermic injections of cacodylate of soda. Most of the lesions faded out leaving brown stains, and the remaining ones did not itch or burn. The positive diagnosis of lichen planus was now made. The error had been caused by the large size of the papules. The second case was that of a woman of fifty-seven who while nursing soldiers returned from the Philippines, had a series of sores break out which were supposed to be boils. The following year she had erysipelas followed by a swelling under the left side of the jaw. In 1911 the present lesion which she showed on her scalp began. There was present a walled serpiginous ulcer with an advancing border, covered with a thick crust. The lesion occupied a bald area about five centimetres in diameter. Lues was suspected. She was given a local lotion and antisiphilitic treatment internally. In about fourteen days the raw surfaces had healed and it was felt that the diagnosis was justified. In seventy-two days the lesion had completely healed. At present the area presented a series of minute epitheliomatous nodules about two millimetres in diameter. The affection was considered to have a low grade of malignancy, and this explained the negative Wassermann reaction, for this type of epithelioma is prone to pyogenic infection and the healing of the lesion was due to the boric acid ointment and not to the internal medication. Radium treatment was finally used with excellent results.

Retromalleolar Sagging as a Sign of Sciatic Disease.—L. Rimbaud (*Bulletins et mémoires de la Société médicale des hôpitaux de Paris*, October 24, 1918) emphasizes the importance of study of the region of the tendon Achilles in the diagnosis of disease of the sciatic nerve. In addition to testing the Achilles reflex it is of value to test the sensitivity of the tendon to pressure and to examine for a lower note upon percussion of the tendon on the affected side as compared with the sound side. The author has also recently been struck by the altered appearance of the Achilles region in some sciatic cases. Instead of appearing as a tense cord down to its insertion into the os calcis, the tendon is less prominent; the two depressions intervening between it and the malleoli are more or less effaced, the tendon seems broadened, and the region as a whole appears edematous. This sign is especially pronounced in wounds of the great sciatic or internal popliteal nerves. It is absent, as a rule, in wounds or paralysis of the external popliteal. It also occurs in medical sciatica, especially when severe and of long standing and seems to be produced particularly where there is sciatic radiculitis or sacral funiculitis through arthritis of the foramina. The sign occurs in about seventy per cent. of all cases of surgical lesion of the sciatic and in twenty-five per cent. of true medical sciaticas. Its cause is probably a hypotonicity of the gastrocnemius and soleus muscles; if these muscles are grasped with the hand and pulled upward the retromalleolar sagging disappears. The sign is best elicited with the patient standing on a chair or table and the heels directed toward the source of light.

Tendon Fixation in Musculospiral Paralysis.

—A. Rocyn Jones (*Journal of Orthopedic Surgery*, March, 1919) presents a plan for the fixation of joints by converting paralyzed tendons into ligaments. He gives a résumé of the history of the evolution of this form of treatment from the time of Tilanus, who first attempted the procedure in Amsterdam, in 1898. He uses this method principally for paralytic deformities of the foot. Gallie in 1912 reported a series of over one hundred cases of satisfactory fixation for deformities. He incised the periosteum and if an epiphysis was present the perichondrium also. These were then raised on either side and a trough made in the bone and cartilage. The foot was placed in the correct position and the tautly drawn tendon placed in the groove and a kangaroo tendon suture united the cartilage and tendon. The periosteal edges were brought together with a catgut suture and the rest of the tendon buried in the groove. In partial paralysis with persistent deformity he fixed half of the tendon and left the rest to functionate normally. Formerly the operation of tendon fixation has been confined to the lower limbs owing to the frequency of their involvement by poliomyelitis. However, it has a special value when used in drop wrist from an injury to the musculospiral nerve, when the nerve is beyond repair. The hands and fingers have a feeble grasping power. There is a loss of muscle balance, and unless the carpus and metacarpus are steadied a powerful handgrasp is impossible. By converting the three extensors into ligaments the carpus can be fixed in an attitude of dorsiflexion and still permit of the movement of the wrist joint. Tendon fixation is recommended as an alternative procedure to tendon transplantation, or the two may be combined. This latter operation should be done in two stages. The transplanting should follow the fixation in two or three months, which will tend to prevent matting of the tendons.

Infection of the Knee Joint.—Payr (*München. med. Woch.*, May, 1915) makes an attempt to differentiate the various types of joint infections. He draws a distinction between the conditions which he names empyema of the joint, capsular phlegmon, and panarthrititis. Empyema is a form of suppuration which occurs on the superficial surface of the synovial membrane; capsular phlegmon is a diffuse cellulitis which affects the capsule and the surrounding soft parts, and panarthrititis is a combination of the two conditions. The difference between the two former conditions are: Distention of the synovial cavity by fluid in empyema, while in capsular phlegmon the soft parts of the joint are affected, and the swelling is tapering in outline. Absence of edema and early reddening of the skin in empyema, while these are present from the beginning in capsular phlegmon. The limb is kept in a fixed position and the capsule is distended in empyema, while in capsular phlegmon the limb is rigidly extended and remains flat upon the bed. Active movements are possible at first in empyema; impossible in cellulitis. Passive movements in empyema give rise to painful reflex contraction and lateral movements are not possible. In capsular phlegmon passive movements

can not be borne, while there is considerable amount of lateral mobility on account of the destruction of the ligaments. In empyema the pain is absent when the limb is immobilized, while in capsular phlegmon it is necessary to apply extension to avoid the pain. In empyema pressure causes local pain only, while it is general in phlegmon. Constitutional disturbance is slight in empyema. There is an abundant amount of thin, purulent fluid in empyema, and only a few drops of thick pus in phlegmon. The treatment should be as follows: A prophylactic injection in the cases without effusion, of carbolic acid and camphor. This should not be used in cases of hemarthrosis, as the effused blood will coagulate. In serofibrinous or seropurulent hemarthrosis of a milder type, puncture followed by aspiration and irrigation with carbolic solution. In empyema a glass canula is inserted through a close fitting incision in the capsule and then carbolic acid and camphor are injected daily. In secondary phlegmon a free incision and drainage from behind are employed. In primary capsular phlegmon and in panarthrititis without severe involvement of the articular ends of the joint the cavity is freely exposed by Kocher's lateral curved incision. Where infected fissures are present and there is considerable shattering of the articular ends, a resection of the joint is advocated. This should be reserved for a secondary operation and done as a last resort when infection can not well be controlled. In case of extreme injury of the bone with severe infection, disarticulation or amputation may be required. These operations may be called for at a later date in order to save the life of the patient when other methods are of no avail.

Simple Tests of Physical Efficiency.—Martin Flack (*Lancet*, February 8, 1919) approached the problem of physical tests from the point of view of the physiologist and endeavored to select or elaborate tests which would show the physical condition of the subject as a whole, rather than of any single system. The tests were applied to flight officers who had made good and were in excellent physical condition and to such as had broken down for one or another reason. Especial attention is directed to the technic of the tests, and it is insisted that all should be carried out in precisely the same way on all occasions so that the results of the examination of any given man by several medical officers shall be strictly comparable. The first test is the response of the pulse to exercise. The pulse rate is taken with the subject standing. He is then made to place one foot on the seat of a chair and steadily raise his body to the height of the seat five times in fifteen seconds, the examiner timing the raising and lowering by swinging the subject's arm. With the subject still standing the pulse is counted in five second intervals and the increase in rate and time taken to return to the previous rate are noted. In a good subject the increase in rate should be about twenty and the time of return about fifteen to twenty-five seconds, and not over thirty seconds. A return time of over thirty seconds suggest cardiovascular inefficiency. The second test is the determination of the time the subject can hold his breath without any preliminary deep breathing.

The subject is told to exhale deeply, then to inhale as deeply as possible and to hold his breath as long as he can, his nose being clipped. The average time the breath can be held is about sixty-nine seconds for fully fit men. The fit man also will say that he had to give up, or that he felt as though he would burst, while the unfit one will say that the blood rushed to his head, or that things became blurred. The test is, further, quite valuable in determining the subject's resolution. The third test is a combination of the first two and the fit man is found to be able to hold his breath nearly as long after as before the exercise, while the time falls sharply in the unfit. The fourth test is the measure of the subject's vital capacity, which should exceed 3,400 mls in fit men. The fifth test is the determination of the height to which the subject can raise a column of mercury in a U tube by forcible blowing. The height varies between 106 and 116 mm. of mercury in fit men. The sixth, and last, test is the length of time that the subject can hold the column of mercury at 40 mm. and in fit subjects averages fifty seconds. During this holding test the increase in the pulse rate should be noted, the rate being counted for each five seconds that the mercury is sustained. Normally there is a steady rise, or a rapid initial rise followed by a sustained level. No one of the tests should be taken alone as indicative of a man's condition, but rather the tests should be combined and the conclusions based upon the net results.

The Effort Syndrome.—Alfred E. Cohn (*Journal A. M. A.*, December 28, 1918) precedes a detailed discussion of the effort syndrome by some remarks on the significance of systolic cardiac murmurs, in which he states that close study fails to show that systolic murmurs can be classified into "functional" and "organic" by their position, character, transmission, intensity in different respiratory phases, and relation to bodily posture. These criteria may be of some aid, but the judgment as to the significance of a systolic murmur must include the consideration of: The size of the heart; the history of infection, especially rheumatism; the intensity of the second sound in the second left interspace, or at the third left costochondral junction; and the heart's reaction to exertion. Cohn then describes in detail the symptoms of the effort syndrome, giving its general characteristics as including: Breathlessness, giddiness, sense of fatigue, pain in the chest, often precordial, and palpitation. Examination reveals an anxious facies, tremors or shakiness of the fingers, the extremities, or the entire body, cyanosis, sweating, head zones of skin hypersensitiveness, and tachycardia. No patient presents all of the symptoms and it is not uncommon to find a patient who presents only one. The syndrome is involved and the diagnosis is often of considerable difficulty in doubtful cases. Each symptom presented has to be analyzed in the light of the others and of the findings upon examination. The effort syndrome is not concerned with the cardiovascular system alone, but touches intimately other domains of medicine. At present its etiology is not known nor is the precise relation to the processes involved in connection with this entity.

Treatment of Scarlet Fever.—Albert J. Bell (*Ohio State Medical Journal*, February, 1919) expresses his treatment of scarlet fever in three words—"bed, milk and water." Nephritis is best prevented by keeping even the mildest cases in bed on a strict diet for at least three weeks. Water or lemonade is given every two hours during the day with from twelve to thirty grains of potassium citrate according to age, and at four hour intervals at night in double doses, during the first four weeks. The ideal diet in the first three weeks is milk which may be varied with cooked cereal, ice cream, bread or crackers. During the fourth week vegetables and cooked fruits are added, and in the fifth week soups, in the sixth week eggs, chicken or fish and in the seventh meat, unless contraindicated by disease of the kidneys. Hot alkaline throat irrigations are given every three hours during the acute stage. An ice bag is applied to the throat where tender and enlarged glands are present. Septic cases may be given the Murphy drip or larger injections of saline, Fischer's or glucose solution. Ear drums should be carefully watched as otitis media is often painless.

Sodium Morrhuate in Tuberculosis.—Leonard Rogers (*British Medical Journal*, February 8, 1919), following the very promising results secured in leprosy by the use of sodium gynocardate, sought to apply similar methods in the treatment of tuberculosis, since this disease, like leprosy, is due to an acid fast bacillus. A preparation was therefore made of the sodium salts of the unsaturated fatty acids of cod liver oil, after extraction with ether. This preparation was called sodium morrhuate. A three per cent. solution in water was prepared and sterilized in the autoclave, after which one half per cent. of phenol was added, when the preparation was ready for administration subcutaneously or intravenously. Like the similar preparation from chaulmoogra oil, this gave very excellent results in cases of leprosy, showing that there is nothing specific in either, but that the sodium salts of the unsaturated fatty acids of these two oils have some more or less direct action on the fatty envelope of acid fast bacilli. Sodium morrhuate has been used for a year by several competent observers in the treatment of tuberculosis with altogether most favorable results, amounting to virtual cure in a number of cases. Its administration was found not infrequently to give rise to temporary febrile reactions and to focal reactions at the sites of the tuberculous lesions, and in at least two cases the clearing up of the lung lesions has been demonstrated by the x ray examination. The drug should be begun by subcutaneous injection, the initial dose being generally half a mil of the three per cent. solution, and this dose is increased by from one tenth to two tenths of a mil at each injection until a dose of about two mls is reached. Then intravenous injections can be started, beginning with half a mil and increasing as with the subcutaneous doses up to three or four mls, or until a slight febrile reaction is produced. The administration of the preparation seems devoid of harm if care is employed to avoid the production of marked reactions.

Scurvy in Childhood.—Walter Tobler (*Zeitschrift für Kinderheilkunde*, xviii, Nos. 2 and 3, 1918) having had an excellent opportunity to study a large number of children, particularly examined the question of scurvy among them. From the clinical viewpoint the affection can be divided into two phases: 1, The phase of gingival edema which may cause ulcerative processes around carious teeth. 2, The phase of bone lesions, with cutaneous and muscular hemorrhages and more advanced buccal changes. The gingival process may be overlooked, to such an extent that occasionally the bone lesions (especially in the legs) will be the first symptoms noted. But it is also possible that the bone pain, localized more particularly in the epiphyses, is manifest, although buccal lesions are wanting. The muscular hemorrhages appear to depend on the intensity of the movements made and occur more commonly in turbulent boys. Cutaneous hemorrhages are frequently completely wanting. Anatomical and clinical considerations permit the writer to categorically defend the point of view that Barlow's disease and scurvy are identical affections. From the etiological viewpoint, Tobler's researches establish with certitude that hygienic conditions do not play any part, but that a uniform diet with the action of heat upon the foodstuffs is the cause. Fresh acid drinks and infusion of crushed pine needles will result in a rapid recovery, regardless of external conditions which may remain exactly the same.

The Cure of Moist Eczema by Inhalations of Amyl Nitrate.—N. Berend (*Monatschrift für Kinderheilkunde*, xiv, Nos. 8 and 12, 1918) points out that infants endowed with vasomotor lability offer this phenomenon, viz.: That they have bluish lines around the lips, as slight mottlings of the skin, a marked propensity to paleness when undressed and a cyanosis when they cry. To study this lability the writer found that inhalations of a few drops of amyl nitrate (from five to ten drops during several seconds) was a good means of obtaining this proof and is without danger. It was found that healthy infants react, like adults, by a marked redness, and that those deeply intoxicated from food, with marked digestive disturbances, react feebly, and lastly, that infants presenting an exudative diathesis present an accentuated redness followed by a sudden marked paleness. In the latter case the phenomena are due to a manifest decrease in the blood pressure probably resulting from a hypersensibility of the terminal splanchnic filaments or of the vasomotor centre. The writer was surprised to note that in infants with moist eczema there was a rapid retrogression of the cutaneous lesion occurring after a few inhalations of amyl nitrate. This also applies to intertrigo. The retrogression continued and was considered as a phenomenon of cure of the exudative process. It might be assumed that amyl nitrate provoked circulatory disturbances which might have resulted in changes in the chlorid metabolism and thus the cure of the skin lesions, but interesting experiments allowed the writer to conclude that in the exudative diathesis there is a hypoplasia of the chromatin system and hypotonus of the sympathetic system.

Local Treatment of Acute Rhinitis.—John A. Thompson (*Ohio State Medical Journal*, February, 1919) has had excellent results from the local application of the following prescription:

Atropin,gr. ss;
Adrenalin,gr. i;
Menthol,gr. xxiv;
Camphor,gr. xl;
Petrolat. liq.,
(Ol. amygdal. dulc.,āā q. s. oz. viii.

No case treated thus before laryngitis and bronchitis had developed had any serious involvement of the lower air passages.

Tonsillar Infection and Recurrent Vomiting.—Rood Taylor (*Minnesota Medicine*, February, 1919) from a study of forty-seven cases of cyclic or recurrent vomiting at the Mayo Clinic is convinced that septic tonsils or enlarged infected adenoids are an important etiological factor. This is borne out by the after history of those cases which had the tonsils and adenoids removed, only one of twenty-four being unimproved. Half of the cases had no attacks after the operation, this period varying from seven months to six years.

Treatment of Acute Follicular Tonsillitis.—James M. Britton (*Southwestern Medicine*, January, 1919) describes his treatment as beginning with a calomel and saline purge. The fever and pains are best controlled by sodium benzoate and salol equal parts, in doses of five to fifteen grains repeated in five to six hours as indicated. An oil spray for the nose is gratifying, and the tough mucus is efficiently removed by a gargle of two to three drams of sodium benzoate to eight ounces of cinnamon or camphor water. Very important is the local treatment of the throat by means of a ten per cent. solution of cupric sulphate every six or eight hours.

Proflavine Oleate in Treatment of Open Wounds.—Comyns Berkeley and Victor Bonney (*British Medical Journal*, February 8, 1919) draw attention to the value of the application of proflavine oleate in the treatment of open wounds, especially those in which the surface is extremely tender. The use of ordinary dressings is associated with great pain to the patient and no little damage to the wound surface when the adherent gauze has to be removed for changing the dressings. In place of such dressings an ointment of one per cent. of proflavine oleate in paraffin and calcium carbonate, equal parts, by weight, is either spread in a thick layer on a single thickness of gauze, or is thickly spread directly upon the wound surface and covered with a layer of gauze. No further dressing is applied, and this may be left for several days at a time without the need of its being changed. When it must be changed it comes off readily without pain or damage to the granulating surface and a fresh dressing may be put on. This form of dressing can be used continuously until granulation is complete and it does not seem to interfere with the process. C. H. Browning contributes a note, in which he shows that proflavine oleate slowly dissolves in serum in sufficient amount to exert marked antiseptic action. Its use as an ointment therefore provides a depot from which there is a continual supply of effective antiseptic.

Goitre with Metastases.—Leclerc and Masson (*Presse médicale*, January 2, 1919) report the case of a man aged sixty-seven years, with a small goitre, apparently ordinary in type, of the left lobe of the thyroid, in whom a large metastatic tumor of the size of two adult fists developed on the left eleventh rib and was removed surgically. The original goitre was so small that the patient's attention had never been drawn to it, and had probably been present a long time. The costal tumor had begun to appear two years before. The patient recovered from the operation, but less than six weeks later succumbed after exhibiting spinal symptoms—paraplegia of the lower extremities, neuralgic pains, retention of urine, and incontinence of feces—suggesting dissemination of the tumor cells in the vertebral structures. Microscopic examination of the costal tumor showed it to be a thyroid adenoma of a variety intermediate between the fetal and the colloid types.

Acute Addison's Disease Following Destruction of the Right Adrenal Body.—Maisonnet (*Presse médicale*, January 2, 1919) reports the case of a man who had been hit in the right flank by a shell fragment. He soon developed slight hematuria, without abdominal symptoms. In the succeeding days a distinct Addisonian syndrome came on, with discoloration of the mucous membranes, ochre color of the skin surface, Sergeant's white line, low blood pressure, greenish brown urine, pronounced asthenia, and a small, frequent pulse. The patient died on the tenth day. The autopsy showed an oblique tear of the lower pole of the right kidney, the vessels of the hilum being, however, intact. The right adrenal was completely destroyed. The shell fragment was found embedded in the body of the tenth thoracic vertebra. The left adrenal body was very small, measuring one half by one centimetre; it contained no tuberculous lesion. The clinical picture and ultimate death are doubtless to be ascribed to this anatomical peculiarity, Sergeant and others asserting that Addison's disease does not result from unilateral adrenal disease.

The Vertigo of the Menopause.—K. I. Sanes (*American Journal of Obstetrics*, January, 1919) points out that this form of vertigo is usually ascribed to vasomotor derangement which, by causing irregularities in the circulation of the different parts of the vestibular apparatus, disturbs the balance sense. The vasomotor derangement is supposed to be due to the loss of ovarian secretion during the menopause, this loss resulting in lowered metabolism or changes in the functions of the thyroid, adrenals, and pituitary body which, in combination, induce vasomotor disturbances. Vertigo at the menopause comes on at irregular intervals—attacks occurring sometimes days and weeks apart, or again, several times daily. In some, it comes on without apparent cause, in others only after unusual movements or postures. In most of the author's patients the vertigo was of the objective type. Nearly always there coexisted such disturbances as hot and cold flashes, cold perspiration, palpitation, blurred vision, flickering before the eyes, headache, nausea, tinnitus, etc. Before undertaking treatment, such other causes of vertigo as lesions of the

internal ear or of any other part of the balance mechanism, cardiovascular, renal and ocular diseases, and especially muscular imbalance of the eyes, must be excluded. In the true climacteric vertigo, Sanes strives to favor general nutrition and elimination and administers an ovarian preparation each dose of which represents a grain of fresh ovarian substance. The dose used is five grains, two to four times a day. When this dose failed, better results were, in a few cases, obtained from larger amounts. The records showed about thirty-seven per cent. of cases improved, and about twenty-five per cent. completely controlled. The relief from vertigo either preceded, followed, or accompanied the relief from the other menopause symptoms. The drug was used for a month or for many months and in one case for three years before final cessation of the symptoms. In most of the prolonged cases, the vertigo would recur or become worse upon temporary discontinuance of the remedy. If it be true that, while the ovaries are still functioning somewhat, ovarian therapy not only supplies a substitute for lacking ovarian secretion but also stimulates the ovaries to increased secretion, the earlier in the menopause the ovarian substance is given, the better should be the results.

Vertigo which Restores the Hearing.—M. Lermoyez (*Presse médicale*, January 2, 1919) notes that in the true Ménière syndrome, there is sudden, paroxysmal, and recurring dizziness; coming on during apparent good health, the attack suggests sudden brain impairment. Sometimes the patient falls to the ground at the outset, and often he is seized with nausea and vomiting. Consciousness is rarely lost. When the attack subsides the patient becomes aware that he is deaf. Later, audition nearly always returns, but slowly and incompletely. Lermoyez describes a new condition in which the sequence of events of the Ménière syndrome is reversed. Audition becomes numbed gradually and is finally completely lost, apparently without hope of recovery. Suddenly, severe vertigo appears, and within a few hours hearing is restored. The origin of both Ménière's and the latter syndrome is obscure. The author is inclined to ascribe them to disturbances of labyrinthine circulation—particularly to local angiospasm in neuroarthritic or gouty subjects suffering from exaggerated susceptibility of the labyrinth to external excitants such as certain noises or violent, prolonged motions of the body, as well as to internal irritants, viz., various forms of intoxication, including especially those of gastrointestinal origin. Such phenomena belong in the same group as the "vascular crises" described by Pal, and correspond to Wagenmann's case of recurring amaurosis of the right eye during which the ophthalmoscope showed contraction of the retinal arteries. Spasm of the internal auditory artery induces the complete Ménière syndrome. Spasm limited to its vestibular branch induces a paroxysm of vertigo, without concomitant disturbances of hearing. Spasm limited to the cochlear branch induces sudden paroxysms of deafness with marked whistling in the ears, but without vertigo. The author has encountered several cases of this half-syndrome of Ménière, purely

auditory in type. Gradual closure of the internal auditory artery may be conceived of as inducing progressive anesthesia of the ear, i. e., deafness. The spasm then suddenly terminating, the resulting flood of blood into the labyrinth overwhelms the latter and induces sensations which elsewhere would constitute pain, viz., tinnitus in the case of the cochlea and vertigo in the case of the vestibular organ. Simultaneously the auditory anesthesia, or deafness, passes off.

Staining the Diphtheria Bacillus.—P. L. Sutherland (*Lancet*, February 8, 1919) describes a simple stain and staining technic which have been used extensively for eight years with most excellent results. The stain is made by dissolving 0.1 gram of toluidine blue and 0.5 mil of glacial acetic acid in 100 mls of distilled water. This solution keeps well. The technic is to prepare smears on slides in the usual way, fix them by heat, and then place a drop of the stain on each smear and at once cover with a coverglass. The excess of stain is removed by blotting. The slide is ready for examination about one minute after putting on the stain. The stain colors the bodies of the bacilli a faint blue and the polar granules a deep reddish purple. It is applicable to the detection of diphtheria bacilli in either cultures or in direct smears from swabs.

Vaccination in Tuberculosis.—Louis Mark (*Journal A. M. A.*, March 8, 1919), says that it is apparently a matter of common agreement that vaccination of consumptives should not be done except under extreme necessity, and reports the results of compulsory vaccination of 200 patients with pulmonary tuberculosis which strongly contradict such a generalization. About fifty per cent. of positive vaccinations were obtained, and there were no instances of trouble in the chest after vaccination. No differences were observed in the advanced tuberculous cases justifying their exemption. One small-pox case had occurred and was the cause of the general order. This patient recovered normally from the smallpox, and was discharged three months later as an apparently arrested case of tuberculosis. The sputum was free from tubercle bacilli. No other cases developed.

Ocular Changes in Leucemia.—R. Kümmel (*Graefe's Archiv für Ophthalmologie*, March, 1918) points out that instead of the older classification of the leucemias of Virchow and Newmann, Ehrlich's division into lymphatic and myeloid is accepted, the latter comprising all the older splenic varieties. The writer has carefully collected all the cases studied from the point of view of the eye when an anatomical examination had been made. An examination of the fundus does not permit one to differentiate the two types of leucemia. Its color varies (according to all appearances quite independently from the hemoglobin content) from a reddish to a bluish tint, but one must take into consideration the type of light employed and the yellow color of the lense. The choroid and its vessels are distended by masses of leucocytes and are thickened and sinuous. The perivascular sheaths of the choroid vessels are also occasionally distended by masses of white cells. The choroid foci with a red centre or periphery are regarded by the writer as blood extravasations

contrary to Meller's opinion. In the myeloid type the cells do not make their exit from the vessels, according to the writer, unless there is rupture of their walls, while a diffuse infiltration of the tissues by the cells occurs in the lymphatic type of the process. It is impossible to decide whether or not these cells have a histogenous origin, but in any event they can create formations similar to tumors and infiltrate the choroid to such a degree that it may become five or six times thicker than normal. True leucemic neoformations are rarely produced in the retina, as they are in the choroid, and this only in the leucemic type. In the lymphatic type the foci, although they do occasionally attain considerable size, simply represent extravasations, a fact proved by pathological examination.

Microscopy of the Fundus.—Leonhard Koeppe (*Graefe's Archiv für Ophthalmologie*, April, 1918), by means of a hollow contact glass, filled with a normal salt solution and applied on the cornea, produces a luminous dispersion permitting him to look directly through the fenestrum of the Gullstrand-Nernst lamp on to the fundus oculi which is greatly magnified. The biocular microscope made by Zeiss does not lend itself to stereoscopic examinations because the pair of objectives being too large, come in contact with the lamp on its lense. Therefore the writer used Abbe's apparatus (objec. A 3 — Ocular 2) which gives a picture magnified forty-five times. The rays of light of the fenestrated lamp are directed into the eye by means of a silver mirror. Up to the present writing the apparatus has been found impossible to employ in cases of hypermetropia, emmetropia, and mild myopia (up to about — 5, O D). It is possible to light up and examine a field equal to four to six pupils with the macula taken as a centre.

Incidence of Entameba Histolytica Carriers.—H. A. Baylis (*Lancet*, January 11, 1919) examined the stools of 400 unselected new recruits who came from all over England, giving each man one careful examination. The study was made to throw light on the incidence of amebic infection endemic in England. Cysts of the *Entameba histolytica* were found in two per cent. of the men. Only one of these carriers had ever had any symptoms which might have been attributable to his infection. None of the men had ever been out of England, except two who were not included in the calculation of the percentage. Since only a single examination of the men of the entire group was made the proportion was too low, but by applying the figures proved to hold for the increase in the proportion of positives found by repeated examinations to this series it seemed certain that the actual proportion of carriers of the ameba should have been six per cent. This high proportion of carriers among unselected men, together with the fact that only one carrier had ever showed any clinical evidences of infection would seem to suggest the harmlessness of the infection and would point to the relative uselessness of the employment of rigorous treatment of similar healthy carriers found in the military services. It seemed probable that under good sanitary conditions the ordinary carrier was not a source of danger to others.

Proceedings of National and Local Societies

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.

Sixty-eighth Annual Session, Held in Philadelphia, September 23, 24, 25, and 26, 1918.

The President, Dr. WALTER F. DONALDSON, in the Chair.
(Continued from page 440.)

A Modification of the Technic in the Watkins Interposition Operation.—Dr. JOHN COOKE HIRST stated that his experience with this operation had extended over a period of four and one half years and comprised a total of, up to the present, 141 cases. Not all these patients were of child bearing age, though the majority were, but the same technic was used in all of them. He had seen no primary failures, and none of the patients had required a second operation, as far as he knew. Certainly none had returned to him. The results as to subsequent delivery, excluding cases seen within the last year, which are too recent for definite statements, are as follows: Of eighty-nine patients the history of forty-nine is known. The others, I have lost track of. Of the forty-nine known, seven have become pregnant. Of the seven, two miscarried, due probably to over exertion, of which there was a definite history in each case. Five went through labor at term, one of them twice. Four of the five, including the one with two deliveries, show a very normal looking anterior vaginal wall, the surgical result is good, and they are symptomatically well. The fifth patient has a measure of recurrence. The anterior wall sags considerably, but nothing like the extent of the previous cystocele, but the patient is symptomatically well and insists that she requires no treatment. Whether the cystocele will increase in size, it is as yet too early to determine. It seems to be stationary up to the present.

Dr. M. BEHREND, Philadelphia, said there was no question as to the value of Doctor Hirst's operation. The immediate result was perfect and encouraging for one who saw these prolapses in early married life, or in single girls; it is an ideal operation for those cases.

Dr. C. G. STRICKLAND, of Erie, Pa., said that in his city there were 2,590 births in 1917 with seven deaths from sepsis reported, or about 0.3 per cent. He was disturbed at the frequency of puerperal sepsis in city hospitals. The condition is admittedly a wound infection and implies, except in rare instances, the direct introduction into wounds of infecting microorganisms foreign to the victim. Together with the lack of perfect asepsis there are two other great faults which contribute to puerperal morbidity, over frequent vaginal examinations and undue operative interference. Unindicated operative interference, whether it be the application of forceps or undue haste in manually removing the placenta, adds a distinct risk. A certain amount of discretion should be used with the immediate repair. If the patient has been fatigued from a protracted or complicated labor, it is wiser to wait than to make the repairs at once. Fatigue, toxemia, or hemorrhage lessens individual resistance to infec-

tion, and the chances are that the long or complicated delivery impairs the doctor's asepsis as well.

Dr. ALFRED HEINEBERG, Philadelphia, said that the essayist presented a timely subject for consideration. In these days when it has become a custom for women to seek hospital treatment for confinement, it should be the aim of those hospitals which admit cases of this kind to eliminate as much as possible the chances of infection. The development of an aseptic technic in obstetrics in hospitals should not be any more difficult than the development of an aseptic technic for other operative procedures. The difficulty resides not so much in the establishment of the technic but in commanding adherence to its regulations. Hospitals should provide a delivery room separate from the operating rooms and it should have as careful supervision as the operating rooms. The ideal measure which has been adopted by many hospitals is to have the obstetric department in a building separated from the main building, so that neither the nurses nor the patients are likely to come in contact with sources of infection from the other departments of the hospital.

The Foot of the American Soldier and Its Care.—J. T. RUGH, Lieutenant Colonel, Medical Corps, U. S. Army, Philadelphia, said that it was recognized that the conditions met with in the army were at total variance with those in civil life, and while a foot with potential weakness may prove equal to civil demands, it will fail utterly under military use. Drill and work keep a soldier on his feet for from eight to twelve hours a day and usually he carries a pack or gun, or both, during this work. His play is intensive and every move of the training process is designed to eliminate the weak spots and parts. Whether this obtains through the strengthening of the part to a point equal to the demands or by breaking it down, depends upon the fibre of the man himself. The province for us, as physicians, is to anticipate this result and spread the propaganda for better and more sanitary footwear. Teach your patients and your community the essentials of foot health. Counteract the malevolent idea that prevails of the high heel and pointed toe shoe which cramps the feet, alters weight-bearing proportions and compels function in an abnormal position and manner. It is taking the costume of the drawing room, reception room and ballroom out on the street. That type of shoe was designed for work and the warped mental attitude which compels so many people to wrongly use it, must be changed by a healthy sentiment based upon every day knowledge of physiology and anatomy, and now verified beyond question by our vast war experience.

Dr. WILLIAM J. WILKINSON, Sellersville, said he understood Colonel Rugh to state that all shoes were made of a size that the soldiers could wear two pairs of stockings. His experience in testing feet of those who wore large shoes had been that there is more or less trouble with the feet floating around. Then, again, where there are so many

stockings on the foot it seems that it would induce sweating, one of the problems we have to deal with in civilian life.

Colonel Rugh, in closing, said there were two points he wanted to answer. We have been directed to fit these shoes over two pairs of socks because of the weather conditions abroad, the men requiring the extra socks in France. The other point is that the weight of the shoe is very much better tolerated by the foot with an extra pair of socks for the padding of the feet than with the one sock. So far as sweating is concerned, they are practically free from that and where it occurs formalin is used. He had found in all the camp work that formalin was practically a specific.

Splintage of Wounds of the Joints.—Lieutenant Colonel ROBERT B. OSWOOD, Medical Corps, U. S. Army, Boston, said that in any serious engagement nearly one half of the severe injuries involved the bones and joints and among these, the phenomenon of shock was very common. They become therefore of great importance and the problem of their transport from the battlefield to the evacuation hospital where they received their first thorough surgical overhauling, demanded energy and wisdom in its solution. Shock is of first concern and infection is a close second. Perhaps the most common cause of shock is trauma. Infection feeds first on traumatized tissue. Transport must always add trauma to trauma already existing. It becomes the first duty of the surgeon to lessen this trauma by every possible means. Proper splinting materially lessens it. Therefore, proper splinting becomes of first concern. The first essential in good splinting for transport is the comfort of the wounded man. If the splint gives him ease from his wound pain and does not add another discomfort, the first requisite is met. The splints must also fulfil the mechanical purposes for which they are applied. The design of the splints must be simple and their weight light, in order that they may be manufactured in large quantities and be easily transported far up the line to the battalion aid posts. For fractures of the long bones and certain joint injuries it is extremely desirable that they embody the two principles of fixation and traction: Fixation to protect the injured structures and to retain proper alignment after the alignment has been secured; traction, to bring about muscular relaxation with the object of diminishing pain by inhibiting involuntary contraction which also results in malposition.

Captain ROADES FAYERWEATHER, Washington, D. C., said that Colonel Osgood emphasized in his paper the importance of splinting. He thought that was a point which could not be emphasized too much. If you stop to think that it is the first form of specialized treatment that the soldier with a bad fracture receives and that he receives it frequently very soon after his injury, if not immediately, you can realize of what vast importance the matter of splinting is, and when you realize that this treatment must be applied frequently by men who have had no experience in medical or surgical work, that is, by the Hospital Corps men, you can imagine of what vast importance it is that these methods should

be simple and capable of routine application. My first acquaintance with the United States Army splint was when I was assigned to a division in the east of France. The division had not gone to the front, but was on the point of going up. My duties were to go out in a little Ford machine and visit little towns in perhaps an area of fifteen to twenty kilometers, where perhaps all that division quartered and to demonstrate to the hospital corps men the application of these splints. The fact that these men, previously inexperienced in the use of splints, became so quickly skilful in their use, is a great tribute to the solution of the problem. The problem had been so far very satisfactorily solved. Just one word about the necessity for the medical officer doing surgical work in the expeditionary force to learn how to use these splints. Every surgeon over there must be his own orthopedic surgeon.

Colonel ROBERT B. OSGOOD, Boston, said these bone and joint conditions, whatever they were called, were important; in the aftermath of cases coming through England, it is not a theory but a fact that thirty to fifty per cent. of the deformities in the military hospitals represent the preventable deformities. How can they be prevented? A great many can be prevented in our army. We must learn the methods. We must think of war wounds in terms of function and not in terms of anatomy.

The Care of the Amputated in War.—Lieutenant Colonel DAVID SILVER, Medical Corps, U. S. Army, Pittsburgh, asserted that the loss of limb was one of the most disastrous of the ravages of war. The care of the amputated has always been a serious problem during a campaign, and, in a war of any magnitude, an economic factor of importance afterward. Surpassing as it does in every aspect all other wars, this world war may be expected to present unusual demands for the care of the amputated. To the injuries caused by shot and shell have been added the destructive results of gas gangrene and trench foot, so that in the early years of the war amputation was unusually frequent. More recently the prevention of trench foot and the better understanding of gas gangrene have resulted in a very great saving in the number of amputations from these causes. Yet this has probably not produced a corresponding decrease in the total, since with the improved methods now practised in the care of the wounded it is reasonable to expect a considerable saving of life in the more severe cases requiring amputation. It seems likely, therefore, from present indications that this type of injury would constitute a very large proportion of our permanently disabled.

Captain CARL C. YOUNT, Medical Corps, U. S. Army, Washington, D. C., said that in the prevention of atrophy and limitation of motion in the stump of the arm, which was bound to occur if not used, we found it necessary to have a provisional arm as soon as the wound had healed. As such an arm could not be found on the market, we were driven to the task of designing an arm to fill this need.

Most of the commercial arms were designed in a way to imitate the normal, and were merely intended to fulfil the aesthetic need; the gripping power was not sufficient for holding any attachment you want them to use.

SECTION IN MEDICINE.

Dr. B. FRANKLIN ROYER, Harrisburg, in the Chair.

Followup System of the Pennsylvania Department of Health for Former Tuberculous Patients.

—Dr. KARL SCHAEFFLE, Harrisburg, said that the followup system of the Pennsylvania Department of Health for the tracing and reporting of patients discharged from the State sanatoria and dispensaries differed from most of the plans in operation for such purposes in the method employed and in the number and character of the reports obtained. The method consisted in actual face to face inquiry and inspection of the former patient by the dispensary nurse who had been intimately acquainted with his physical condition and economic status during his enrollment as an active case. One hundred and thirty nurses carried on these special investigations throughout the State in addition to their supervision of the home care of those in regular attendance. Such followup visits were made for a period of two years after the patient's discharge, at intervals of six months.

Dr. B. FRANKLIN ROYER, Harrisburg, stated that in dispensary and sanatorium treatment some followup system must be relied upon to prove the end-results to be attained. The following up of these more than 100,000 patients by nurses trained for the work, to gather in an unbiased way the essential facts of health and of earning capacity and then the efforts on the part of the department to tabulate these facts into one mass so that they may be intelligently scrutinized by the students of the department was the whole aim and object. The campaign of tuberculosis was almost wholly an educational one; we aim to teach the individual how he should live in order that Nature may effect the cure. After all it was a question of food and open air, rest when needed, exercise when needed. It was a careful direction of the habits of life which resulted in the cure of the individual once infected, and a question of teaching that individual such methods of living so that he would not infect the children surrounding him, and it would take twenty-five to fifty years of just such an intensive educational drive in order to reach a point where our final statistics would show.

Dr. CHARLES H. MINER, Wilkes-Barre, said that part of the work in the dispensary was of special interest, and that was to look up the soldiers who registered and who had been rejected by the draft boards and the Army camps for tuberculosis. At this time, of course, it is of greater importance than almost any other feature of the tuberculosis work of the department, because many of these men have never suspected that they had any trouble of that kind, and they especially should be sought out and urged to secure some advice and treatment. Many of them are very skeptical about having tuberculosis and they are the patients who need the

advice of the nurses and physicians at the dispensary.

Dr. KARL SCHAEFFLE, Harrisburg, said that he had received through the cooperation of Major Murdock, who was in charge, the names of over 1,200 draftees rejected by selective service boards throughout the State. A letter had been written to each man so rejected telling him that confidential information had been received that he had been rejected on account of tuberculosis and advised him to seek treatment through his family physician or through a private institution if he could afford to do so, or if not, through the department by means of its dispensaries and sanatoria. We followed that letter up and sent a dispensary nurse from the dispensary nearest the man's home to call upon him personally and to explain the matter at great length and to urge that he seek treatment because practically all of these cases are the early cases, which are curable. We had the same difficulty, however, that we have with the average incipient case. A great many of them refused to believe they had the disease.

The Ductless Glands in Military Practice.—Dr. CHARLES E. DE M. SAJOUS, Philadelphia, in summarizing the facts said it could hardly be gainsaid that in so far as recruits are concerned, proper recognition of the diseases of the ductless glands and their treatment would enable a large proportion of men now deemed unfit, to continue their service. As for the armies in the field, it was a question of life and death in the large proportion of cases of disease of the adrenals or of the thyroid—including many cases of so called "soldier's heart" as regards the latter organ. All this should be taken to heart by our military authorities, if their excellent work in other directions is to encompass all fields of suffering. The influence of fright and excitement on the adrenals was fully shown in this war and it was one of the basic factors which brought about the terrible conditions sometimes witnessed. If the surgeons in the army in general will but open their minds to this question, they will find that in all hospitals at present cases that do not respond to the ordinary treatment given in heart cases, will respond if they are cognizant of a knowledge of the ductless glands in connection with military medicine.

The Treatment of Syphilis.—Dr. JAY F. SCHAMBERG, Philadelphia, spoke of three recognized drugs in the treatment of syphilis—arsphenamine, mercury, and iodides. Arsphenamine was generally recognized to be the remedy of paramount value. Its magical effect upon symptoms was due to the fact that it had a powerfully destructive effect upon the spirochæta and that it could be administered in large dose. Arsphenamine is fifty times less toxic for experimental animals than mercury. Arsphenamine likewise has a roborant or tonic effect which mercury does not possess. The spirochæta is vulnerable to arsphenamine and to mercury. The iodides do not appear to have any direct destructive influence upon the spirochæta. In an attempt to eradicate every spirochæta as early in the disease as possible, why should we not shoot with two arrows. I realize that Wechsleman has warned against the use of mercury precedent to the

use of arsphenamine, on the grounds that in his belief, most of the arsphenamine fatalities are due in large part to renal insufficiency, and that in the majority of cases it was mercury that damaged the kidneys. My belief is that the use of three inunctions of mercury per week is a valuable measure to associate with the use of arsphenamine, particularly in the primary and secondary stages of syphilis. No one is in an authoritative position today to state how long the treatment of syphilis should continue. Too often the physician will cease treatment after a single series of arsphenamine injections and perhaps a course of mercury, because the Wassermann reaction has become negative. Experience proves that such a course usually requires the later resumption of treatment, with valuable time lost. While it is difficult to prescribe any routine formula, we may at least indicate an irreducible minimum of treatment. Before any patient with syphilis is discharged from observation, a diagnostic spinal puncture should be made.

Dr. FRANCIS X. DERCUM said that arsphenamine had been used extensively at the Jefferson Hospital and he had used it in cases coming under his care in the exudative and in the form represented by tabes and paresis. Our experience with regard to paresis had been that we had not infrequently remissions. He was glad to hear Doctor Schamberg say he used inunctions every other day. In the old days they were used every day. Doctor Dercum said that he used with salvarsan half a dram of mercury every other day.

Tracheotomy without Loss of Blood—Dr. DONALD GUTHRIE, Sayre, Pa., believed that the low operation of tracheotomy, unless there was an enlargement of the thyroid was more suitable for all cases—even the struggling child. If the patient was a child it was wrapped in a blanket or sheet to control struggling and placed upon the operating table or on a table in the home. A pad of some sort was put under the shoulders and the head hung over the end of the table—steadied by an assistant. The operator stood on the right hand side of the table and steadied the skin with the left hand, making an incision in the midline of the neck one and one half to one and three quarters of an inch long. The skin and the superficial fascia were incised and the wound held open by a pair of catspaw retractors which should not be more than one inch in breadth. When the deep cervical fascia was cut the parallel branches of the anterior jugular veins presented in the wound. The retractors were set to pull these veins aside and the sternohyoid and the sternothyroid separated by blunt dissection. If care is exercised during this step of the operation, the muscles can usually be separated without injury to the thyroid ima beneath. The retractors are again reset, the left blade holding aside the skin, the fascia, the two muscles and the right blade, the skin, fascia, the muscles, and the thyroid ima vein. This exposes the trachea to view. It is incised, the head is straightened and the tracheotomy tube inserted. This method has been employed fourteen times in all types of cases by myself and associates, twice in the home.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of Wednesday, January 22, 1919.

The President, Dr. B. FRANKLIN STAHL, in the Chair

Social Disease in the Army.—Dr. EDWIN S. COOKE stated that venereal diseases in the National Army had been the cause of much anxiety to the officers upon whom devolved the care and training of the youths in the service. From the writer's experience during fourteen months in the venereal work of one of the largest cantonments of the Army in this country he was forced to the conclusion that it is the unsuspected sufferers from venereal indiscretion, but revealed by the exigencies of military examinations, who were responsible for aspersions cast upon the Army and Navy. The first means toward safeguarding the soldiers from infection after induction into service was the selection of remote sites for cantonments by which so much, apparently unnecessary, hardship was entailed upon the soldiers and their friends. The disproportion between infections acquired before and after induction was approximately ninety-five to five. Certain organizations showed a still lower percentage of incidence while in service. Of the infections acquired after induction many were of only brief duration and in all cure occurred more quickly than would have been the case in civilian life. Examination by dark field illumination was required in every case of an open lesion upon the genitals, and a routine Wassermann blood test was made upon every soldier admitted to the venereal wards of base hospitals. The military hospital treatment of syphilis consists of courses of arsphenamine, mercury, and in latent cases, or when tertiary lesions are manifest, iodides, which necessarily caused considerable loss of time from active duty, and entailed upon the Government an enormous expenditure of money for drugs and in pay for the incapacitated soldiers. It is the rule in the army not to deprive men of their pay while under treatment for venereal disease, provided they became infected prior to entrance into military service. By reason of the rigid enforcement of sanitation the incidence of ophthalmic infection was reduced to a minimum. In the writer's experience not a single case of acute gonorrheal ophthalmia arose in any of the wards under his care during the entire fourteen months of service. This record can be attributed to the admonitions of medical officers and attendants who were ever watchful lest an infected soldier should become lax and transfer the pus to his own eyes or those of others, and thereby subject the officers to reproach and a possible court martial examination upon the charge of negligence. As contrasted with his civilian brother the soldier with social disease had by far the better of the argument, since he was not forced to hide his ailment, to treat himself with quack nostrums, or to prolong the malady by active exercise. It would seem, therefore, that to the civilian population attention should be directed toward lessening the social evil.

A great deal could be done in stamping out venereal diseases if the conditions were frankly met.

Treatment of Early Stages of Syphilis.—Dr. HIRAM R. LOUX said that the early diagnosis of syphilis would do much to prevent the rapid invasion and frightful sequellæ of this disease. We are all convinced that there has been a percentage of cure by control. With the arsenical preparations we find that we have a remedy more speedy in its control possibly than is mercury. Excision of the sore does not prevent constitutional manifestations, but under careful examination the spirochetes are revealed and I feel it important that the general practitioner should be adequately equipped to make these examinations for early diagnosis. The State and municipal laboratories are available for the benefit of patients who cannot pay for laboratory examinations, and if the profession at large could be induced to exercise particular care in these studies the proportion of the sequellæ of syphilis could be greatly reduced. I do not believe that we do justice to our patients unless in our examinations we check up results in both the cerebrospinal fluid and blood tests. In the treatment of early syphilis there should be mapped out a régime of treatment as in tuberculosis. Why, for example, should one who has acquired syphilis be allowed to go about at will? Since we know that in early syphilis the use of alcohol often destroys the effect of treatment, why should it not be prohibited? Also, the labor of the patient should be regulated that his strength may not be overtaxed. The small and frequently repeated dose of salvarsan I have found to give better results than the large dose.

Intraspinal Therapy in Syphilis.—Dr. JAY FRANK SCHAMBERG said that results in intraspinal treatment of syphilis have convinced us of the indispensability of the method in appropriate cases. No conclusive deduction can be drawn giving the reason why the combined intravenous and intraspinal injections effect better results than the intravenous alone. It may be that the blood serum sets up a mild aseptic meningitis and that this process increases the permeability of the choroid plexus to the passage into the spinal fluid of the arsphenamine charged blood plasma. Other physical conditions induced by the injection of the blood serum into the subdural space may likewise be operative. Dr. Francis X. Dercum states that he has seen on many occasions improvement in the symptoms of nerve syphilis brought about by the injection into the spinal canal of plain blood serum. We believe the query whether intraspinal treatment in syphilis will achieve that which cannot be accomplished by other means is answered by the results obtained in patients in whom intravenous medication was first tried with negative or mediocre results, and in whom combined intravenous and intraspinal treatment afterward brought about brilliant results. It is now realized that syphilis may occur without any local lesion recognizable clinically as a chancre. If it is ultimately proven that there is a special strain of spirochetes having an affinity for nerve structure, it may possibly be demonstrated that infection with such strains induces relatively little reaction in cutaneous and mucous tissues. Another plausible explanation

of unsuspected syphilis is that there may be a synchronous infection of gonorrhea and syphilis, the chancre being located in the urethra. Whatever the true explanation, the fact remains that we encounter many cases of late syphilis in patients in good social standing who have no knowledge of a chancre or of any other antecedent manifestation. During the secondary stage or period of vascular diffusion of the spirochetes these parasites are carried to the central nervous system and either bring about inflammatory changes in a few months or years resulting in the exudative form of nerve syphilis, or in the course of years insidiously lead to inflammatory and degenerative types such as tabes dorsalis and paresis. A word must be said about the limitations of intraspinal therapy. One can never hope to restore degenerated nerve tissue. Paresis cannot be cured unless treatment is begun at an extremely early stage. The most favorable time for treatment is before clinical evidence of paresis develops. A routine examination of the spinal fluid in all cases of syphilis would enable physicians to detect the preparetic stage by the spinal fluid findings. Systematic treatment at this time would doubtless prevent this unfortunate eventuality. The same statement is to a greater extent true of other forms of nerve syphilis which are more amenable to treatment.

Dr. WILLIAM H. MACKINNEY said the only hope of avoiding constitutional manifestations and involvement of the central nervous system in syphilis lies in early diagnosis and treatment. To the genitourinary man early syphilis means the initial lesion and a negative Wassermann reaction. With the advent of a positive Wassermann you have late syphilis, a constitutional syphilis which invades every organ in the body. There is only one stage of early syphilis, generally the first week or ten days of the chancre. You have constitutional syphilis at the end of three weeks and not at the end of six weeks. Every sore not interfered with by mercurial washes or powders can be examined for spirochetes by the dark field illuminator in five or ten minutes. In all medicine there is no disease in which in connection with diagnosis a period of two weeks makes so much difference as in syphilis. If you wait for a negative Wassermann test you will wait until you have constitutional syphilis. Whenever possible without mutilating the part excise the chancre.

Dr. F. X. DERCUM said that in the diagnosis of all cases in which neurosyphilis is suspected we should never confine ourselves to the blood tests. The examination of the spinal fluid was an absolute necessity. In the intraspinal treatment of syphilis we drain much more freely in my own clinic, where the method is practised most extensively, than Swift himself. It is in paresis that we have our serious problems and I have yet to see cases in which paresis has been cured. These patients may improve for a time and remain apparently well for years, but when the metabolic processes begin to fail the spirochetes get the upper hand, and then follow tabes and paresis. In the parietic case we must not forget to treat as well the general condition of the patient.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Paper Work of the Medical Department of the United States Army. A Guide for Administrative Work. By RALPH W. WEBSTER, M. D., Ph. D.; Major, Medical Corps, United States Army; Instructor, Basis Military Course, and Adjutant, Camp Greenleaf, Chickamauga Park, Georgia; Formerly Instructor at the Medical Officers' Training Camp, Fort Riley, Kansas; Author of *Diagnostic Methods*, Chemical, Bacteriological, and Microscopical. Approved for Publication by Direction of the Surgeon General of the United States Army. Philadelphia: P. Blakiston's Son & Co, 1918. Pp. xv-540. (Price, \$5.)

The physician, filled with a high enthusiasm, who abandons his practice, gives up his home and social life, and dons the uniform of the United States Army generally finds his ardor somewhat dampened when he comes into contact with the paper work of the medical department. To the general practitioner, who has had no administrative hospital experience, the requisitions, reports, and returns prescribed by army regulations, seem to be unending, involved, complicated, and frequently incomprehensible. These regulations are necessarily technical and exacting and the surgeon who when he joined the army, had visions of immediate assignment to active duty on the war front, will find them most exasperating. Major Webster has done a great service to all medical officers in the compilation of this work which is intended to bring together the most important forms and papers which the medical man is called upon to deal with in the course of his military duties.

A Handbook of Colloid Chemistry. The Recognition of Colloids, the Theory of Colloids, and Their General Physicochemical Properties. By Dr. WOLFGANG OSTWALD, Privatdozent in the University of Leipzig. Second English Edition, Translated from the Third German Edition by Dr. MARTIN H. FISCHER, Professor of Physiology in the University of Cincinnati. Illustrated. Philadelphia: P. Blakiston's Son & Co., 1919. Pp. xvi-284. (Price, \$3.50.)

There has been a steady growth in the appreciation of the importance of the chemistry of colloids in medicine. The work which was done by Wilhelm and Wolfgang Ostwald in this field is probably better known to us in the United States than even that done by Thomas Graham and his British associates who were among the first to take up this particular branch of science. A second American edition of the handbook of colloid chemistry being required, Doctor Fischer who translated the German work into English, has been compelled to make the revision without reference to Doctor Ostwald himself, it being impossible to communicate with him on account of the war. In the revision, Emil Hatschek, of Cass Institute of London, has added numerous paragraphs which are intended to inform the readers of the more important of the recent advances which have been made in this field.

This extremely useful book was published under conditions even more difficult than those ordinarily encountered in war times.

Modern Chemistry and Chemical Industry of Starch and Cellulose. With Reference to India. By TARINI CHARAN CHAUDHURI, M. A., Professor of Chemistry, Krismath College, Berhampore, Bengal; Formerly Government Research Scholar in Chemistry; Author of "Sir William Ramsay as a Scientist and Man," etc. Calcutta and London: Butterworth & Co., 1918. Pp. viii-155.

The appearance of this small volume is of interest as showing the progress which is being made in the chemical industries in India. The extensive forests and the vast quantities of raw material of India offer most inviting fields for the industrial chemist. The low cost of labor also offers an advantage to the manufacturer who can convert these raw products into manufactured articles for consumption in India or for exportation. As the author himself points out, there has been a lack of coordination between the business and the intellectual worlds in India. This book, while modest in size and devoted to one particular phase of chemical industry, points out practical methods of bringing the university and the factory into closer contact which will be mutually helpful.

Births, Marriages, and Deaths.

Married.

DEAR—POHLE.—In Bronxville, N. Y., on Saturday, March 15th, Dr. Brock McGeorge Dear to Miss Marjorie Pohle.

PARSONS—PEABODY.—In Groton, Mass., on Saturday, March 22d, Dr. William Barclay Parsons, Jr., Captain, Medical Corps, U. S. Army, of New York, to Miss Rose Saltonstall Peabody.

Died.

ARK.—In North Adams, Mass., on Saturday, March 8th, Dr. Harry Fielding Ark, of New York, aged twenty-five years.

BRADSWORTH.—In Paterson, N. J., on Thursday, March 20th, Dr. John Henry Bradsworth, aged seventy-one years.

COOPER.—In Shrewsbury, N. J., on Wednesday, March 19th, Dr. James E. Cooper, aged seventy-five years.

FOWLER.—In New London, Conn., on Wednesday, March 19th, Dr. Frank Chester Fowler, aged fifty-eight years.

GARDNER.—In Conewango, N. Y., on Monday, March 10th, Dr. Will F. Gardner, aged fifty-six years.

GIBSON.—In San Francisco, Calif., on Monday, March 10th, Dr. Samuel C. Gibson, of Reno, Nev., aged sixty-two years.

HOWE.—In St. Louis, Mo., on Friday, March 14th, Dr. Karl P. Howe, of Phelps, N. Y., aged fifty-eight years.

INGHAM.—In Pittsfield, Mass., on Saturday, March 15th, Dr. Lucius T. Ingham, of Lee, Mass., aged sixty-five years.

KIBBE.—In Batavia, N. Y., on Monday, March 10th, Dr. Edwin J. Kibbe, aged thirty-nine years.

KUNZ.—In New York, N. Y., on Thursday, March 13th, Dr. George W. Kunz, aged fifty-four years.

PRICE.—In Springfield, Mass., on Saturday, March 22d, Dr. Abel Fitzwater Price, aged seventy-one years.

MAUL.—In Fort Sheridan, Ill., on Monday, February 24th, to Major Herman C. Maul, Medical Corps, U. S. Army, and Mrs. Maul, a son.

SALE.—In Fredericksburg, Va., on Monday, February 24th, to Lieutenant C. W. Sale, Medical Corps, U. S. Army, and Mrs. Sale, a son.

SLIFER.—In Philadelphia, Pa., on Sunday, March 16th, Dr. Levi K. Slifer, aged sixty-four years.

TRUEBLOOD.—In Salem, Ind., on Friday, March 7th, Dr. Elias Hicks Trueblood, aged eighty-eight years.

UPTON.—In Cheshire, Mass., on Wednesday, March 12th, Dr. Marion Wood Upton, aged eighty-two years.

WALKER.—In Taunton, Mass., on Thursday, March 13th, Dr. Albert Gooding Walker, aged fifty-one years.

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Original Communications

ALKALI TREATMENT APPLIED TO THE ACIDOSIS OF EPIDEMIC INFLUENZA.*

By THOMAS C. ELY, M. D.,
Philadelphia.

Epidemic influenza is a concrete instance of acidosis, and although my remarks are herein directly concerned with the treatment of influenza, they are applicable to all toxic conditions in which acidosis occurs. Having given or proved a condition of acidosis the medical treatment consists of immediate and persistent use of measures of elimination, and alkalies. It is an established fact that acidosis is a constant factor in all the infectious fevers. In the recent influenzal epidemic the acidosis was particularly prominent and had much to do with its extraordinary fatality. At the onset of the epidemic, I was treating a patient with diabetic gangrene and argued that the virulence of the epidemic was chiefly due to acidosis; and, from the first, treating all patients with this acidosis theory in mind, I employed early systematic and persistent use of the alkalies, and free elimination of combined products, with surprisingly good results.

The textbooks affirm that infections from the streptococci and other pus germs and the pneumococci are always marked by pronounced acidosis, and in the present epidemic all authorities agree that these microorganisms were especially in evidence.

Striking clinical proof of this acidosis was noticed in the following ways: The peculiar acetone odor of the breath was so characteristic that some clinicians have told me that they made a tentative diagnosis of influenza on this symptom alone. The dyspnea and air hunger symptoms were severe even without other striking respiratory symptoms. The associate cyanosis is the result of the withdrawal of the alkali reserve. In this connection it is significant that artificially induced acidosis in animals has caused similar dyspnea. The therapeutic proof was most convincing. The proper administration of the three basic alkalies—sodium, potassium, and calcium—was immediately followed by the gradual cessation of acidosis symptoms.

There were only four other methods of treatment which attracted any serious attention. They were the use of aspirin, opiates, belladonna, vac-

cines and serums. In my own practice I have had only one death which I feel could be justly attributed to influenza. Three other fatal cases may be attributed directly to preexisting conditions, one patient having congenital myocardial disease of an advanced type, another chronic bronchitis and emphysema, and the third tuberculosis.

From correspondents in every section I have had most significant data. A physician in a rural community wrote me that he gave the old alkaline fever mixture; liquor potassii citratis and spiritus aetheris nitrosa freely to every patient, and had only one death which was directly attributable to hemorrhage from a gastric ulcer. In direct contrast, in a neighboring village with a high mortality the favorite remedy was a capsule of belladonna, aspirin, opium and quinine. In many instances, vaccine and serum had also been used. According to my view, quinine was the only legitimate remedy in the capsule.

Dr. Thomas P. Andrews, physician to a lumber camp in New Mexico, writes that he has treated over three hundred cases with only five deaths. He always used the alkaline treatment, and all of his cases were treated under most unfavorable circumstances, as expressed by the quotation that, he "had no nurses except laborers and lumbermen, and at one time had seventeen sick patients in five beds." Such an experience is in striking contrast to the high mortality so often seen in refined urban practice in which alkalies were neglected.

In addition to the great number of influenza cases that were seen daily during the recent epidemic, I have treated twenty-six patients with pneumonia with well marked crises, over 100 cases of lobular pneumonia, five pregnant women and eleven instances of severe intestinal infections. The large number of recoveries I attribute to the persistent use of early elimination and saturation of the system with alkaline bases, avoiding any remedies which check secretion, as opium or belladonna, or any heart depressant such as aspirin, or any influenza vaccine or serum.

Starling (1) tells us that, "In abnormal cell metabolism the first, middle or last stages of oxidation may be at fault, generally the last stages fail of complete oxidation and acid intoxication; acidosis results, and acid poisons are formed. The alkalescence (electrical neutrality) of the fluid media of the body is a necessary condition for the continuance of the life of the cells and especially of

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the normal processes of oxidation. It is therefore essential for the preservation of life that the acids thus formed and accumulated as a result of impaired oxidation processes, should be neutralized, carried to the kidneys and excreted by them in combination with some base. When these acids are produced in large quantities, the alkalies, sodium, potassium, and calcium of the food and of the tissues, do not suffice for their neutralization. Ammonia, which is a constant intermediate stage in the production of urea, is then utilized for this purpose."

Physiology then teaches that if the relative proportions of acids which have to be eliminated from the body are short of necessary bases, sodium, potassium and calcium from food and tissues, and short of ammonium; if these alkaline reserves have been withdrawn and used, the poison acids cannot be neutralized and life cannot be preserved unless these bases are supplied. The reason for the success of elimination and alkaline treatment and the benefit of supplying to the body from without, these harmless alkalies, sodium, potassium and calcium, becomes apparent. Generally speaking, in infectious diseases, in pneumonia and in streptococcus infection, pathology, physiology, and physiological chemistry teach us that acidosis occurs. In such a high state of toxemia as epidemic influenza, due to a combination of the most toxic bacteria known, with probably an unknown organism, there is necessarily a very high degree of acidosis, and the body bases are soon used up as the aromatic breath alone indicates.

When ammonium and the fixed bases, sodium, potassium and calcium, are more or less exhausted in the neutralization of acids, symptoms of acidosis or acid intoxication result. However, such a result is usually prevented by the abundance of ammonium. Unfortunately, if ammonia does not suffice, and the sodium, potassium, and calcium salts of the tissue juice do not suffice and are not furnished from without, the condition of acidosis is serious and fatal. It is a simple matter and an entirely scientific procedure to furnish these alkaline bases from without and prevent the serious and often fatal acidosis.

Alonzo Taylor states that: "If the acids were but eliminated entirely as ammonium salts, all would be well, but as they circulate they abstract from the tissues sodium, potassium, and calcium and disturb the equilibrium of the basic elements in the tissues. Obviously the correct therapeutic measure is not to administer an alkali of one type, as sodium bicarbonate, but a mixture of sodium, potassium and calcium, in order that all these may be present in abundance in the tissues and the equilibrium of the fixed alkaline bases in the central nervous system be thus maintained.

"To give simply soda, is little better than the body offers, which is ammonia only. The results of alkali therapy are more certain if all the alkaline bases are administered. It must be recalled that potassium and calcium outside the blood stream outweigh sodium, especially potassium which in some organs is present to 400 times the amount of sodium. The law of mass action and of mass re-

action, of neutralization, must be taken into account and best results occur from administration of all three alkalies."

Taylor adds that, "An acidosis that draws largely upon the firmly combined cations (sodium, potassium and calcium) in the tissues must ultimately be dangerous. The law of mass action demands that it is impossible to conceive of acid of the body combining with ammonia alone, but under all circumstances there must be some abstraction of sodium, potassium and calcium from the tissues. Long continued acidosis must lead to the dangerous abstraction of alkalies from the tissues."

The corollary of the necessity of supplying these alkaline bases is axiomatic and a highly scientific procedure, founded on facts of physiology, pathology, and physiological chemistry. And a free water supply must be essential to carry on with advantage the laws of osmosis with these bases of different weights, combining with poison acids through the system. Elimination of the combined products must be equally essential. Too much alkali might produce an alkalosis and prove harmful, and it seems the best judgment to keep within the limits of moderate alkaline dosage. For the same reason the use of sodium and alkalies should be under the guarded care of physicians, and its use promiscuously by the public is to be condemned for fear of producing harmful alkalosis.

In comparative health the benefit of alkaline waters at our famous spas is worthy of notice, as founded on these same laws of elimination and supplying alkaline bases. What the alkalies, and elimination, even in extreme cases, can accomplish is also well illustrated in the well known marvelous results from their use in the coma of diabetes or nephritis. If they can accomplish so much in late stages of toxemia their value must be much greater when used earlier.

TREATMENT.

The exact details and technic of our treatment are as follows:

Immediate elimination is instituted by profuse sweating and divided doses of calomel, one tenth grain every half hour until a grain or more has been given. Water exclusively is given for the first twenty-four or forty-eight hours, and water is also given freely by mouth or by bowel throughout the attack. Sweating is preferably accomplished by drinking large bowls of hot boneset tea. Janeway, of New York, in the early epidemics, preferred large bowls of boneset tea to all other diaphoretics. My experience has been that nothing else equals it in value. Hot lemonade with whiskey was often given. Hot mustard foot baths were always used, the patient being kept in bed covered with blankets and surrounded by hot bottles. I have always explained to the patient that immediate pain relieving remedies do not tend toward recovery, but prevent elimination of poisonous products or depress the heart. However with the elimination and alkali saturation the severe pain is usually controlled in a short time.

At the outset and through the attack, I gave every patient the three well known alkaline substances, sodium bicarbonate, potassium citrate, and

the calcium salts in the form of lime water. To every patient I administered a teaspoonful of sodium bicarbonate to a pint of luke warm water every four hours by enema. In routine treatment I have given this simple prescription to spare the overworked druggist: Sodium bicarbonate one half ounce, peppermint water four ounces; teaspoonful every two hours, alternating with potassium citrate one half ounce, peppermint water four ounces; teaspoonful every two hours. The calcium salts I gave in the form of lime water one third, milk two thirds.

Some patients with fulminant attacks of vomiting and terrific headaches could not tolerate the potassium salts, and to such were given only the sodium bicarbonate mixture every hour and the soda enema as above with a course of calomel, one tenth grain with no excipient, and codeine in small doses. Even in severe cases, it is surprising how the soda in from twenty-four to forty-eight hours will relieve the early pains.

In addition, I have employed the common cardiac and respiratory stimulants, strychnine, caffeine, spartein, digitalis, camphorated oil, oxygen, and aromatic spirits of ammonia. I have found oil of terebinth useful, particularly after crises. It is an efficient stimulant, a valuable antiseptic and penetrates the whole system. In many cases of faulty elimination, I have found dry cupping a valuable adjunct. In all cases the patient was confined to bed, and the use of a bedpan was made imperative.

From the first, even when no food was allowed, the patient was given orange juice and lemonade freely, which were refreshing and may have had a special value because of the contained vitamins.

In considering the physiological action of the foregoing treatment, it should be remembered that, in man there is a continuous output of carbon dioxide through the skin—not of course comparable to that of the lung; and the increased work of metabolism of the sweat glands increases the carbon dioxide elimination. In this connection, this is a significant factor, for, as observed by Brubaker, it is probably carbon dioxide, due to the absence of alkaline bases which chiefly gives patients the dark cyanotic hue, which has given rise to the popular name of the black plague.

The observed clinical value of repeated sweating in markedly cyanotic cases may be closely connected with this increased carbon dioxide output. Early and persistent sweating not only eliminates carbon dioxide, but also keeps down temperature and avoids the dangers of the rapid oxidation and catabolism incident to high temperatures.

A large amount of water flushing through active skin pores in sweating and through kidney structure excretes large amounts of toxin and waste products. The amount of urea in the sweat must depend largely on the renal condition, but profuse perspiration is surely beneficial. Nature herself has pointed out the benefit of free sweating, for at the onset of the disease we find many patients naturally perspiring, and again at the crises we see the familiar profuse perspiration.

To suppress excretions by opium, given for the relief of pain, by a hypodermic of morphine, in the

agonizing colic of intestinal influenza, or by codeine, is to place a great obstruction in the way of an already difficult road to recovery, in such a profound toxemia as exists in epidemic influenza.

In addition to immediate elimination by sweating and the use of calomel, the use exclusively of water for twenty-four hours, and water freely throughout the attack, is beneficial as it allows for alkaline saturation and neutralization of poisonous acids, and allows and assists the natural secretions of the liver, pancreas and intestinal tubules to become established. The diffusion of dissolved substances, or waste products, and toxins, and poison acids, or combined poison acids with alkaline bases must depend on a free water supply.

The greater amount of water is absorbed on its way through the alimentary canal, chiefly in the small intestine and not eliminated by the bowel but by the kidneys. No matter how large the quantities of fluid ingested, there is practically no production of fluid bowel movements. Water directly flushes the kidneys, thereby saving their structure from inflammation and carrying out waste products in solution; and in high states of toxemia, in large amounts, and thereby assisting recovery.

Alkaline saturation and thorough elimination must be combined. The supplied bases combine with the poisonous acids but the resulting products must be eliminated promptly and not allowed to accumulate in the body. For the same reason we deem it unwise to prescribe too large doses of alkalies, as these may produce a harmful alkalosis.

Even the skeptic who does not enthuse over the curative value of alkalies cannot fail to admit that the treatment is without danger to the organism, which we believe cannot be said of other proffered remedies. For instance, aspirin relieves pain but tends to destroy the red blood cells and depresses the heart. Opium relieves pain but checks secretions. Atropine and belladonna may stimulate the heart and respiration, but they check secretions and lock up poisons which should be eliminated.

Serum treatment might be rational and scientific if the microorganism causing the disease had been isolated with certainty. We are all familiar with numerous reinfections, and it may be questionable whether a passive immunity can be induced for a disease which itself does not produce an active immunity. Can we hope to vaccinate against a disease which does not vaccinate against itself? Again are we sure that influenza serums and vaccines have proved harmless?

Appreciating the wonderful work accomplished by the bacteriologist in the fields of typhoid, diphtheria, tetanus, smallpox and many other diseases, is there not a growing tendency to give too much weight to bacteriology and serology to the exclusion of physiology, pathology, and physiological chemistry?

In conclusion, we consider that the chief cause of death in this epidemic has been the overwhelming acidosis. Our treatment has been to combat the chief cause of death and prevent the acidosis by administering the essential alkalies. In reply to the statement that the chief cause of death has been pneumonia, it may be said that the fatal lung con-

dition may not have developed if the body bases had not been exhausted in Nature's effort to combat the acidosis. The same acidosis may explain death by nephritis. To the claim that death was due to cardiac involvement we may reply that the heart might have been better equal to its task if the body bases had remained in normal combination.

Our aim has been to overcome acidosis and with supportive measures to allow the patient's own vital resistance to combat the invading organism.

Physiology, pathology, and physiological chemistry all state the same fact, that acid poisons if not neutralized become dangerous and often fatal; that in high states of toxemia the body bases are soon used up, and the corollary of our treatment in supplying such harmless body bases from without, immediately and persistently, needs no further repetition as to its lifesaving value, avoiding other remedies which contain any elements of danger. We have considered the good results obtained in treating epidemic influenza by physicians who have used alkalies (possibly as expectorants or refrigerants) as we were taught at first without full appreciation of the laws here presented. Finally we strongly urge their extensive use, founded as the treatment is on the everlasting laws of Nature, of physiology, of pathology, and of physiological chemistry, and applying as it does, not only to this profound toxemia of epidemic influenza, but to other severe infectious diseases and to all critical toxic conditions.

ENCEPHALITIS IN AN INFANT, FOLLOWING INFLUENZA.*

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Dr. E. Farquhar Buzzard (1) calls attention to the fact that encephalitis or inflammation of the brain is not an uncommon condition, and it occurs in connection with the diseases of infancy and early childhood. The form of encephalitis which occurs during the present epidemic of influenza is characterized by the fact that the disease may be present for days, even for weeks (2), before the intensity becomes maximal, as shown by the following case:

A. F., aged fifteen months, a male infant. The first baby of healthy parents and normal birth. Breast fed till thirteen months old. Three months previous to this illness had pneumonia, which lasted two weeks; recovered completely.

Present illness: On January 24th, while the mother and another member of the family were ill with influenza, the child became ill. Fever and vomiting, and a slight cough were present, as well as constipation. A physician was called and he told the parents that the child had a sore throat. On January 27th, I was called. On examination I found a well nourished baby. The head was apparently normal; the eyes reacted to light. The mouth was negative; the tongue slightly coated and moist. The tonsils were enlarged; the pharynx

red. The chest, on percussion, showed a slight area of dullness on the right upper chest posteriorly, while on the left side posteriorly the percussion note was slightly more resonant than normal. On auscultation, there were a few fine râles at the area of dullness; no bronchial breathing. The abdomen and extremities showed no abnormalities. The reflexes were normal. The respiration was 36, pulse 96, and temperature 102° F. With the chest symptoms the diagnosis of influenza pneumonia was made, although the pulse was rather slow for an infant pneumonia patient, but since I encountered a number of influenza pneumonia patients with a slow pulse during the present epidemic, I did not consider it very significant. Another feature which struck me peculiar was the ease with which the child allowed itself to be handled during the examination—it scarcely cried.

On January 30th, the child perspired and the temperature came down to normal, but the patient instead of becoming bright and restless, as is usually the case with infants after the crisis of an acute illness, would lie apathetic and quiet: when food was given it would take it, but did not cry when hungry; it did not vomit. The urine was examined and showed a marked reaction to acetone and diacetic acid. The following day the child was drowsy, but no other cerebral symptoms were noticed. On the next day, a slight rigidity of the neck could be elicited. The eyes reacted to light, slowly, and Brudzinski and McEwen were elicited. There was no Kernig. No Babinski, nor a tache cerebrale could be made out. The diagnosis of encephalitis following influenza was made. A lumbar puncture was made by Dr. Josephine Neal of the health department. The fluid came out under pressure, which examination showed to be clear. The albumen and globulin increased; Fehling reduction was prompt. No bacteria were present. On February 2nd, the child was admitted to the Willard Parker Hospital. Two more lumbar punctures were made there. The fluid presented the same characteristics. Later the cerebral symptoms became more marked. The rigidity of the neck increased; there was a marked strabismus and a decided Kernig. The child died on February 8th.

The marked features of this case are the insidious onset and the few cerebral symptoms at the beginning of the disease.

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148 HENRY STREET.

Treatment of Chorea.—Ernesto Odriozola (*La Cronica Medica de Lima*, October, 1918) still has great faith in Fowler's solution in doses up to physiological effect. Attention is given to the intestinal tract; chloral for exaggerated movements up to thirty centigrams every four hours for a child of six years, and the salicylates, preferably aspirin, up to five or seven grams daily. Rest is of importance, especially absence from school, until all traces of the condition have disappeared.

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"DEAR BRUTUS": THE DRAMATIST'S USE OF THE DREAM.

BY SMITH ELY JELLIFFE, M. D., Ph. D.,
AND LOUISE BRINK, A. B.,
New York.

"Swift, through some trap mine eyes have never
found,

Dim-panelled in the painted scene of Sleep,
Thou, giant Harlequin of Dreams, dost leap
Upon my spirit's stage. Then Sight and Sound,
Then Space and Time, then Language, Mete and
Bound,

And all familiar Forms that firmly keep
Man's reason in the road, change faces, peep
Betwixt the legs and mock the daily round.
Yet thou canst more than mock: sometimes my
tears

At midnight break through bounden lids—a sign
Thou hast a heart: and oft thy little leaven
Of dream-taught wisdom works me bettered years.
In one night witch, saint, trickster, fool divine,
I think thou'rt Jester at the Court of Heaven!"

SIDNEY LANIER, *The Harlequin of Dreams*.

The psychopathologist who comes forward with a practical working message labors under many disadvantages. First his position as a scientific specialist, however human his purpose and intentions, forms a barrier, except, perhaps, for those whose more acute need of whatever sort drives them specifically to seek his aid. The vast majority of mankind, largely oblivious to the fact that they need enlightenment and help in meeting life's problems, pass on their way ignorant equally that science labors to discover and to prepare such aid. Even if the multitude, or one needy perplexed member of it, is conscious that there are such wouldbe helpers, they are too prone to view them with a certain amount of the suspicion and scornful distrust with which the serious business of science is often set apart in ordinary thought from the affairs of daily life. These feelings are even shared by fellow workers if the particular physician, say the psychopathologist, pursues for certain types of illness a comparatively new road, like the difficult, radical, and penetrating one of psychoanalysis. Curiously, but humanly enough, the defense reactions of distrust and suspicion are intensified because such a practically scientific endeavor as this attempt to reach life's conflicts utilizes the most commonplace factors of human life. One of these factors is the dream, such a universal and ordinary occurrence in every life that it appears, to the unthinking, foolish and meaningless. Regulated conscious thought, hard at work for centuries upon centuries trying to subdue and control the waywardness of actual wishes and strivings which tend to outrun all control, has condemned dreams as foolish, mad, useless, forgetting that they were once regarded more seriously when the world was younger and thought was still more candid, before "camouflage" became a universal fine art.

The practical psychopathologist recognizes that a very large proportion of human ills and unhappiness and failure depend upon ignorance of one's own inner life and its wishes and strivings. He would not, however, understand his task so well, the need of his help and where and how this must be applied, nor would the consciousness of society to this need

be quickened without the aid of certain men whose acquaintance with the vast hidden mental life of man, which has been called the unconscious, is especially close, whose touch with it is vitally keen. These are the artists, men with a quicker, more active intuition than other people have. Among them, none come closer to public consciousness than the dramatists.

In *Dear Brutus* the genius of James M. Barrie has spoken very directly and clearly of the service which the dream may render for the understanding, not only of one's inner life, but for its readjustment and rehabilitation. Whether from conscious intention or from the deeper truth of artistic intuition, he has portrayed its actual service in the redemption of life from saddening waste and bitterest dissatisfaction. Barrie, in his genial humor, stands between the scoffing multitude who see only the foolishness of dreams and their apparent freakish triviality, and the serious psychopathologist who considers them, in their functional import, worthy of earnest investigation. He lets his little old Lob, so akin to Lanier's *Harlequin of Dreams*, break the bonds of rhyme and reason as he appears upon the stage to set the dream work in motion. Some words overheard one night at the theatre before the play had proceeded far paid genuine tribute to the dramatist's intuition. "It certainly must have been some lunatic that wrote this play." A wise lunatic, yes! One who has the wisdom and the courage of the deeper hidden truth to see in all the mad gambols which far outreach carefully circumscribed conscious thought, something human, something seeking expression, something from the inner heart of man and woman where both difficulty and success are conditioned and determined. But this "lunatic" has also in richer measure than the ordinary man the large wisdom and control to bring meaning and order and service out of the lunacy of the dream.

First of all there is Lob. The dream world has nothing to do with "Space and Time . . . and all familiar Forms." The stream of the unconscious from which dreams appear, released from the too highly vaunted intellectual repression of reason which holds them in check during the humdrum hours of waking, belongs to all the ages since life began. Therefore Lob is ageless or of all the ages. He has no memory of timed events, of years measured in brief periods. He was just as active when "Merrie England" flourished and the "philomel" sang its song of love, as when the nightingale of today melts away with its melody the dividing barriers, which conscious thought calls time. Lob—his little simple name rings its changes through many tongues—is no forgotten and discarded past. Lob, love, life, libido, belongs to the measureless unconscious life of man, the preservation of its power, impulse, striving, and he moves and flits and plans and makes things come to pass out in the external conscious world as well. He is power, real vital dynamic force, love and life, creative, constructive force. It is a stultifying blindness, a superficial timid aloofness from the stream of knowledge and power within, which breeds discontent, misunderstanding, false control

of our unseen desires, or loss of control and wasteful drifting. These have moved Lob's deeper heart to bring certain poor, blind time servers to his house for the magic Midsummer Night. Keenly urgent and alive but warily cautious of opening upon them this flood of possibility, he suggests and only half pretends that there is any marvelous plan before them. But he yearns inexpressibly to bring them at least into touch with the real profound life within them, and it may be that some will respond. He is subtle and quiet, as little to be thwarted as is the stream of life itself. He hides the intensity of his purpose by whimsicality, as securely as life itself hides and only half discloses its sure, still purposes. The flowers grow for him. He has only to stand before them and they are as if coaxed to unfold. And if they fall and break, as happens when he drops them from the vase, they are not cast out as useless. Like life in its true course, he is wiser and more tender than that. They can be readjusted, rewatered, the broken one is reestablished, some of its stem is lost but it is encouraged to stand up and still prove bright and serviceable among the others; just as good in a new way, if only the new way is cheerfully and resolutely accepted. This is his simple childlike prattle to them. This vigorous little Lob, whom even a stupidly blinking, visionless old butler cannot successfully put to bed and to sleep, he it is who holds in his hand the rousing of all these souls to their own possibilities. Yet even Lob is tremulous, not sure. So is life. It has only its possibilities; what shall be done with these, what shall be made of the dreams of sleeping or of waking, even life cannot say. Each individual makes his own choice, whether or not he fulfils these possibilities for himself.

Lob yearns over them all but mostly over the two, Mr. Dearth and Mrs. Dearth, in whom, though they have drifted sadly astray, he knows lies the greater possibility of the right turning. Particularly he sees the power that might lie in the hand of the woman. She has turned blindly from it, blaming only her husband, the rejected object of her opportunity, for the things which have gone wrong for them both. Lob is almost afraid to have her enter the realm of dreams and face the baseness and disaster of her own inner desires, in the facing of which nevertheless alone lies her "second chance."

In the first act all have been waiting and wondering what is in Lob's mind concerning them. He himself is scarcely sure even yet that the magic wood of dreams will be there on this Midsummer Night, but it is closer than any one of them would have imagined. The radiant growing garden of the day has given place to the mystic dream world. No one suspects that it is so close. The curtain had been drawn before the flower garden while the scene of perfidious lovemaking between the philanderers was taking place. Now it is suddenly withdrawn and the magic wood is there. The waiting guests look at it and at one another in wonder, awed, questioning, afraid of that "second chance," yet drawn one by one irresistibly into the strange secrets of the wood, their own secrets and their own renewed opportunities. The drunken artist is

the first to enter it, he who had awakened the pity of all the company and who together with his wife had particularly stirred Lob's yearning heart. His life is the visibly wasted one, force and initiative, gone, too broken and ashamed to do other than meekly accept the reproach and censure of his embittered wife. That her selfishness and hardness have repelled and defeated his creative power she has yet to learn; but the darkness and emptiness of the desires which will constitute her dream do well to make her hesitate fearfully, before she steps into the wood for her second chance.

Meanwhile the others have gone. Lady Caroline, gowned in gold of a glittering sheen, scornful, proud, in the haughtiness of a gilded snobbery, sails majestically into the forest's glades. Mr. Coade, easy, polished, blessed with an affluence and no need for exertion, follows the spell of whatever may be for him. The triangular lovers—the man whose mind stays made up hardly longer than its object of choice is in sight, the girl flattered by his attentions and the plausibility of his self conceit, and the bright eyed little wife who was looking around for her husband's love which she feared she had lost and some one might have picked up—these three follow each other in quick succession to see what the wood may do in revealing their true desires. Even Matey, the dishonest butler, sets ponderously forth, hardly so much impressed by his second chance, as compelled to the self revealing dream, whether he will or no. Only Mrs. Coade, comfortably, placidly happy, remains behind, upstairs, far from even the suggestion of the mystery of the wood of dreams. Her day has gone by. There is no more creativeness to her love, no more inspiration and vision. She has settled all too soon to the biological running down of the sands and is no longer eager for a stimulus to herself. Nor does she offer an incentive to her husband, which might have saved his dream from its ineptitude and revealed some keener desire than that which he has to acknowledge in the end as his. So Mrs. Coade merely haunts the house during the night, candle in hand, anxious in regard to the others, but to no avail. For the house is deserted by the adventurers and only Lob slumbers on at his chimney side, patiently awaiting the working of his dream experiment.

But the wood, what is transpiring there? Psychoanalysis in its persistent working with dreams has found that for practical therapeutic purposes they may be viewed in at least two aspects. First, they are the means of revealing to conscious attention, fixed upon them after awaking, inner complexities which unknown desires create in our lives. This demands the revelation which their detailed whimsicalities, with the aid and the disguise of symbolisms, so cunningly set forth. They are often startling, in spite of clever disguises, in the secret desires, the pettiness, the primitiveness, the childishness, the baseness of interest which they reveal still at work beneath the surface of what we term a civilized, cultured, adult mind. They show the source of the confusion, the uncertainty of striving, and the indecision as due to the variety of desires and of the different cultural layers to which such desires belong, which are at all times present

within us. The dream, however, has a further function, a further message. Out of these desires and out of the clearer revelation of them it aids the mind in its choice and control of these to higher syntheses. It reveals better possibilities and sets one on the correct pathway of synthesis and control which will attain these and unify life. Bearing in mind then this double function of the dream, we need not be surprised with whatever Barrie's play may reveal to us. Like the analyst with his patient, he must first draw the curtain from the desires in their nakedness, high or low, base or noble, and then lead gradually to the conscious grasping of them, the slow, at first bewildered, acceptance of them, and then the determined use of the acquired knowledge of self; or shall it be only the continuance in a life of indolent, indifferent drifting? Even in the latter case, however, some impetus and concern will have arisen from the dreaming. Some "little leaven of dream-taught wisdom" work them "bettered years."

Since there is a power in the dream to discover unsuspected realities of desire partly hidden, partly revealed by the symbolic actions, manners, dress of ordinary conscious life, it need occasion no surprise to find first in the wood the haughty Lady Caroline madly in love with Matey the butler. He sleeps with his head pillowed in her lap. Her glittering, golden gown is exchanged for motoring garments hardly less suggestive of the sordid affluence which her prosperous dream husband has brought her in the financial success, which has also satisfied his dreams. Their position upon the ground, from which they are separated only by the luxurious rug from the "Rolls-Royce" left somewhere near, is all indicative of the low position of their desires. There is no inspiration or aspiration in either of them. The fat, clumsy Matey limits her horizon with his boasting of his clever dealings in the "world of finance." Even she is not in his vision. The fat brown cigar tempts him far more than the request to kiss her ring, her "golden fetter" and his thoughts are only on the baser accruing of wealth and the circumventing of the rest of the world of finance by his schemes. No, the dream could not change his baseness of desire and method of dishonesty. His striving for power develops no more than merely to substitute one base form for another. And it keeps "the nails in my boots for those beneath me."

The philanderer had already given a picture, before he entered the wood, of the end of his desires. He is one of those individuals who see no further than the horizon of the self, such a Narcissus that his own image fills the pool of events quite completely and quite entrancingly. Joanna, the love of the moment, or Mabel the wife, one time loved, are only objects upon which the narcissistic self reflection shines forth. So in the first act, still in the waking world, Joanna attempts to love and admire him but his love for her is only a boastful rehearsal of his own graces of spirit, his own loneliness and separateness of soul. These are just so many rich mouthfuls of self appreciation and conceit, the enjoyment of the feigned loneliness and regretfulness oozing through with an unctuousness which deceives the very man himself. It is the

essence of egotistic self pity which masochistically suffers to enjoy. And for a time it deceives the equally selfish Joanna. Mabel's vision is rather keener. She is a contrast to these too common types of thickly blinded self worshippers and deceivers. Quick, alert, she is able to pick up a situation as tangled and absurd as it is disastrous to her comfort and contentment, and in sprightly fashion make the best even of it. Certain flashes of spiteful hatred come through, however, to place her among the ordinary and imperfect members of human society.

In the wood the situation of these lovers is reversed. The dream seems to be devoted principally to clearing the air a little for the man, John Purdie, and awaken him somewhat from his extreme egotism. He is still pursuing the wrong woman, so it appears to him in the dream, and so he enjoys still the flavor of the forbidden and attainable only by clandestine means, but in reality his fickleness and lack of stability evidence themselves in that he pursues his wife and deserts the other woman, thinking his wife the forbidden object. His methods are none the less self worshipful and reveal that his blindness to the object is one deeply rooted in the egotism of his nature. Of course the object must be nothing when self is all and fills the horizon. "You know why I love you, Mabel; because you are so much like myself." Joanna's triumph while awake and her surprise at Mabel's lack of appreciation of the self engrossed viewpoint which is hers and Purdie's are not reversed and the falseness and shallowness of her obscured judgments come to her in their true light. It is her turn to indulge in little wrathful explosions, most sharply at the last toward "philomel" in the trees over her head, that bird of love whose true nature she little knew. Mabel has shifted her pale gown of desertion for a vividly bright one, warm and eloquent of love.

Coade has not attained the life of usefulness which his waking anticipation of a second chance had conceived for him. Ah, no; he has escaped the comfortable unstimulating partner of his daily life only to pipe and dance in idle, careless self enjoyment. He has returned in play only to the childish level which lurks in the unconscious, ready, the moment the ordinary pressure of the daily life is released, to summon to autoerotic pleasure. This is easy of attainment, requires no effort, fills the place all too readily of the creative power which should have supplanted it more securely than this. Nevertheless he is as happy and merry and pleasurably unconcerned as only dreams can permit one to be.

The others, however, those upon whom Lob's wish had most seriously bent itself, how does it fare with them? The wish for true living, that which is sincerely happy because it expresses itself untrammelled in the genuine constructive force of its nature, must have been alive in the poor drunken artist at least. The dream wood has released him from the weaknesses, the ineffectuality, the external disappointments which had turned his natural energy from the paths of success and work. Here in the wood he has found both of these. Energy has not wasted itself here in pathways which brought neither complete forgetfulness nor afforded

any of the satisfaction which life really demands. Now the artist is an artist, presumably rising sometimes in the morning as the man awake had regretfully stated he used to do. In the dream he is out even to seize the spell of the full moon and make it his for definite productive ends. And with him is the daughter who is chief symbol of the creative power and wish, the daughter whom the selfish, hardened unproductiveness of his wife has in reality denied him.

This scene of consummate dream art, so replete with the grace and power of the dramatist's thought, cannot be easily passed by. To go back a bit, Barrie has confessed in the sketch of his mother, "Margaret Ogilvy," something of what she had meant to his life and what a prominent place she held in all his creative work. She constantly reappeared by name or otherwise in his best female characters. It is not strange therefore that this wish daughter should bear the name of Margaret. Furthermore psychoanalysis has been teaching us the lasting and dominating influence upon all of one's later life, and largely conditioning its success or failure, which the love of a child toward its parent may have. Life's success or failure depends upon the attitude formed then. This expresses itself in a fixation upon the parent, which means introversion, dependence, inability to meet life in one's own strength and effort, or on the other hand the parent love becomes only the inspiring model for all of later life, urging to extroversion upon external things and an adult acceptance and use of love and all other opportunities that life may bring. Barrie himself has said that "nothing that happens after we are twelve matters very much." Furthermore we have the testimony from the life of one of our great anatomists as to the hold of the mother upon the child's life and its return through the undying wish in the form of a daughter. Burdach¹ relates his intense experiences in the birth and life of his daughter to whom he gave his mother's name and whom he allowed to supplant a strong fixed affection and desire toward his idolized mother who had died. The wife in his narrative seems to have been only a secondary consideration.

It would seem that the dramatist has here laid emphasis even if only intuitively and unconsciously upon a combination of factors grown very familiar to psychoanalysis. They are given simply in the drama, the artist who has failed in his work, whose life for some reason has not attained its freedom and has instead sought refuge in the often frequented port decanter. He has been unable to command and hold the love of the wife, whose wild untamed beauty had at first fascinated him. His deep inner desire, which perhaps had formed the unconscious fetters which had caused this failure and his disastrous career, returns in the dream in the daughter form, whom Barrie confessedly suggests as a revived mother image when he gives her his own mother's name. And yet the dramatist's art, no less than his creative and reconstructive purpose, which is thus artistically to point the way out from fixation and failure to renewed living, utilizes this

same daughter-mother figure to reinspire the artist and lead him to rebirth. Such is the mission of the dream; it reveals the danger side of the unconscious wish but its constructive, "prospective" tendency as well. It is the thought to which Jung has given elaboration in *Psychology of the Unconscious*, in which is described his treatment of the "terrible" mother object of the infantile desire leading to death and the lifegiving mother from whom comes the psychic rebirth, "the mother, who is the continuous and inexhaustible source of life for the creator, but death for the cowardly, timid and sluggish."

The artist's dream makes much of the moonlight, which Sadger² has shown from his psychoanalytical experience and from literature has much to do also with parent influences, often associated by the child mind with the light of the moon, and surviving from childhood into adult life. Barrie has added a further touch from his mother reminiscences when the artist and the dream child are engrossed in catching the full expression of the moon for his picture. The playful references of both child and father are strongly suggestive of the influences which Sadger's study has discovered operative in these associations in the unconscious and conscious phantasy life and the erotic interpretation of the moon. Then the dream daughter turns her head up saucily and delivers her address to the moon which savors of the erotic fancies which have been addressed to the moon or conceived of it throughout all the ages. But when the maiden wonders if the moon would feel insulted at being possibly considered old enough to be her mother, the light hearted artist's answer comes straight from Barrie's own mother reminiscences. He has told us how Margaret Ogilvy was wont to borrow his school boy Latin phrases and surprise those who complimented her daughter, "Would it not be more to the point to say, '*O mater, pulchra filia pulchrior?*'" which the father in the play offers as a rejoinder to the moon to defend her youthfulness, translating it into, "O moon, who art more beautiful than any two penny ha' penny daughter."

One might well linger over this brightly tender scene. Its artistic interest is great, its psychological depth no less. It touches the hearty, healthy wish and energy, alive in the deepest life of the artist, which outwardly and practically had gone so far astray. It reveals the eager, half timid, wholly venturesome straining of the child to enlarge her love and yearnings out into womanhood. Imperiously her power exercises itself upon the father, who has no choice but to yield to her will. Yet she has been molded, unwittingly, unconsciously guided and formed by him. Even the shape of her ears are his handiwork, and significant again of the keen association between the child's night phantasies and loving parental care is the recall of her earliest recollection, the vision of the star, which also she learns her father had planned for her first consciously retained memory. Then she steps out cautiously into the woman's sphere and tests her own valuation of a son setting it over against her father's exclusive estimate of a daughter. "Dearth: 'Daughters are the thing. . . . Sons are not worth

¹Cited by J. Sadger in a paper on sleep walking and moon walking which will appear shortly in the *Psychoanalytical Review*.

²Locus sit.

having, Margaret. Signed. W. Dearth," and Margaret responds: "'But if you were a mother dad. . . . Sons are not so bad. Signed. M. Dearth.'" Then, as they proceed: "Margaret: 'Daddy, now you are thinking about—about my being in love some day.' He nods. 'I won't, you know; no, never! Oh, I've quite decided. So don't be afraid.' At back of him—whispers, 'Will you hate him at first, Daddy?'" It is the privilege of the dream to be at once so candid and so contradictory as Dearth when he answers to the repeated question, 'Would you hate him at first?' 'I hope not. I should want to strangle him, but I should not hate him.'"

A cloud, an intimation from the real world where this happiness of the wood has not come to pass, darkens the brightness of the moonlit wood. Mrs. Dearth appears, the mother who had failed to bear this child and make this happiness a reality. Her dreams have revealed the disastrous wishes which lay within her. She is ragged, hungry, wretched. Her ambition has been gratified; she bears the name of the Hon. Mrs. Finch-Fallowes, but she is forsaken. She has proved the truth of her husband's warning words in the waking world at which she scoffed, and she has found that the Hon. Mr. Finch-Fallowes is a "rotter." Starving and hunting for bits which the tourists may have left between the roots of the trees, she is glad to accept the aid which the artist and his daughter give her from their scanty means. The thought of her preys upon the happiness of the artist's mind, even as the wood darkens after she comes and goes, and he sets off in the direction of a light he sees in the distance to procure her food. He sings as he goes expecting to return in a few moments to the dear little daughter, but she is only a dream, and with her frightened cry darkness completely swallows up the wood of the dream: "Daddy, daddy, daddy, daddy, daddy. Come back, come back, daddy! I don't want to be a might have been!"

One needs to have learned to take dreams somewhat seriously to appreciate fully the waking up from the night in the wood. Barrie has skillfully pictured the perplexing transition when the world of the unconscious only slowly yields to the sharp clear light of definite, practical reality. He knows, at least intuitively, of the puzzled groping between the two realms of mental thought, when the effort is made to bring together the conscious and distinct and the unconscious world which lies not only just beneath but also reaches mysteriously into profound and illusive depths. This is the patient task of those to whom dreams are of definite service for the reordering of life, and to such again Barrie's message is full of sympathetic suggestion.

A dramatist less artistically true might have made much greater profit out of their dreams for all the characters who had gone into the wood. The play would have pointed its moral, the dream done its ideal work and all lived happily ever afterward. The truth of the play as it is lies, however, in its adherence to reality—with all its startling revelations and its phantasy. The best in the real world comes about only by a slow and imperfectly working change. Life does not stand still for a moment and the self revealing dream must always work to

some slight extent at least its "little leaven." So Barrie permits it to do, at least in all but the sordid pair, Lady Caroline and Matey, the butler. Yet even in them who can say that there is not a significant flash of humbling self knowledge? Lady Caroline puzzles over to herself: "And I seemed to like it," though she in self defense against too great understanding and self acknowledgement quickly assumes her attitude of scornful haughtiness. Matey drops less conceitedly back to the familiar feel of the coffee tray, though his fingers slip instinctively to the pocket where he habitually drops his tips.

The philanderers are the first to come out of the wood and stumble back into waking. They find themselves in the dark in the room that is strange to their recent experience. Purdie's exaggerated self interest and pity make him fear he has fallen down a cellar hole in the dark. As they flash on the light they discover no one else present except Lob still asleep by his chimney side. At least he appears to be oblivious to their existence, so soundly asleep that all their efforts to be polite to this apparent owner of the house they have happened upon fail to obtain any response. Only when they are once more absorbed in their own affairs does he give elfish signs of his alert watchfulness over the success of the dream experiment. As the arrivals come drifting in the "trickster" slumbers on, profoundly indifferent.

Purdie's perplexities follow him into the waking as they followed him away into the dream. This time he has won Mabel, so much the dream accomplished for him, and they believe they have taken refuge in this strange house on a deliciously clandestine expedition, but the embodiment of the third factor in their uncertainty presents herself at once, Joanna, the neglected and spitefully jealous wife of the dream. Their waking, all three together, is as confused and perplexed as any strange intermingling of the wishes of the unconscious with the groping efforts of consciousness to establish again the ordinary relations with reality. For here at first as so often the wishes from neither side have a decisive influence. There is on the part of Purdie at least that weakness of character which means the honest yielding to neither one course of action or the other, through the selfishness and blinding of his own selfadmiration. Joanna falls a little more decidedly out of the race as soon as she is wide awake and Mabel assumes again her bright quick attitude as the real mistress of the situation. She is more that now than formerly for the biting stings of jealousy are softened through the humor which comes with an appreciation of the real state of the case, that is, of her husband's proclivities, and perhaps her own readiness to walk just where Joanna did before. She at least has attained a somewhat larger view.

All are enough enlightened to admit a better knowledge of their true tendencies and the hope that they may be a bit better for their experience. They are also enough ashamed to hide from Mrs. Coade the character of their experiences, as she comes in, candle in hand and rather vexed at the irregularities of the night which have disturbed her complacent rest. Her equanimity is hardly satisfactorily restored when her husband returns

still in a merry, playful mood and unable yet to remember his staid married state. Only he has enough desire for her, this pretty, comfortable woman, to begin making love to her again, stranger to him that she is, until he is fully awake and appreciative of her faithfulness. Then he has to confess the failure of his dreams from which he had hoped so much in proving that there slumbered within himself a latent energy and strength. And all he could boast of was a night of idle but happy amusement.

When all these have found themselves once more in the ordinary waking world, partly ashamed, wholly glad to be on ground more openly familiar, the thoughts of all turn pityingly to the other two who have not yet returned. Their awaking, they feel, will be one of sorrow. All recognize not alone the waste in the lives of Mr. Dearth and Mrs. Dearth but the stronger and better possibilities which these lives also contained. And then Mrs. Dearth appears through the curtained entrance behind which lay the magic wood. The bitterness to which the fulfilment of her dream desires have brought her is exaggerated as she brings the uncouth manners of the ragged starving woman into the lighted room, bright again with reality. The rags are no longer in her dress, which like that of the others has been transformed on leaving the wood to that of the real world. So she wears again the blue steel trimmed robe of domination. But it ill fits with the cowering servility of her manner as she sees and devours the food upon the table, ravenous still with the vividly dreamed hunger of neglect, symbolic perhaps the dramatist has meant of the empty wife and mother's heart. While she eats and tells her story with the depravity of untruth in the form of the perverted truth, how she gave away her food to the hungry artist and his pretty child in the wood, the happy artist comes in. All present are now truly awakened to pity and awed to silence. They face, as they realize, a heart rending tragedy or—no, not one of them conceives of hope, only doubtless the sprite in the chimney corner who apparently slumbers on. Even he has come to the crucial point of the test, though he yet gives no sign. Unless perhaps there is a more earnest quietness in his form instead of the merry contortions which had evinced his unobserved interest while the others were awakening.

"Yet thou canst more than mock: sometimes my tears
At midnight break through bounden lids—a sign
Thou hast a heart.—"

Dearth's first shock of the reality, which the dream had so joyously and hopefully replaced, comes in the recognition that he has exchanged the sensible useful brown tweeds of the wood, the clothes in which he could healthily work and play, for the seedy soiled and spattered clothes of the life into which he had not fitted, which bore the marks of his dissipation and decline. He comes back to the past he had so briefly left with a quick realization and a poignancy of regret and sorrow. Even here, however, is the same redeeming note which had faintly sounded before and which had marked his pity and kindness to the forlorn woman in the wood. His first thought is one of pity for her who

must suffer through him. The old redemption motive of love through pity is at work. It helps to waken the wife from her wretched dream, but more it rouses her after the revelation of her dream to love and pity also for him. Their hearts are melted together with grief, but are welded also in a new hope. They can no longer endure the shallow atmosphere in which they had moved with the others. Mrs. Dearth hastily leaves the room and her husband is not long in following her, for her love at last finding itself had surrendered its pride and indifference before him.

The rest are now quite fully awake and the tenseness of the situation is relieved by the outbreak of Purdie into a bit of the very real world of trivialities and commonplaces, and the whiff of the morning of another day of life. For just then Matey solemnly opens the door of the breakfast room and announces breakfast, and to Mrs. Coade, "I have given your eggs six minutes, ma'am," for she always, as might be expected, takes them hard boiled. Purdie's resolution to profit by his experiences has already failed to uphold him with absolute safety, as he feared it would, for on the way to breakfast he already stops to whisper, very loudly, in Lady Caroline's ear of the interesting loneliness of his soul. But Mabel's understanding being quickened, she is both patient and kindly admonitory to this weak child she has married, and she reminds him of his waiting breakfast, while he promptly recovers and obeys. Just so much of a glimmer of regeneration had the dream wrought for him. At least he knows where to recognize and correct what he can of his life at the source of the difficulty. For he has learned to say with Shakespeare:

The fault, dear Brutus, is not in our stars,
But in ourselves, that we are underlings.

This is the text of the play which Barrie has so delicately yet so wisely written. Joanna at least can "hold on to breakfast" and leads the way into the breakfast room. Lady Caroline appears unregenerate, but in truth the added superciliousness with which she passes her dreamed of husband on the way, as she follows the rest, shows that something is touched within, even if so far it has done no more than put her upon the defensive. This often lies in added vexation or exaggeration of already overcompensating qualities for dimly recognized weakness. Just so with Matey whose chagrin at his revealed baseness, which lies deeper than he had suspected, reacts with a spitefulness and vexation toward the author of these revelations, whom he believes he has at last in his power. He is ready to wreak a petty revenge upon him, as human realization of its own weakness is prone in this way also to deceive itself by such an exhibition of futile power. The rest having left the room, he turns wrathfully toward Lob's corner and seizes the great chair in which the little man is almost hidden. "I've got you now where you can't escape me." He shakes the chair violently in gleeful anticipation of hustling the trickster off to bed or under lock and key or wherever he thought Lob could be confined. But no, Matey, you little understand Lob or Life. The chair is empty and no trace of his victim is to be seen. Puzzled and balked Matey soberly lumbers

across the room to turn off the lights and once more draw the curtains to let in the morning sunshine. The garden is not altered since yesterday; the mystic wood has withdrawn as it came and the flowers bloom brightly and philomel sings merrily, as if no interruption of the course of things had occurred. And there in the sunshine before his flowers, head tilted toward the morning sky and listening to the bird's sweet song, stands Lob unaltered also by all that has transpired about him.

He is not, however, unmindful, no more than through those hours of seeming slumber. Lob has still his watchful work to perform and the blessing of his inspiration to give to those who embark on the active stream of things. He has not to wait long before there is sign of such response to his tenderly and anxiously devised experiment of the night, over which he is still patiently watching. He catches a glimpse of Mr. Dearth and Mrs. Dearth, for whom particularly he had schemed and hoped and he joyously hides himself while they pass by. Their transformation has been an actual one. It has lasted over into the test of the bright day. All traces of the dissipation, waste and failure manifest in either of them the night before are gone, whether as the artist had worn them in his wretched outward appearance in the drawing room, or as Mrs. Dearth had revealed them hidden in the sordid wishes of her inner nature. That which was good and of real worth has taken possession of them both. They are clothed for work and for healthy happiness in the open air. They stop to draw in deep breaths of the scented air, to rejoice in the flowers, birds and sunshine, and then fare forth happily to the merrily hummed tune with which the happy artist had pervaded the wood in his dream. There is no need for them to "hold on to" the trivial things with which the others have once more secured their place in the real waking world. They know greater more lasting realities.

No sooner have they passed on then Lob springs again to view before his flowers. His face is soft with loving concern and a satisfaction such as only can be found in the realization that the way of truth has been opened, that one has assisted in the finding of the lost self and its setting forth on the path of sincere endeavor. Lob knows that the most real healing has come to them, not through other circumstances, but through the taking of another turning, finding their lost powers and utilizing these and just these in other directions.

This is the essence and art of mental healing, the message which every true artist is bound to preach. The others—perhaps they have learned a little of the lesson and made or will make some few efforts in this direction. Lob's tenderness has not forgotten them. The wave of the hand with which he dismisses them is a lingering one, not wholly a dismissal, not without affection and hope there too; but he returns again to the receding pair where hope can pour itself in a last loving farewell of assured expectation. Then his happiness bubbles over once more into playfulness. He tucks himself into his chair with the vase of petted flowers in his hand.

The tender, wise physician may rest. His patients

are groping toward their cure, the elixir of self knowledge working in the veins of their minds, dull and obscured and clouded by selfish egotism, convention, indolence as these may be. Two of them have shaken themselves free of these and are already well on the road toward perfect health.

"Yet thou canst more than mock: sometimes my tears
At midnight break through bounden lids—a sign
Thou hast a heart: and oft thy little leaven
Of dream-taught wisdom works me bettered years.
In one night witch, saint, trickster, fool divine,
I think thou'rt Jester at the Court of Heaven!"

64 WEST FIFTY-SIXTH STREET.

REPORT OF A CASE OF SARCOMA IN AN INFANT.*

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Y. S., aged sixteen months, was admitted to the Samaritan Hospital on November 26, 1918, from the Hebrew Sheltering Home and Day Nursery, where she had been an inmate for some months. The history obtained from the Home was that her father and three brothers were living and well but that her mother became insane while carrying this child, and died three months after the baby was born. The delivery of the baby was normal in every way, but, owing to the mother's mental condition, it was placed on the bottle from birth to the age of six months, at which time, the child not thriving on the bottle food, a wet nurse was secured for the following five months, during which time considerable gain in weight took place, which had not been true previously. Since the age of eleven months the child had again been placed on the bottle. At the time of admission to the hospital the child could neither walk nor talk, and had erupted only one tooth. A history obtained from the Home, at this time, was that the child had been sick for two weeks, during which numerous swellings had occurred on the head and face, accompanied by a nasal discharge, occasional cough, some increase in temperature and a black and blue discoloration of the upper eyelids. The suddenness of the occurrence of the swellings and the discoloration of the eyelids suggested the possibility of injuries received by striking the head against the sides of the crib, but the rapid increase in the number and size of the swellings together with the serious general condition of the child soon dispelled this theory. On admission to the hospital the temperature was 98.3, the pulse 122 and the respirations 44, the child weighing at this time seventeen and a quarter pounds. During the fifteen days it lived after admission the temperature varied between 97.4 and 101.4, the pulse was between 100 and 136, and the respirations between 28 and 44.

A careful examination of the eyes, soon after admission, by Dr. Luther C. Peter, disclosed the following: Eyelids were symmetrically ecchymotic and

*Read before the North Branch of the Philadelphia County Medical Society on January 27, 1919.

somewhat edematous. Both palpebral fissures were abnormally wide as a result of the proptosis of the eyeballs, although during sleep the lids were improperly closed, especially on the left side. Proptosis was also more marked in the left eye. There was



FIG. 1.—General appearance of the child

an outward deviation of the eyes. So far as could be determined, external ocular movements were otherwise full in all directions. Pupils were round, equal, and reacted to light and accommodation.

Eye ground examination—the right eye—the pupil was round, four millimetres in diameter media clear, disc fifteen by sixteen millimetres long, axis 90° . The disc was well defined; both arteries and veins were tortuous and overfilled; retina hazy; vessels long axis of the disc were best seen with $+2$ D. The left eye was similar to the right, although the vessel phenomenon was not so pronounced as on the right side. The ocular diagnosis was bilateral optic neuritis. This together with the bilateral proptosis and symmetrical ecchymosis of the lids suggested intracranial disease with probable involvement of the cavernous sinuses.

Later examination up to the time of the child's death—chemosis, proptosis and optic neuritis were slowly increasing. There was however, no papilledema. An x ray examination by Dr. George C Bird showed that the sella turcica was obliterated by a neoplasm.

The father gave his permission to have the child operated upon, but naturally this was not even thought of under the circumstances. While a permit was not obtained for autopsy, advantage was taken of the father's permission to operate to the extent of having a section removed from one of the swellings for pathological study. A report of Dr. Gordon Saxon on this section is as follows:

The specimen shows heterogeneously arranged masses of cells of the connective tissue type together with a liberal supply of blood vessels. These latter are in most instances of the capillary type, that is, they are not provided with a muscle coat. In other words this is a sarcoma with medium sized round cells. The loose character of the structure, the imperfect formation of the blood vessels, and the size of the cells indicate that this was a rapidly growing tumor.

This case was considered of sufficient interest to report because of the number and size and rapidity of growth of the sarcomatous masses and the age of the patient.

1402 SPRUCE STREET.

INFLUENZA PNEUMONIAS AS STUDIED WITH THE ROENTGEN RAY.*

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(From the service of the Beth Israel Hospital.)

A SURVEY OF SIXTY CASES.

With the aid of examinations by means of the fluoroscope and radiograph, in inflammatory conditions of the lungs, we can study the type of the lesion and determine whether it is lobar pneumonia or bronchopneumonia, its distribution, the number of foci simultaneously involved, and their complications. These studies are highly important and supersede the older methods of percussion and auscultation, as they afford a direct visualization of the pathological processes taking place within all depths of the thoracic cavity.

The richness of material presented by the recent epidemic of influenza pneumonia, has afforded many opportunities for the systematic study of these diseases. The accuracy of the x ray findings has been an invaluable aid in the diagnosis of all obscure pulmonary lesions, such as abscess of the lungs, encysted effusions, pneumothorax, etc. It has often cleared up the interpretation of a group of physical signs whose meaning could not be otherwise elucidated. It has also enabled us to follow the progress of the disease and exclude or detect the occurrence of an effusion. In the postoperative empyema cases this method of examination was the only means of explanation of sudden rise of temperature. It would reveal either a retained pocket or a new pneumonic focus either in the opposite lung or a recrudescence in the same lung. Incidentally we were able to discover in several cases the presence of old lesions such as old pleuritic



FIG. 2. Note the marked accentuation of the linear markings and the diffused dissemination of the small peribronchial infiltrations.

involvement with retraction of ribs, displacement of mediastinal contents and cardiac lesions.

In the rush of the early days of the epidemic, few patients could be x rayed due to the lack of

*Read before the Clinical Society of Alumni of Beth Israel Hospital, March 6, 1919.

help for transportation to the x ray room. Later, however, we attempted systematic examinations wherever possible. Among the large number of patients treated at the hospital we were able to examine with the x ray only 100 patients. The follow-

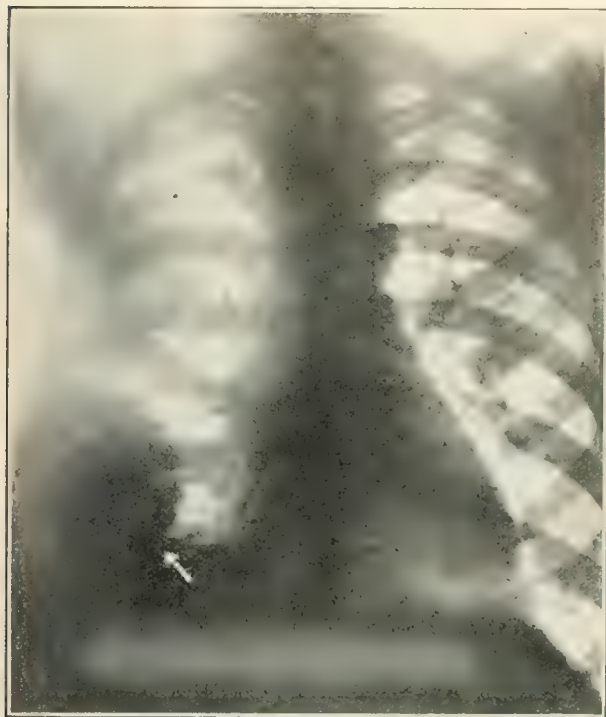


FIG. 3.—Encapsulated diaphragmatic effusion. Note the sharply circumscribed area of density in the lower right lobe fusing with the diaphragm.

ing were the complications encountered: Fifteen thickened pleura, out of which five were diaphragmatic; twenty-one pleural effusions (serous or purulent); nine hydropneumothorax; one pneumothorax; two pulmonary abscesses, and two subphrenic abscesses, and one bronchiectasis.

TYPE AND DISTRIBUTION.

With the exception of perhaps a few cases, they were all invariably of the true bronchopneumonia type. The distribution was as follows: Forty-eight involving the left lower lobe; forty the right lower lobe, a number of these having both lobes simultaneously involved. Out of these, the right middle lobe was involved in eleven; the right upper lobe in four, and the left lower lobe in eleven.

In the milder cases the appearance was one of intense congestion, with marked accentuation of the pulmonic markings. The hilum always appeared turgid, enlarged and fuzzy. The root branches emerging were intensely engorged. Small sized isolated peribronchial infiltrations were seen in the parenchyma of the lungs surrounding the small and medium sized bronchi. (Fig. 1). These were usually disseminated throughout both pulmonary fields, often through several lobes. In the more severe cases there was coalescence of the peribronchial infiltrations into larger areas, thus giving the impression of lobules, which varied from the size of a pea to that of a silver dollar. Several of these would often appear in one lobe. In one case the left lower lobe was infiltrated with confluent areas around the periphery leaving in the centre an

area of compensatory emphysema which gave almost the impression of an abscess cavity after its evacuation. In a number of the more severe cases there were infiltrations of the entire lobe (Fig. 2) simulating a lobar type. One could, however, always differentiate these from the true lobar. By repeated examinations we could observe the gradual filling of the lobe. The process always started in the centre and spread slowly outward in small patches of infiltration which gradually coalesced. In the true lobar pneumonia, consolidation as described by Barjon (1) and others, is always seen to begin, in a majority of cases, first at the periphery and then spreading rapidly toward the centre in one large mass of exudate until the entire lobe is filled. Another point of differentiation is that the infiltrate never conforms to the exact configuration of a lobe. A strip of healthy lung that has escaped involvement was always observed. It was in this type that the clinician always reported a lobar pneumonia. Also those cases having smaller circumscribed areas of exudation which surrounded a larger bronchus and gave bronchial breathing were considered clinically as of the lobar type.

The postmortem findings so well described by Dr. Douglas Symmers (2) were very instructive. They bore out the x ray findings of intense engorgement and the characteristic infiltration. From the lung on section oozed a bloody fluid. Purulent as well as bloody discharge was seen to escape from the bronchi. The lung was soft and compressible,



FIG. 4.—A case of consolidation and thickened pleura simulating an effusion in the left chest. Note, however, the lack of displacement of the heart.

differing from the findings in lobar pneumonia, where it is hard, incompressible and contains fibrin. Diffuse areas of hemorrhagic exudate were seen intermingling with purulent foci. Clinically the sero-sanguineous expectoration and the numerous show-

ers of fine crepitant râles heard on auscultation gave also evidences of intense engorgement. The presence of pneumonia complicating influenza was readily recognized in the general run of the cases by the aid of clinical manifestations. A few of

though clinically moist râles may be heard. Such cases are not pneumonia.

COMPLICATIONS.

Thickened pleura.—Thickened pleura is often mistaken clinically for effusion. Out of a series of fifteen cases reported röntgenologically, five were diagnosed clinically as effusion. In the normal state the pleura does not show on radiographical examination. The pleural layers are only visible in the pathological state when the inflammation has produced a thickening of the wall or a fibrinous deposit on its surface. The pleural cavity is apparent only when it is abnormally filled with either fluid or gas or with both. The diagnosis of pleurisy rests usually with the clinician. Quite often, however, difficulties are encountered where the x ray must be employed. It is well known that a thickened pleura can produce physical signs that may simulate an effusion. We often find dullness, diminished or distant breath or voice sounds and absent vocal fremitus. By means of the x ray we were able at once to rule out an effusion. The density produced by thickened pleura was never so complete but that the pulmonary markings could always be discerned. Often the costophrenic angle would remain uninvolvement and show good illumination. The costodiaphragmatic sinus disappears first in an effusion. The diaphragmatic movements though limited were nevertheless present, unless we were dealing with a pure diaphragmatic pleurisy. Occasionally a thickened interlobar septum would be seen. The curved line of Damoiseau which represents the upper level

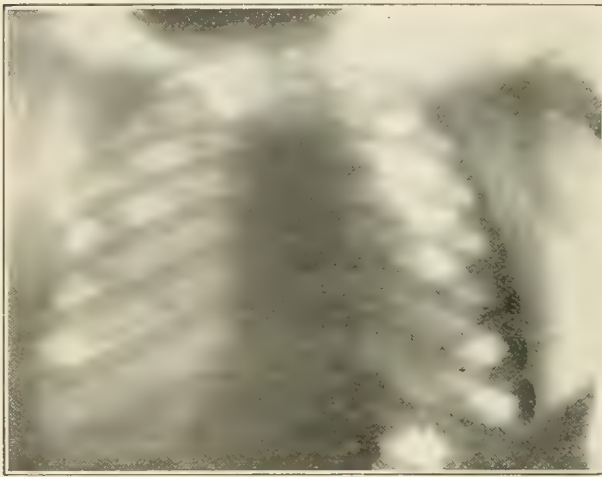


FIG. 5.—A case which proved to be pyopneumothorax. The röntgenograph, taken in the prone position, shows no air, but the translucent density with absence of pulmonic markings, and the displacement of the heart and diaphragm made the diagnosis possible.

the cases, however, passed unnoticed and the presence of pneumonia was only made apparent by the aid of the radiograph. It was surprising to find the existence of the extensive areas of exudation, often occupying a large portion of a lobe, that gave no physical signs, especially on auscultation. Fig. 2 presents a very striking example. The patient was brought to the hospital on the twelfth day of his illness, and although he was carefully studied clinically, no diagnosis of pneumonia could be made on physical signs. The x ray revealed large areas of infiltration scattered throughout the left upper lobe and the upper portion of the left lower lobe. A large patch of infiltration almost three inches in diameter was situated at the periphery. There was no evidence on auscultation of any change in the respiratory sounds. It is possible that its distance from the thoracic wall as well as from a larger bronchus made the change of vibration inaccessible to the ear.

On the other hand, quite a number of cases were regarded clinically as pneumonia yet the x ray gave no evidence of any exudate in the peribronchial tissue or in the parenchyma of the lung. The only change noted was the intense congestion as seen by the accentuation of pulmonic markings, especially at the bases. In these cases the clinician reported the presence of râles, slight dullness at the base, and possibly diminution in the intensity of the breath sounds. Such cases in the light of our x ray observations cannot be considered as true pneumonia. They are simply influenza cases associated with an acute bronchitis. Pneumonia is considered pathologically as an exudative or productive lesion in the alveoli or in the tissue surrounding the bronchi, and as such is always seen on the x ray plate. When the process is only catarrhal in nature and confined to the mucous membrane of the bronchi, filling the lumen with mucus, the x ray will be negative even



FIG. 6.—Encapsulated hydropneumothorax. Note the air in the periphery of the left lower lobe and the fluid within, separated by adhesions.

of fluid effusions was of course always wanting in these cases. The mediastinal contents were never displaced. By closely following these few cardinal signs one could easily differentiate between thickened pleura and effusion even when the physical

signs were obscure and misleading. We were thus able to prevent unnecessary thoracentesis which was at first rather freely practised. In some of the cases with an underlying pneumonia where the course was protracted, temperature high and irreg-

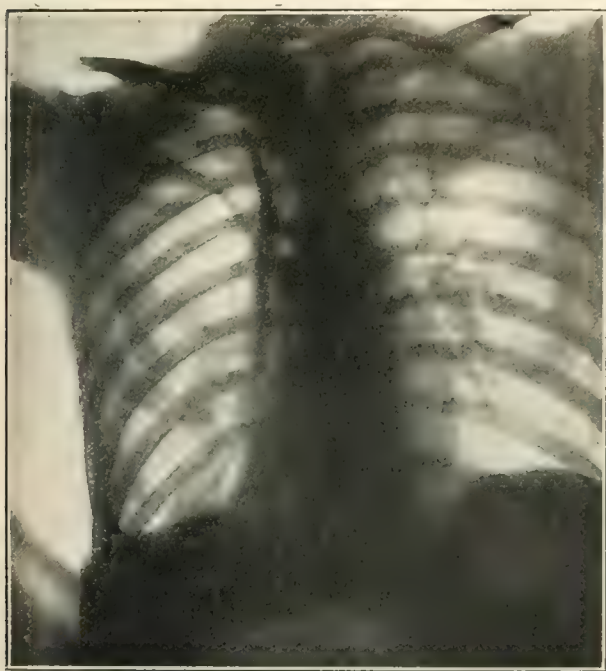


FIG. 7.—Pneumothorax. Note the collapsed lung lying ribbon shaped against the spinal column from apex to base.

ular, and the physical signs were those of effusion, the anxiety was always relieved by a study of the x ray plates. The visible pulmonic markings would dispel all doubts. In all of these cases the patients made uneventful recoveries, the physical signs clearing up in time.

Effusions.—There were in all twenty-one fluid effusions (serous or purulent); three encysted diaphragmatic pleurisies; nine hydropneumothorax and one pneumothorax. Effusion of the pleura may involve either the entire pleural cavity or only part of this cavity. In the latter case it is circumscribed or encysted and it is further classified according to the portion of the pleura involved, whether interlobar, diaphragmatic, or mediastinal. In the early part of the epidemic there were practically no effusions seen. Later on with the abatement in the virulency of the disease the serous membranes became more frequently involved and effusions were quite common. The amount of fluid was always large, often filling the pleural cavity to the brim. The purulent effusions on the operating table showed the typical large deposits of fibrin which were found chiefly at the bases covering the diaphragm and were removed in clumps. These were invariably the mixed pneumococci infections. Although most of these cases were diagnosed or suspected clinically, the x ray nevertheless gave valuable information as to the size of the effusion, whether free or encysted, and the nearest place of approach for operation. In a few cases the physical signs were negative. Bronchial breathing and râles were distinctly heard and no diagnosis was made until discovered by the x ray. In one

case the x ray findings were fluid at three consecutive examinations during a period of ten days. In another an encysted effusion was reported several times, but in both cases aspirations were persistently negative until the effusion became suddenly very large when it was easily aspirated. It is possible that the thick fibrin under the pleura formed an obstruction to the needle.

One patient with an encysted diaphragmatic empyema (Fig. 3), presented unusual interest. The illness covered a period of over three months. He was an outside patient and was only referred to us late in the disease. For weeks the course was that of a bronchopneumonia with several patches, distributed in various lobes. He then had a remission for about five days, when the temperature dropped to practically normal. Following this, pain occurred in the base of the right lung and his temperature rose again. As the disease progressed the physical signs were never definite and never fully interpreted until an x ray examination was made. The examination revealed a rounded, circumscribed area of total loss of illumination situated in the right base in the periphery and merged with the outer half of the diaphragm, causing obliteration of the costophrenic sinus. The diaphragm was immobile during the act of respiration. The diagnosis of encapsulated effusion was at once made. The following day, as an operation was being considered, the patient suddenly expectorated large quantities



FIG. 8.—Lung disease. Note the circumscribed area of density of the right upper lobe.

of foul smelling, purulent material. The expectoration continued for several days and then stopped completely. The patient had apparently discharged his effusion through a bronchus. Fortunately he made a complete recovery. H. M. Thomas, Jr., Camp Meade (3) reports two deaths from similar unrecognized encysted empyema which broke

through into the pleural cavity causing death within less than twenty-four hours. The third case was unrecognized clinically, as the effusion was covered by the scapula. Tuberculosis was suspected and an x ray examination revealed an encapsulated inter-

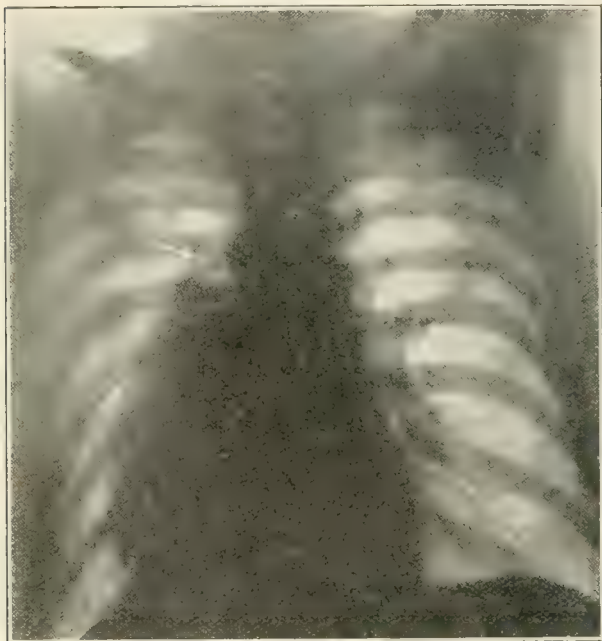


FIG. 9.—Lung abscess of the left lower lobe situated centrally. Note the air and fluid level on the top.

lobar empyema which was relieved by operation and the patient's life was saved. Barjon (4) cites one case of bronchial fistula lasting for seventeen years, following a pneumonia which was discovered by an x ray examination. Proper drainage had been established for the patient by an operation and he made a good recovery.

Difficulties of diagnosis were occasionally encountered. Several cases gave misleading evidence of effusion in the chest. Figure 4 shows a case with apparently a large effusion in the left chest. The density was very marked, the costophrenic angle obliterated, and even the upper curved line of fluid level was seen. There was no displacement of the heart and mediastinal contents which is always found with such large effusions. Aspiration was negative. This put us on guard as to other possibilities. Several days later when the patient was reexamined the density had almost entirely cleared up except at the periphery. It proved to be a consolidation of the lower lobe with a supervening thickened pleura. The patient made an uneventful recovery without any surgical interference.

As previously mentioned we could watch the drainage of the postoperative empyema cases. If a rise in temperature occurred a glance at the x ray plates would at once establish the etiological factor. In the majority of cases it proved to be a new pneumonic focus or the unresolved old process.

PNEUMOTHORAX, HYDROPNEUMOTHORAX, AND PYOPNEUMOTHORAX.

The presence of air in the pleural cavity, when occurring in association with fluid effusions, also presented clinical difficulties for its recognition. In

looking over the charts it is found that the physical examinations, although painstakingly and minutely carried out, failed to establish the presence of air in the pleural cavity in the majority of cases. Often the tympany was mistaken for Scodetic resonance, or if lower down for stomach tympany, and if the fluid was under great tension the tympany was altogether absent, the so called silent pneumothorax. The breath sounds, whether amphoric, distant, or transmitted were usually heard, and in children the presence of râles had been recorded on the charts.

The x ray has been of perhaps the greatest aid in the diagnosis of this type of complication in discovering the presence of air whether free or encapsulated; the degree of collapse of the lung, and the amount of fluid associated with it. The amount of intrathoracic tension was noted by the downward displacement of the diaphragm and by the displacement of the heart and mediastinum to the opposite side, and these were used as an index for Potain aspiration or thoracotomy. In one case the tension was so great that the diaphragm was flattened and pushed downward several inches and the lung was displaced with the hilum way over on the vertebral column.

There has been rather a bountiful occurrence of these complications in this epidemic. When one considers the suppurative processes taking place in

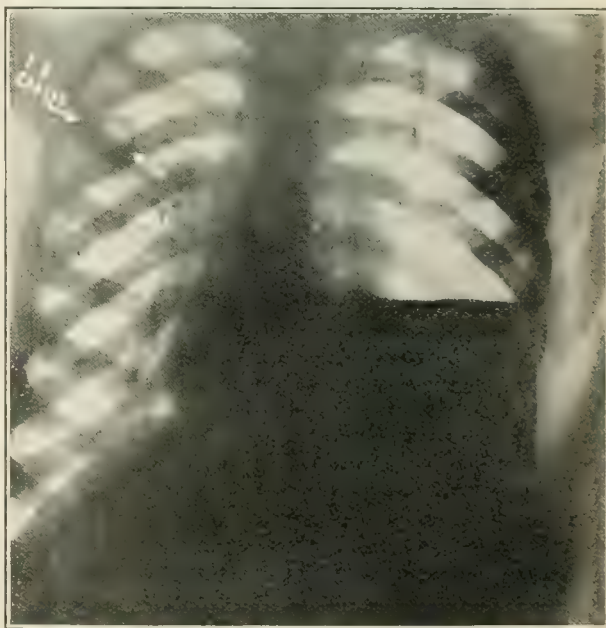


FIG. 10.—Hydropneumothorax of the left lung. There is evidence of pulmonary tuberculosis in the opposite lung. The patient gave a history of influenza lasting two weeks, during which time his cough was increased, and an acute pain developed in the left chest. Evidently the pneumothorax was produced by the supervening acute pulmonary lesion.

the bronchial and peribronchial tissue as isolated and disseminated foci, it is easy to understand how one of these may rupture through the visceral pleura when situated in close proximity to it. When we also consider the type of cough which has been prevalent, the paroxysmal spasmodic cough often resulting in rupture of the sheet of the rectus muscle, it is surprising that perforation of the visceral pleura did not occur more often. It is

possible that many have passed unrecognized, as not all pneumothorax cases became infected or generalized.

It must not be forgotten that we were working under great difficulties. These patients were acutely ill and we were denied the opportunity of a fluoroscopic examination in which the pendulum movement of the mediastinum or the paradoxical movement of the diaphragm may be seen. Often we had to be contented with one plate. The upright posture so essential to the study of hydropneumothorax where the air and fluid line is seen, was in many cases entirely out of the question. Studied in the prone posture, the fluid meeting no obstruction, the lung being collapsed spread throughout the entire pleural cavity giving the impression of a fluid effusion. On close observation, however, a uniform translucency can be observed where the rib interspaces are clearly seen giving the impression of an associated pneumothorax (Fig. 5).

When the pneumothorax is complete and when no adhesions are present the lung appears collapsed as a semitransparent longitudinal band and joins the median shadow. Adhesions usually modify this appearance and the lung may then be fixed anywhere and assume any shape.

One case of encapsulated hydropneumothorax in the left lower chest (Fig. 6) presented many points of interest both from the physical and x ray findings. On admission the patient presented an area of hyperresonance in the axilla which merged into flatness posteriorly and then into normal resonance above and toward the spine. The heart sounds were not audible in the recumbent posture, but only in the sitting posture. The association of these signs could not be interpreted clinically even though worked out with great care. The x ray at once proved an area of encapsulated pneumothorax which corresponded to the area of hyperresonance. The area of density adjoining was not fully understood until the patient, when in better shape, was fluoroscoped in the sitting posture, when the fluid was easily discovered. The visible impulses of the heartbeat transmitted against the fluid caused a succussion in the fluid level which was intensified by gently shaking the patient, when the diagnosis was definitely made. This patient made an uneventful recovery.

Pneumothorax (Fig. 7).—This case became and remained as a pneumothorax without any fluid being manifested. There was considerable interest attached to this case. The patient was admitted on October 10, 1918. He manifested an irregular temperature with predominating physical signs in the left base. On November 1, 1918, he was suddenly seized with a violent fit of coughing and discharged about three ounces of thick mucoid fluid. He became cyanotic and showed signs of pulmonary edema. The signs were at once recognized as those of an acute pneumothorax. The explanation offered in this case was the probable occurrence of a pulmonary septic infarct which may have originated from a complicating multiple thrombophlebitis involving both lower extremities. The patient, although desperately ill, made a slow and gradual recovery, the lung ultimately expanding.

Lung abscess.—There were two cases in the series. The first patient (Fig. 8) presents unusual interest from the severity of the condition, the immense size of the abscess which occupied the entire right upper lobe and by its weight bulged down into the lower lobe. Another point of extreme interest is that the patient made a complete recovery, thanks to the excellent technic employed by the attending surgeon who caused an evacuation of the abscess through direct drainage by means of thoracotomy. The x ray showed a dense area occupying the upper two thirds of the right lung with a sharp curved line of demarcation at its base.

Fig. 9 shows another pulmonary abscess. This case was sent to the hospital with a diagnosis of empyema, which occurred about six weeks after an attack of pneumonia. The x ray showed a large area of density in the left lower lobe centrally located and circumscribed with a sharp line of demarcation, its concavity pointing toward the centre. There was a small fluid level on the top.

Subphrenic abscess.—Two cases of subphrenic abscess occurred following pneumonia of the left base. After the pneumonia process had apparently subsided and the findings had cleared up, those patients continued ill for a long time. Gradually the temperature became septic in character, the blood count high and the general clinical signs pointed to a subphrenic abscess. The only contribution the x ray made in these cases was to corroborate the clinical findings by the presence of a markedly elevated diaphragm, which being in the left side was more striking, as here the diaphragm is always lower than the right side. These cases are by no means easy of recognition, especially in the early stages, when suspected as a complication following abdominal operations. The differentiation between a diaphragmatic pleurisy and a subphrenic abscess presents the greatest difficulty. In both conditions the diaphragm is high and fixed. A high, fixed diaphragm is often a precursor of an effusion. This was never more strikingly illustrated than in one of our cases where a postoperative subphrenic abscess was thought of. The first examination showed the left diaphragm held up high, straight, and rigid. Within twenty-four hours the entire chest cavity was filled in with a purulent effusion to the top, thus proving a pleuritic infection with little visible changes in the lungs.

DELAYED RESOLUTION.

Pathologists consider delayed resolution as a persistent purulent focus, or a general purulent lymphangitis. These conditions may persist for a long time until they finally become absorbed, or may become organized with fibrous tissue and give permanent changes. Occasionally a focus may light up again long after lysis has taken place and run a new course. In several instances of the severe types, we had occasion to see a circumscribed area of increased density which remained long after the major portion of the surrounding exudate had absorbed. In these cases convalescence was very slow, there being a small rise of temperature in the evening and the pulse accelerated.

In another variety there remained a general dis-

tribution of small, fine, peribronchial infiltrations, which often became organized and persisted indefinitely. It is important to bear in mind this fact, as the x ray findings in these cases are identical with a tuberculous infiltration, especially when the process is confined to an upper lobe. Several of these cases have already been observed a few months after the patient has made good recovery and has had no symptoms. Fortunately these were mostly at the lower lobes. It will be necessary in the future to inquire into the history of these cases, when confronted with an x ray diagnosis of suspicious cases of pulmonary tuberculosis, so that we may exclude organized foci of unresolved bronchopneumonia.

CONCLUSIONS.

Radiology has been of considerable aid in the diagnosis of the influenza pneumonias. It has given information as to the type of the lesion, its location, and the number of foci involved. It has enabled us to recognize early the various complications, especially when the physical signs were obscure. It has indicated to us when to go in with the aspirating needle and when to keep out. It has been practically the only method of discovering old lesions of the lungs, pleura and even heart, which were overshadowed by the acute lesion. In abscesses and localized pneumothorax and encapsulated empyema, it has practically been the only means of diagnosis.

Finally, as a word of warning, the unresolved pneumonias will give findings similar to pulmonary tuberculosis when confined to the upper lobes, and the röntgenologist should therefore be on his guard.

In this short résumé the newer methods of diagnosis of chest lesions have been pointed out. They should by no means be employed alone or take the place of others. A wise interpretation can be made only in the light of all the data without neglecting any. The well trained internist as well as the experienced surgeon should be consulted in reaching conclusions. In certain cases, radiological examinations may be conclusive, while in others only corroborative. In fine, radiology is a useful science, as indispensable as the microscope, and will become more so, provided there is a wider dissemination of knowledge of it in the ranks of the profession.

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3. H. M. THOMAS, JR.: Rupture of Encapsulated Empyema into the Pleural Cavity, *Journal A. M. A.*, January 4, 1919.
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45 ST. MARK'S PLACE.

Two Cases of Dermatitis from Salvarsan.—M. Goldfarb (*Dermatologische Zeitschrift*, April, 1918) states that in both cases the process began with the appearance of small red punctiform spots which later became confluent. Soon afterward, there developed a rather severe moist necrosis with scab formation and thick crusts and finally scales of various sizes appeared. A cure of the cutaneous process resulted in about three months' time.

ILLUMINATED TRAP FOR NIGHT FLYING INSECTS.

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The accompanying illustration is a photograph of a device which I have designed for the purpose of trapping night flying insects. It is of especial service in capturing mosquitos. The apparatus is simple in construction as the requirements are an

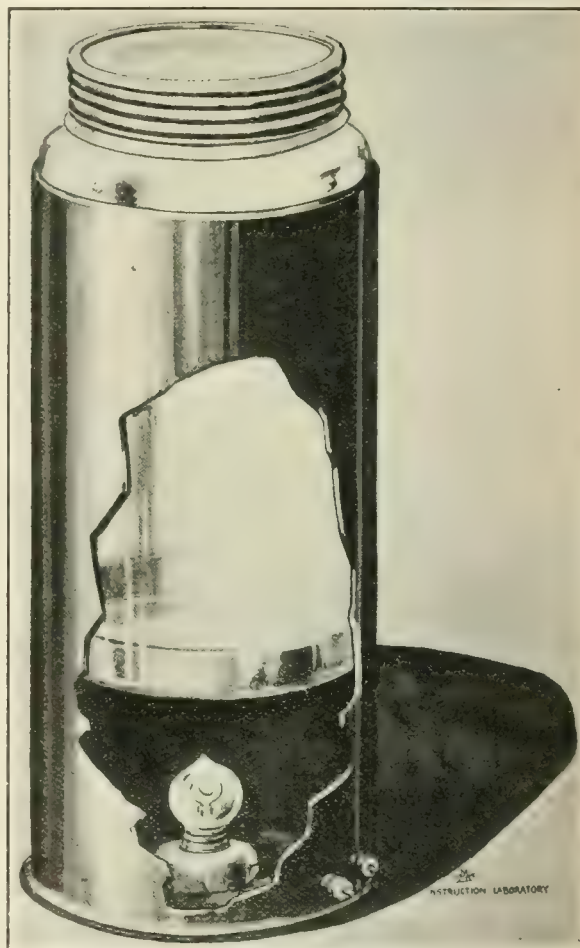


FIG. 1.—Showing the construction of the illuminated trap for night flying insects. The metal frame holding the glass jar has been cut away to show the interior of the jar.

ordinary fruit jar, some plaster of paris, and a small electric bulb which may be operated by a battery attached to a current. A rim is made about the bottom of the jar, of plaster of paris an inch in width. Before the plaster sets it is well to add a few pieces of cyanide of potassium to it. The cap is then screwed on to the jar. A tin case is made in which the jar is placed. The electric light is fastened to the bottom. It is then ready for use and may be placed in a convenient place for attracting the insects. The simplicity of construction and the facility with which it may be transported should tend to make it an apparatus of general use. The trap may be used either inside a room or out of doors. The original model was used to catch insects at night on a boat, and proved very successful.

ARTIFICIAL PNEUMOTHORAX IN PULMONARY TUBERCULOSIS.

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(Continued from page 541.)

APPARATUS AND TECHNIC.

The question of apparatus is one that need give little cause for concern. The principal feature is a machine that can be kept clean and one that is not easily broken. A number of different models are on the market, and one finds in the literature various homemade contrivances described. All are good and all have some feature that recommends them. The question of having a machine that is portable does not need one's consideration, inasmuch as a portable machine means the tempting of the operator to take this to the bedside in the patient's home and in so doing run the risk of infection by operating under adverse conditions. The question of asepsis is just as vital in entering a pleural cavity as this question is vital in entering the abdomen or any other operative field. One physician remarked to me after he had witnessed a series of operations by a man doing pneumothorax work, that he had learned one thing, viz.: "that one could not infect a pleural cavity." This remark was occasioned because of the carelessness of the operator. But we both lived to learn that this same careless physician had far more than his share of infections to his credit. To repeat then, by way of emphasis, a portable machine is not necessary but, on the other hand, detrimental to aseptic operative work.

The Robinson machine is the one most commonly used. This is a modification of the Forlanini instrument and one that has proved very satisfactory in the experience of most users. It consists of two upright bottles graduated to hold 2,000 c. c. of air or fluid. These are connected by tubes and on the left hand side is a U shaped manometer for one's guidance in finding the pleural cavity. Into the bottle on the left is pumped the filtered air or nitrogen, if this gas is used; the air displacing the water which flows over into the right hand bottle. The air is introduced until the fluid reaches the 2,000 c. c. level when the pet cocks are turned off. The machine is now ready for use.

The only criticism one can make of this model is the fact that when the manometer is turned off one cannot get manometer readings while the air is flowing into the pleural space. Some modifications have been made which makes this possible and are a distinct improvement, for the operator knows at all times whether or not his needle point is in the proper place.

One can refer to the photograph of this apparatus on this page (Fig. 1), and readily see at a glance the different parts, and familiarize himself with its use. The very compactness of the entire outfit also makes it a very desirable apparatus.

The Stahl instrument is a most excellent one, both for compactness and simplicity of operation. This has the added advantage of two manometers, which give one the opportunity of watching the

reading while the air is entering the pleural cavity. This, as can be seen from the photograph (Fig. 2), is a glass jar within a jar, the principle of operation being the same as the Robinson. One great advantage of this over the Robinson is the ease with which the entire instrument can be sterilized. One can put it in an autoclave without fear of injury to its parts. This would be hardly possible with other makes like the Robinson outfit. One serious drawback is the ease with which the glass jars are broken. We keep parts on hand, since using this instrument, for we find that very frequently cracks occur in one jar or the other. After a jar cracks it is useless, for the air escapes and it is hard to get a flow to the needle and to the pleural space. Then, too, a cracked jar cannot be kept clean and there is more danger of infection taking place.

These two forms of apparatus give one a fair idea of the others, for they are all built on the same lines and on the same principle.

It is interesting to note that Schwatt has modified the usual apparatus and has added a jar containing oxygen, which gas he uses in his first and second operations. This may be an advantage but few operators have ever had occasion to use any other than nitrogen or filtered air. When the physician buys or makes an apparatus for his own use, he must learn the operation of his particular machine and, having become familiar with this particular instrument, stick to it. The secret of success is not what instrument one uses but how he uses it and the care he exercises in his technic.

The selection of a proper needle is an important one and deserves more than passing mention.

For the first injection the needle known as the Floyd needle is the one most commonly used. By referring to Fig. 3, one can easily understand its component parts. This needle has a blunt or non-cutting surface and for that reason prevents one from inflicting injury to the visceral pleura, or from going on into the lung. It also has the advantage

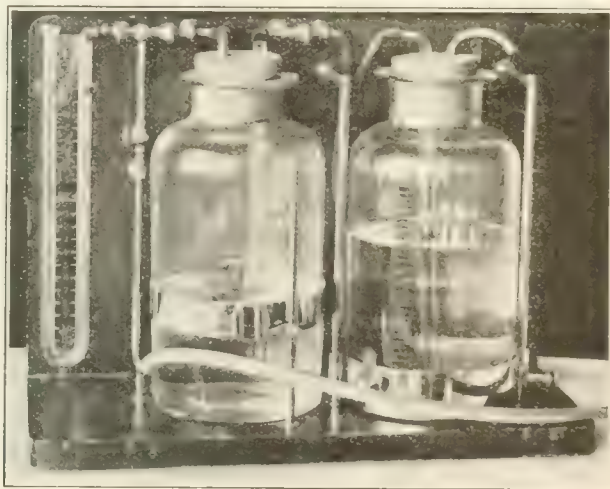


FIG. 1.—Robinson gas machine.

of pet cocks so that one can keep the air turned off, or on at will.

After the first operation, if one has found a free pleural space, and the air or gas has been injected, forming a pocket, one need not use this needle for

subsequent injections. A smaller one with a sharp point can then be introduced (Fig. 3). This needle has a stylet as has the Floyd needle, which can be removed after insertion, thus insuring against plugging the bore with blood clots or pieces of tissue.

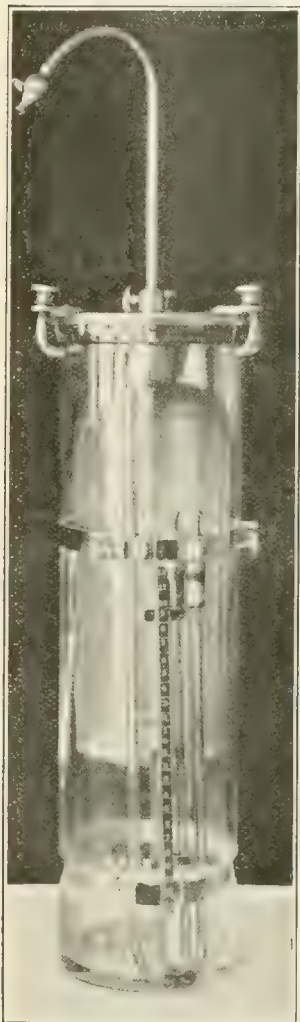


FIG. 2.—Stahl gas machine.

There are various other needles on the market but they have no advantage over these described. In fact, the Floyd needle is by far the best for the initial puncture and the small needle I find is preferable for subsequent injections.

The knife used (Fig. 3) is the same for both the first and subsequent operations. In my work I find a small eye scalpel large enough. It is really nothing more than a cataract knife, but it makes a track sufficiently large to permit the passage of either needle.

In the early work the so called open method of Bauer and Murphy was used. This consisted of cutting down to the pleura, exposing the parietal layer and then, by puncturing this with the gas needle, allowing the air to enter the pleural space. This method was somewhat in the nature of a surgical operation and was not welcomed by the average patient. There is some psychology in

everything we attempt in medicine, and the very thought of surgical interference acted as a deterring influence on many individuals. For this reason it is natural to suppose a simpler method was perfected. At present most operators merely nick the skin with a small knife and introduce the needle, doing what is commonly termed the puncture method, originated by Forlanini.

It is needless to say that in an operation for artificial pneumothorax the same care should be taken regarding technic as is exercised in opening an abdomen. All instruments should be sterilized, by steam sterilization or in an autoclave. The area of the chest should be thoroughly painted with iodine and the field of operation surrounded with sterile towels. The operator should wear a sterile gown and his hands should be surgically clean. These things are mentioned in detail because I have witnessed many operations in which the physician washed his hands in cold water, walked up to the patient, took instruments from a

pan in which they had been carelessly boiled, handled the needle carelessly after trying to operate the pet cocks on the machine, waved a pledget of cotton, with a suspicion of iodine on it, at the patient's side, jammed the needle through skin and subcutaneous tissues, shot a few hundred c. c. of gas into the chest, pulled out the needle, pinched the hole together and let the unfortunate patient go on his way rejoicing.

The patient should be in a recumbent position, lying on the side with the arm above the head and the buttocks bent in the opposite direction in order to widen the intercostal space; the lung to be operated upon uppermost. Other things being equal, the midaxillary line is the site of choice. It is my custom to infiltrate a rather large area, triangular in shape, for the first operation. For this, a one per cent. solution of novocaine is used. This can be better understood by referring to the diagram (Fig. 4). This gives one an area of anesthesia large enough to insert the needle at an angle so that when it enters the pleura it will do so without the danger of pushing on through into the lung.

Having injected the novocaine a small eye scalpel is used to cut the skin and muscular tissue to the parietal pleura. This forms a track for the Floyd needle which is then inserted as described above.

The manometer is the guide, telling whether or not the pleural cavity has been entered. If the reading is negative and the manometer shows oscillations with the respiratory movements, one can be sure the pleural space has been entered. If no reading occurs, the chances are that the pleura has not been punctured or that one has entered the lung or a bunch of adhesions. If the oscillations are equal, the point of the needle is in a cavity or bronchus. Under no circumstances must one ever consider turning on the air or gas until satisfied with the readings of the manometer. This will save the

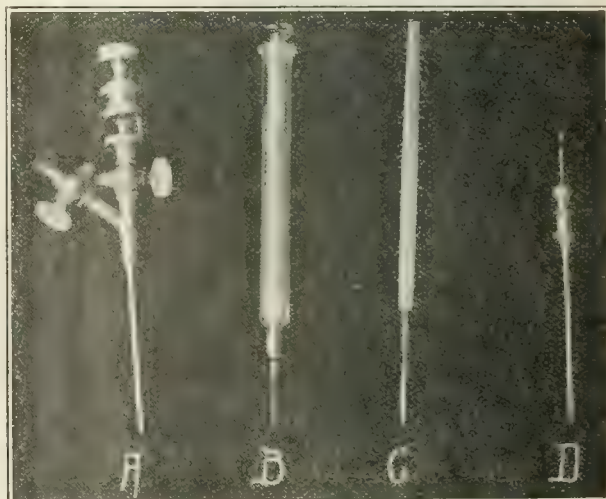


FIG. 3. A, Floyd needle; B, Luer syringe; C, scalpel; D, small needle.

operator needless worry and possibly save the lives of many patients.

When the needle is in the pleural space the assistant turns on the gas. Never give more than 400 c. c. for the initial filling, and, for that

matter, it is rarely necessary to exceed that amount at any time unless it be to stop hemorrhage. It is the practice of far too many operators to give large amounts; some men advocating 1,600 c. c. to 2,000 c. c. How any patient will submit to

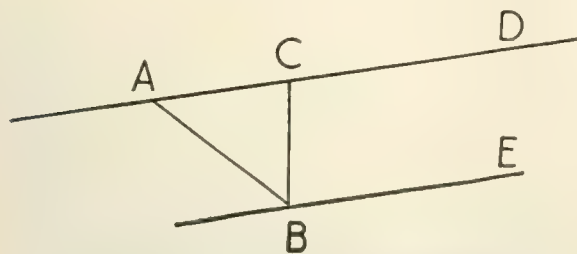


FIG. 4.—Diagram showing method of anesthesia.

a second filling after this amount has been given is beyond comprehension. It is not only needless to give such quantities, but it is positively harmful. The many complications spoken of in the literature are, in part, due to this one great fault in technic.

Nor is it necessary to give these large amounts in order to produce a compression. After the first filling, one can inject 400 c. c. every other day until a partial compression is established when the injections can be spaced twice weekly, and, by the end of a month or six weeks, once a week is sufficient to maintain a compression. Never have I found it possible to let a patient go over one month without a filling, unless fluid had formed and held the lung in place (Fig. 12). If the injections are farther than a month apart the lung will of necessity be somewhat expanded. This will undo the attempts at healing. Absolute immobilization is necessary.

There are times when one encounters adhesions when only a small amount, say 150 or 200 c. c. can be given. In these cases good sometimes results if one persists, for many times the adhesions are stretched sufficiently to give a fair degree of compression. If there is no evidence of such stretching, it is unwise to continue, since too strong pressure may result in a tear into pulmonary tissue with a natural pneumothorax resulting. Such a condition usually ends with an empyema and the patient is a constant source of annoyance both to the physician and himself.

Many times in entering a chest the needle becomes plugged in spite of the greatest care on the part of the operator. If the stylet will not dislodge this, sometimes a slight hack or cough on the part of the patient will accomplish the feat. If the manometer still refuses to give a reading then it is safer to try another place. Blood clots are the common source of plugged needles. At times a piece of skin is carried in with the puncture, but if a small knife is used, this seldom happens. This same plug of skin may be a source of infection, carrying with it surface bacteria and, for that reason more than any other, should it be guarded against.

Another important point is the amount of pressure one should maintain. When the needle enters the pleural cavity, a negative pressure is found. This in a free pleura usually reads a minus 3 to 6. After the injection of 400 c. c. of air the pressure is usually reduced to a minus 2 to 4. Repeated injection, as outlined, bring the negative to neutral

when the manometer registers equally on both sides of the U shaped tube. Rarely is it necessary to exceed a neutral pressure. In lungs showing a marked fibrosis one sometimes finds it necessary to exert a positive pressure of 3 or 4.

Here let me digress long enough to mention the x ray as a necessity to careful and successful pneumothorax work. The manometer is not a safe guide in all cases, and when one puts trust in this exclusively serious complications may result. Let me cite a case as an example. A woman whom I had had under observation for some months, running high fever, bilateral tuberculosis with one lung very active, and a moderately active infiltration to the fourth rib on the opposite side. After consultation it was decided that the best chances of at least prolonging life lay in a compression. This was attempted, a free pleural space found and a good symptomatic result obtained. At every filling a marked negative reading resulted, which could never be brought to neutral. In her case as high as 700 c. c. was injected, but the negative pressure still remained. Physical examination showed the mediastinum pushed over slightly and later when checked up by the x ray I was surprised to see quite a compression of the opposite side. The physical signs did not show us the extent to which the mediastinum was pushed over and had an x ray examination not been made much harm might have resulted. As a routine chests are checked up by fluoroscopic examination frequently. In this way small amounts of fluid are found that would otherwise be overlooked, adhesions noted, and the position of the compressed lung, and the mediastinum.

Many men mention the use of morphine before the operation. This is wholly unnecessary and may prove harmful inasmuch as the habit is so easily formed. Sometimes following the initial injection I give a quarter of a grain of codeine, merely to

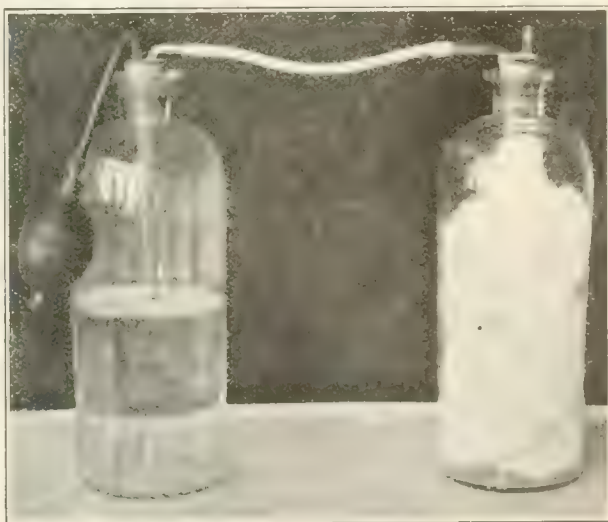


FIG. 5 Filter bottles.

allay a distressing cough or quiet pain if adhesions are found. Never under any circumstances should it be necessary to give morphine before the operation.

On the other hand, other operators refuse to use

novocaine or any local anesthetic, claiming the pain is so slight that it is useless to bother with this procedure. No harm can come from the use of novocaine and, without doubt, much comfort is given the patient by the injection of a one per cent. solution. If this is carried to the pleura the operation is made absolutely painless.

What has been said above applies to all cases where there is sufficient time to gradually induce a pneumothorax. It cannot apply, however, in the treatment of hemorrhage. Here one must produce as rapid a compression as possible and less than a thousand c. c. of gas would seem inadequate. I have compressed many lungs for the control of severe bleeding and have found it the one method productive of good. There is really no one complication of tuberculosis in which the physician is so utterly helpless as in pulmonary hemorrhage. Having satisfied oneself that there is a reasonably good lung on the opposite side, no time should be lost in compressing the bleeding one. Usually 1,000 c. c. injected daily for two or three days has controlled every hemorrhage case coming under my observation in which the treatment was attempted and adhesions did not offer obstacles to a successful compression. In one patient the bleeding was controlled temporarily and yet the lung could not be squeezed up sufficiently. At the end of five days a small hemorrhage proved fatal. The fatal result, however, was due to suffocation, the blood cutting off the air to the opposite lung.

One other patient who had been under treatment fourteen months, having been compressed because of hemorrhage, died from a hemorrhage from the good lung. A small lesion around the hilus was noticeable for three months previous to this bleeding. In all my series of cases, compressed because of hemorrhage, only two have afterward bled from the opposite side. Both of these resulted fatally. The blood fills in the bronchi and death results from suffocation.

In the beginning of this work nitrogen was used and this was purchased from an eastern firm. Later some experiments by Webb were noted which caused me to test our own tanks and the result showed I was buying a poor grade of nitrogen gas. After that air was filtered through a solution of carbolic acid and then absorbent cotton. The apparatus for such a filter is easily made. (See Fig. 5.) All one needs is two bottles, a little glass and rubber tubing, and an atomizer pump. This air we find perfectly satisfactory and its absorption is no more rapid than nitrogen, which readily becomes air by absorption of oxygen in the lung. Webb's experiments are interesting and worthy of note. They were undertaken at the suggestion of Haldane, the Oxford physiologist, that the use of nitrogen in artificial pneumothorax could have little value owing to the natural law of diffusion of gases.

Analysis of the gas taken from pleural cavities showed that within twenty-four to forty-eight hours in the nitrogen treated cases about four per cent. oxygen and about eight per cent. carbon dioxide appear in the pleural space, or, in other words, the nitrogen becomes diluted about ten per cent. If the law of diffusion of gases holds good,

then some of the pure nitrogen must diffuse in the opposite direction into the gases of the lungs, tending to establish an equilibrium. When atmospheric air is injected within a similar period of time practically the same analyses are obtained as in the nitrogen cases. Therefore, diffusion into the blood of oxygen to at least fifteen per cent. has taken place. On the other hand, diffusion of carbon dioxide to about seven per cent. from the blood, and of nitrogen to about ten per cent. from the lung alveolar air has occurred into the pleural space. The treated lung being collapsed and compressed, equilibrium is probably established through the mediastinal pleura from the alveolar air of the opposite lung. In fact, the percentages in the two types of cases run parallel and no essential difference can be noted. From the analysis of the gas sample it could not at any stage be determined whether the patient had been treated with pure nitrogen or pure air.

(To be continued.)

ARMY HOSPITAL TRAINS.

*Over Sixty-Five Thousand Patients Passed Through
New York—Patients Travel in Comfort in
Special Cars—A Through Train for
the Pacific Coast.*

BY CASWELL A. MAYO, Ph. M.,
New York.

Every one of the two and a half million men and women who have gone to the war has passed inspection as to physical fitness by the surgeons of the port of embarkation. For all ports north of the Virginia capes, Colonel J. M. Kennedy, M. C., whose office is at 68 Hudson Street, Hoboken, is the Surgeon of the Port. All ports south of Baltimore are under the supervision of Colonel Charles Lynch, M. C., as surgeon of the port at Newport News. And when the fighters come home, whether well or wounded, whether healthy or sick, the surgeon of the port again inspects them and decides what sort of fumigation or disinfection, if any, they must undergo before being released from the jurisdiction of the commanding general of the port of embarkation.

It would be a physical impossibility for one man to see, much less to make an adequate physical examination of each of the men and officers, women and civilian workers as they come and go; consequently each of these surgeons has a large staff of specialists to aid him.

When the wounded and the sick come home, they are sent first to debarkation hospitals which act as clearing houses. The surgeon of the port of embarkation becomes the surgeon of the port of debarkation and the embarkation hospitals become debarkation hospitals. While any treatment which may be required during the stay of the patients is given in these debarkation hospitals, they are kept as short a time as possible and are sent forward to the special hospitals located at various points all over the United States where they will be given the special treatment required in their particular cases at the hospital nearest their homes. Over sixty-five thousand patients have been received in the nor-

thern port of embarkation by Colonel Kennedy and his staff and have been sorted and distributed to interior hospitals, the average stay in a debarkation hospital having been about eight days. Major Harry N. Kerns, M. C., a regular army surgeon, has



FIG. 1.—Hospital car, fitted with Glennan adjustable bunks, showing the adjustable Hart tray in use. When the patients are recumbent the trays can be brought over the bed.

charge of the evacuation of the sick and wounded at the Port of New York and it is to his courtesy that we are indebted for the information on which this article is based. These patients are sent out in groups, varying in size, under the direction of officers or men of the Medical Department. When there is less than a carload, the party travels on the regular trains under care of a member of the escort detachment who ministers to their comfort, maintains discipline, and gives any aid or remedies that may be needed en route.

The escort detachment of the port of embarkation includes some eighty-five officers and 490 enlisted men who, when not on the road, have quarters in the Cluett Building adjoining Debarkation Hospital No. 3 in the Greenhut Building at Eighteenth Street and Sixth Avenue, New York. Generally, however, there are enough patients going in the same direction to fill up one or more cars. On March 24th, one complete train of hospital cars left the Grand Central station for Fort Kearney, near San Diego, Cal. On the same day, another hospital train left the same station for Chicago, another left the Jersey City station of the Pennsylvania Railroad for Colonia, N. J., and another left for the Southwest. Besides these full trains, there were three

cars sent out on the same day as parts of the regular trains, the total number of patients shipped for the day amounting to 1,084. On one day, recently, over 2,000 patients were sent off by Major Kerns.

To furnish transportation for these patients, three complete hospital trains are provided and twenty-four special hospital unit cars. The hospital unit cars vary in equipment and arrangement but their essential features are very much the same. Each unit car is intended to furnish the nucleus for a group of regular cars, the Pullman tourist type being generally used for night travel and ordinary day coaches for short hauls. The standard hospital unit car consists of a Pullman sleeper with berths for ten to twenty-four men with an office for the commanding officer, containing a typewriter, desk, filing cabinet, etc., a refrigerator, a range capable of cooking for from 100 to 300 persons, a fair sized medicine closet, a shower bath, and an independent reserve heating system to supply heat in case the car should be cut off from the locomotive which, under ordinary conditions, supplies steam heat. Some of these unit cars are of the private car type. Each of these hospital unit cars is under command of a medical officer who with his regular crew of from five to eight enlisted men of the Medical Department is permanently assigned to that particular car and lives



FIG. 2.—Ward car No. 4 in Hospital Train No. 4, showing four different adjustments of Glennan adjustable bunks.

on it in the railroad yards—a horribly, noisy, grimy, inaccessible place—when not en route.

For journeys requiring less than twenty-four hours, these hospital unit cars are usually attached to regular trains with as many Pullman tourist cars

as may be required to accommodate the patients. The medical officer in command of the hospital unit car has command also of the patients while en route and the crew of the car feed and care for the patients. Many of these cars have made the trip

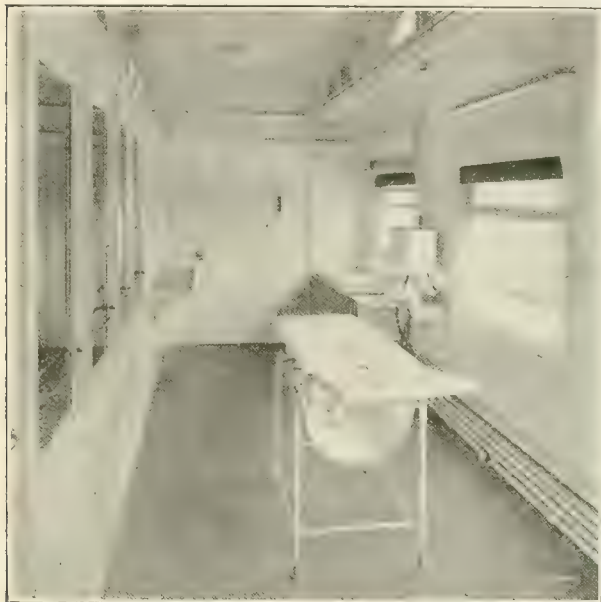


FIG. 3.—Operating room on car No. 6, Hospital Train No. 4. A corridor to the left permits passage through the car without interfering with the operating room. At the right is a sterilizing tray and wash basins with foot faucets. Live steam is supplied through the rubber hose from the locomotive.

to the Pacific coast where the tourist cars attached were left with their loads so as not to be hauled back East at the Government's expense.

The first hospital train fitted up for the U. S. Army is now in France and on duty between Sauvigné and Brest. But there are three complete hospital trains in the yards at Waldo, N. J., in addition to the twenty-four hospital unit cars on duty under Captain C. S. Mayes, M. C., who is the director of hospital trains for the Port of New York.

Hospital Train No. 4 which left New York for San Diego, Cal., on March 24th, was made up of seven cars. Besides the cars which usually compose this train, there was included the hospital unit car, *Rocket*, the commander of which, Captain William E. Chilton, M. C., of Fort Worth, Texas, by seniority, became commander of the train which ordinarily is under the command of Lieutenant W. S. Kautz, M. C., of Cincinnati, with Lieutenant M. C. Sharp, M. C., of Columbus, Ohio, as executive officer. The *Rocket* is of the private car type with six state-rooms, an office, baths, toilets, and observation platform, a refrigerator and a range which can supply food for 100 men. This car will be used as headquarters and the officers will live in it en route.

All the other cars are part of the regular Hospital Train No. 4. Car No. 7 is a Pullman compartment car, which has been fitted with a bath, for the use of officers and of officer patients and of any women on board. On this train two women American Red Cross workers went as far out as Chicago. This car has fourteen beds. Car No. 6 is the baggage car with a baggage room at one end and an office at the other, and a surgical dressing, or operat-

ing room twenty-four by eight feet in the centre. A corridor on one side of the car permits this room to be shut off entirely should it be called into use as an operating room. It is supplied with a regulation medical and surgical chest, an operating table, sterilizer, etc., so that in an emergency a major operation could be performed in it. In practice this emergency has never occurred, its principal use being as a surgical dressing room.

Car No. 5 is a tourist sleeping car, the lower berths of which have been removed, standard iron hospital beds screwed to the floor having been substituted. This car is equipped with side doors at one end as were all the bed cars of the first hospital train built for the United States Army. It was found, however, that this side door weakened the car structurally, that it admitted dirt and cold air, that it was very expensive, and the cars would require expensive remodeling when returned to the Pullman Company at the end of the war.

Car No. 4 was a day coach which had been refitted with adjustable bunks similar to those used on the British hospital trains, but with several modifications and improvements suggested by Colonel James L. Glennan, M. C., and Lieutenant Colonel Wilbur L. Hart, M. C. These bunks have metal frames and springs and are supported by vertical steel stanchions fastened to the walls of the cars regard-

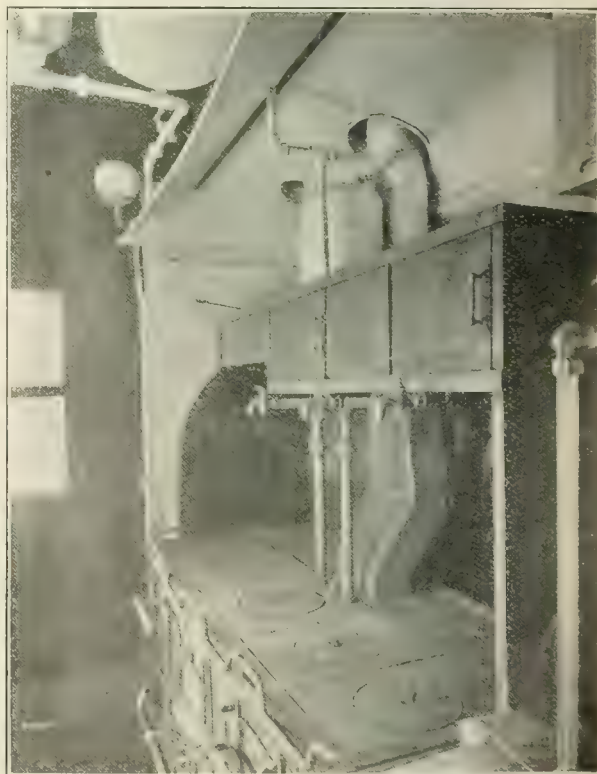


FIG. 4.—Special range in kitchen car on Hospital Train No. 4. With this range it is possible to feed 300 patients. The refrigerator adjoins the range at the left.

less of the windows. The cots themselves are adjustable to four positions so that they can be used as sofas with a comfortable back for sitting patients or as beds. The cots can also be taken out and used as litters without disturbing the patient. At one end

of this car there has been built a kitchenette, which is equipped with a small range, ice box, sink, and kitchen utensils adequate for supplying the maximum capacity—an arrangement which permits the car to be run independently for such trips as may be demanded by intercantonnement service.

It is estimated that eighty per cent. of the patients carried on hospital trains will be walking cases and the train is expanded by adding tourist cars which best can meet the needs of this type of patient, but this figure is, of course, variable, and one does not have advance notice of the proportion of bed and ambulant cases to be transported. Some scheme had to be devised embracing a convertible bed—one which could be used for either recumbent or ambulant patients. One car in each train equipped with beds of this sort, would then act as a bumper, providing for variations from the usual



FIG. 5.—The Hart food car. Two ten-gallon receptacles are thoroughly insulated. At the bottom is a space for inserting a heated iron plate. This food car, designed by Lieutenant Colonel Wilbur L. Hart, M. C., makes it possible to serve hot food to all patients.

ratio between bed and ambulant cases. It would provide for the unexpected. The ordinary Pullman car answers this purpose very well for the convalescent case, but the Pullman berth is far from satisfactory for bed patients. To meet this situation, Colonel James D. Glennan, M. C., and Lieutenant Colonel W. L. Hart, M. C., have devised the adjustable bunk. The Glennan adjustable bunks have been applied to one car on each of the new trains and one of them constitutes Car No. 4 referred to above. They are also used on Hospital Unit Cars Nos. 1 to 20 inclusive.

Car No. 2 and Car No. 3 are the regulation Pullman tourist cars with cane seats. Car No. 1 is a tourist kitchen car with refrigerator and a large French range with a capacity sufficient to feed 300 patients. This car also has twenty-eight berths which are used by the train crew and by the enlisted men of the Medical Department attached to the train. Each man is provided with a galvanized iron locker which fits under the seat and has a hinged cover which opens only half way to the top so that

it is not necessary to pull out the entire locker in order to open it. The crew eat their meals on adjustable tables such as are found in all Pullman sleepers.

To provide for the serving of food to patients an arrangement has been devised by Lieutenant Colonel Hart to take the place of the Medical Department "tray with legs." The latter has been quite unsatisfactory on Train No. 1. The Hart server consists of an ordinary tray, fastened to an inverted L shaped supporting rod, the vertical leg of which is shaped to fit snugly into a tapering square hole on the side of the bed. It may be used for either bed or sofa by simply rotating the L rod ninety degrees on its vertical axis so that the tray itself may be brought across the bed or over the edge of the sofa. The tray itself may be converted into a book rest by rotating it forty-five degrees on the horizontal axis.

The problem of furnishing hot food to stretcher patients has been solved by the installation of a wheeled carrier containing two five gallon cans thoroughly insulated and provided with a removable iron disk which can be heated and inserted below the cans to maintain the heat of the contents.

The cars vary in length from sixty-eight to seventy-nine feet and the regular train, without the car *Rocket*, measures about 575 feet over all. The cars are equipped with standard Pullman ventilating devices and with electric light and electric exhaust fans which are operated by a storage battery connected up with an axle generator.

The exterior finish of the cars is a dark green and each bears the words "United States Army Medical Department" together with a number and a name of some former Surgeon General of the United States Army.

A special device has been attached to the toilets which closes them automatically except when the train is in motion at a rate of speed which can be decided by the commanding officer. When this speed is reached the toilets are unlocked automatically.

Up to the present 65,289 patients have been transported distances varying from thirty to 3,000 miles in the hospital trains and the hospital unit cars and the leased cars used in connection with them with the most satisfactory results both to the patients and to the Medical Department.

RECENT GLEANINGS RELATIVE TO THE PROPHYLAXIS AND TREATMENT OF INFLUENZA.

BY LOUIS T. DE M. SAJOUS, B. S., M. D.,
Philadelphia.

(Continued from page 553.)

As regards ventilation of the sick room, the temperature of the air, and the use of heat or cold as a therapeutic agent, a fairly definite consensus of opinion appears to have been reached that while free ventilation is desirable, a reasonable degree of warmth is beneficial, and that avoidance of chilling of the patient's body is an urgent requirement. In the absence of a specific for the disease, the chief

aim, it would appear, is to favor the development of immunity, and according to Fantus, 1918, there is abundant evidence that warmth favors this process of development and that chilling antagonizes it. A majority of observers would perhaps, dissent from the assertion of Horder, 1919, that the windows of the sickroom should be kept wide open day and night, irrespective of the weather and temperature, even with his added proviso that, "if possible," the latter should be kept more or less uniform at about 60° F. by artificial heat. Yet it seems likely that, barring extremes, the actual temperature of the air in the sickroom is of less importance than that this air should be renewed with sufficient rapidity to prevent accumulation of waste gases and to facilitate the patient's respiratory functions. Avoidance of chilling of the body being all important, the degree to which free ventilation may be allowed depends upon the amount of care that can be given to the readjustments of the bed clothing necessary to maintain an even degree of bed warmth and the promptness with which the body coverings can be changed when they become saturated with perspiration. Stress having with good reason been laid upon chilling of the body as a hindrance to the establishment of immunity against influenza infection, all conditions tending toward excessive loss of heat from the tissues must be eliminated during the course of treatment. Whenever perspiration has occurred which resulted in wet body coverings, these should be removed, the patient dried by the nurse by rubbing with a warm towel, and warm, dry clothing put on, preferably without exposure of the patient from beneath the bed covers. All attempts on his part to leave bed should be forbidden, and the use of the urinal and bed pan insisted on.

Brooks, 1918, in a paper based upon the careful clinical observations of about twelve physicians recommends the open air treatment of influenza. He considers that the efficacy of this mode of treatment has been proved, and dwells on the advantages of having patients out in the open, receiving direct sunlight all day long, rather than in a room with open windows or even in the hospital sun parlor, in which direct sunlight is available only during part of the day. Treatment of influenza in tents is approved of by this author.

While recognizing that under favorable temperature and weather conditions open air treatment of influenza is feasible and doubtless advantageous; one cannot but think, on the other hand, of the difficulty attending the nursing of patients under these circumstances, in wintry or rainy weather. If difficulties of this type are, in a given case, not insuperable, a relatively cold air may be grateful to the patient and promote sleep, but even in ordinary lobar pneumonia, the cold air treatment does not seem to have proved serviceable to the extent of reducing the mortality. Hence it would seem inadvisable to place the sensitive influenza patient in a cold atmosphere in which he may be exposed to chilling, unless good reasons for doing so exist.

Cold water treatment was long ago abandoned in influenza, even by those strongly supporting its use in other infectious diseases. Leichtenstern, 1898, asserted that cold water treatment in this disease

actually increased the headache, other neuralgic pains, and prostration. Even cold applications and ice bags to the head were often refused by patients on the ground that they increased the pain. Fever in influenza is seldom so high as to require active antipyretic measures, such as hydrotherapy or the use of febrifuge drugs. Horder, 1918, commends frequent sponging and the fearless use of the cold pack when hyperpyrexia is present, while counseling against the administration of drugs, which usually fail of their object and depress the heart. In the severely toxic cases with hyperpyrexia, attempts to secure sweating by wrapping in warm blankets are fruitless, according to this observer, sweating failing to occur in such cases; in addition to sponging and the cold pack he recommends widely open windows and reduction of bed covering for these patients. Wanner, a Swiss observer, 1918, recommends, in cases presenting high fever and intense congestion from the start, the administration of a cold pack every two hours, together with hot drinks in abundance. Hot packs are substituted for the cold when the temperature has been reduced to 39° C., and cupping also employed. He thinks these measures may be of assistance in promoting reabsorption of exudations in the lung parenchyma. Another author advises that for high fever in influenza, a wet pack be applied over the chest every three hours, covered with cotton and protective tissue; or, that baths in water of a temperature of 86° to 96° F. be administered for ten minutes every three hours.

Apart from the probability that reduction of fever in influenza, unless very high, is inadvisable because of its curtailing the protective reaction of the system against invasion, antipyretic drugs *per se* are disadvantageous by reason of the marked sweating they produce. The legitimate use of the coal tar derivatives in influenza is for the relief of aches and pains, but even with reduced dosage sweating is something so troublesome as almost to annul their usefulness. Fantus, 1918, found two grains of acetphenetidin or pyramidon, given every hour, sufficient to yield complete relief of discomforts, and in order to obviate excessive sweating added, in cases where pain was severe, an opiate—generally one half grain of codeine phosphate—to each dose of the coal tar drug instead of increasing the dose of the latter. Again consideration of acetylsalicylic acid and other related drugs as, in a sense, specifics for influenza is no longer deemed permissible. Lereboullet, 1918, refers to the use of antipyrine and pyramidon as being even less advisable than that of aspirin, the two former drugs possessing too great a depressing influence on the circulation to be held safe in this disease.

Quinine appears, among the so called antipyretics, to have given much more satisfaction than agents of the coaltar series. Although Strouse and Bloch, 1918, have deemed quinine valueless, along with salicylates and hexamethylenamine, many observers appear to have retained their confidence in quinine after experience with it in the October epidemic. According to Lereboullet, a species of relapse is apt to occur where quinine is stopped too soon.

(To be continued.)

Editorial Notes and Comments

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NEW YORK, SATURDAY, APRIL 5, 1919

CONGRESS SHOULD ADEQUATELY SUPPORT INDUSTRIAL HYGIENE.

When the medical history of the war is written not the least important of the medical activities carried on by the Federal Government will be found to have been the work in industrial hygiene conducted by the United States Public Health Service. In part, this consisted of examining into and supervising the hygienic conditions in factories engaged in war industries; in part, of laboratory investigations to inquire into the special health hazards of various industries and to devise means for the reduction or elimination of such hazards. Furthermore a large amount of valuable work was done on the subject of industrial fatigue. In its efforts to provide the greatest amount of service to large manufacturers engaged in war work, the Public Health Service established field stations in New York, Philadelphia, Pittsburgh, Cleveland, St. Louis and Chicago, the staffs available at these stations including industrial physicians, sanitary engineers, physiologists and men with special training in illumination, ventilation, dust problems, and other branches of industrial hygiene.

Owing to the failure of the last Congress to pass the Sundry Civil bill, the whole question of continuing this very necessary work is again up for consideration. With the strenuous industrial competition which the immediate future is certain to witness, it would be a calamity to have this phase of the Public Health Service's activity curtailed.

In fact, now, more than ever, attention should be paid to discovering and reducing the health hazards in industry. In view of the excellent results achieved by the Public Health Service in the field of industrial hygiene in the past eighteen months, it is earnestly hoped that the medical profession will lend its best efforts to have Congress give this work adequate financial support.

VENEREAL PROPHYLAXIS AFTER THE WAR.

For each thousand British troops at the military training camp at Aldershot, England, in 1885, there were 321.7 hospital admissions for venereal diseases. The number of admissions declined to eighty-six in 1902. During the Boer war, the figures increased and afterward began to decline, reaching the lowest figure, 29.8, in 1913. Colonel L. W. Harrison of the Royal Army Medical Corps attributes this improvement primarily to improvement in the social condition of the soldiers due to the introduction of recreation features in camp life. The education of the soldier has of course also been a contributing factor in this improvement. Venereal prophylaxis was not introduced in 1913 and even now, is not obligatory on the British soldier as it is with the American. During the same period, from 1885 to 1913, the admissions in the London area, where there was no opportunity for out of door recreation, and where the temptations were greater, the admissions ranged from 394.4 a thousand in 1885 to 95.6 in 1913. The admissions for the entire United Kingdom were 275.4 in 1885 and 50.9 in 1913. Ordinarily, war raises the rate of admission for venereal disease, but the rate for the British army now, is forty-eight in a thousand, showing a decrease instead of the usual gain during war. This is no doubt attributable in part to the introduction of voluntary venereal prophylaxis in the British army.

In commenting on the prevention of venereal disease and the abortive treatment of gonorrhea, Colonel Harrison points out in *The Practitioner* for March, that in the British army, sixty-four per cent. of the infections came from women who received no pay. These figures show the impossibility of controlling infection through the control of professional prostitutes, though this, as well as every other agency, should be used. He places his greatest faith in venereal prophylaxis and in the abortive treatment of gonorrhea, for gonorrhea is more prevalent than syphilis, is the more difficult disease to treat, and is more persistent in its effects. The safe thing

is to have men take a prophylactic treatment after every exposure. If this is done within one hour, protection is almost assured. Out of 2,246 exposures treated within an hour and a quarter of exposure, disease was contracted in only two cases. The normal expectation of infection is about two in each hundred of exposures without prophylaxis. But to be efficacious, the prophylaxis must be promptly applied. For this reason, night leaves for soldiers are dangerous, as the prophylaxis is delayed.

It seems to be impossible to always enforce prompt prophylaxis, but where gonorrhea is treated within twenty-four hours of infection, the disease can nearly always be abated. The Australian medical officers found that injections of organic silver salts for several days in succession gave excellent results, provided this treatment was instituted on the very first day of the attack.

The question of how the benefits of the experience gained in this field during war can be made use of in peace is a grave one. The soldiers have been taught the value of prophylaxis but they may forget their lesson when released from army discipline. Here is an opportunity for public health officials. They can carry on the work by establishing free prophylactic stations and in advertising that fact. Great Britain has established numerous centres where patients are treated with salvarsan, or its substitutes, free of charge, but while willing to treat the effects of infection, the authorities hesitate to provide prophylaxis lest they should be accused of countenancing illicit intercourse. The Pecksniffs are not all dead yet. It is a question whether our own civil authorities will display any broader spirit. We think that they will.

PSYCHOLOGICAL AND PHYSIOLOGICAL UNITY.

Physiology and psychology have long been groping toward a fuller knowledge of one another and the relationship that exists between them. It is becoming more and more clear from the work done in both fields that each needs the other for a better understanding of itself and for effective work in either field, particularly as they pertain to medical interest. That a close interrelation exists between the physiological and the psychical activity of the personality is becoming every day a matter of more exact knowledge. Researches in psychology, particularly through its application to psychotherapy, have proved it, as have also a number of strikingly fruitful investigations in the physiological laboratory, such for example as those of Cannon. A recent volume has, however, brought out still more

forcibly and definitely the inseparable relationship which exists between the mental and physiological mechanisms and its importance in the regulation and readjustment of life. Dr. Edward J. Kempf, in *The Autonomic Functions and the Personality*, gives a fresh impetus to such study and to the practical application of it in clinical therapy.

His conception is that of a dynamic relationship by which the complexity and diversity of physiological form and function have been created because of biological need to effect and maintain a proper affective adjustment toward the environment, as the organism grows in possibilities. To state this more explicitly, he understands by the autonomic apparatus that part of the physiological organism which maintains a postural tonus and tension of the muscles, striped and unstriped, regulating all metabolic and organic functions toward a sense of well being and comfort. When this is disturbed a new adjustment to the environment is striven for in order that stimuli may be acquired which will lead to postural readjustment which will again establish such a state of comfort. In order to do this the autonomic apparatus has in the course of development been supplemented by a sensorimotor apparatus, which we commonly call the "voluntary" apparatus by which the organism may adjust its receptors to the environment and acquire these needed stimuli.

Actions are therefore controlled by the affective or emotional states. Discomfort, hypertension in one part of the functioning organism at the expense of another, increased tonus which calls for relief by application of new stimuli, are the beginning of the mental states which have been vainly and unsatisfactorily located in the cortex or still more phantastically far away from such a peripheral and simply continuous source. Such for example is the tension of hunger calling for food which will satisfy the "readiness," ease the "gnawing" of the stomach walls for activity.

The writer's idea is of the continuousness of this double stream of sensation, kinesthetic from the striped muscle and affective from the unstriped muscle, to produce an uninterrupted but constantly altering train of feeling, a never ending but constantly differing mental or psychic life. A simple experiment will show that this calls for a constant readjustment, and demands a constant adaptation and readaptation to the multitude of factors which make up environment. Suppose one watches for a half hour one's postures and efforts in seeking a more comfortable position, we find that a new light dawns upon the experimenter in regard to the close relationship which exists between these body states

and activities and the satisfaction or pain experienced. They begin to suggest themselves as of peripheral rather than remote extraneous origin. We strive to obtain or escape the emotions, therefore they are our driving force, for they are the indicators and measures of success with the environment. Yet they as indicators result from these activities rather than exist separately as lures for such effort.

This principle gives then a new explanation to activity and the effort and striving of life. It admits the whole diversity of adjustments and adjustment possibilities. It sets the relative values for the objects to be striven after as well as of organic functional activity to be chosen. There is also room for mistake and disturbance. For these activities can become wrongly "conditioned." The effort and striving may have become wrongfully directed, wrongfully balanced, early in life, and so a tendency to group the wrongly chosen activities becomes a psychic and physiological habit. But these things, which belong to psychotherapy, will be better understood because of the exposition of the principles of this book. Through this study we are let into the inner working of these groupings, their breaking up again and the regroupings of interests and efforts as these take place in their very foundation. Presented in such simple physiological terms they lose the vagueness and mysticism of the purely psychic and become practicably intelligible.

Psychoanalysis has been working upon these principles to reach and understand the behavior, which is physiological activity, and the bodily state, which is blushing, pallor, internal derangement, all of which are disturbed physiological functioning. It has employed terms which use the emotions and thought life as the starting point of the physiological action, but never as separated from it. It has realized that there can be no separation of the mental from the physiological life. This book therefore bridges the gap still more completely between what have been erroneously considered the two ways of thought, one of which studied only the physiological reaction and the other which spoke in mental terms but did not forget that it was speaking a physiological language. Only this was in the register of the mental life, which is physiology's own register. This book still more closely reveals the mental and the physical inseparably intertwined, one incapable of control or expression without the other. Successful therapy therefore must consider them and work with them both together, completely and effectively reaching either one only in and through the other.

PAIN AS A SYMPTOM OF CARCINOMA OF THE RECTUM.

Rectal cancer is not an exceedingly painful process and pain is rarely a symptom that calls the attention of the patient to his condition. When pain is severe it points to a carcinoma of the anus or to an extension of a high seated growth in the rectum. Pain is the most marked symptom of anal epithelioma. It is continuous or intermittent and may prevent the patient from sitting or walking. It is increased during defecation and by its violence may be described as being caused by a red hot iron. This painful character of cancer of the anus is probably due to the irritation, spasm, or involvement of the sphincter.

In carcinomata which are situated in the upper part of the rectum, the retention, tenesmus, extension, and propagation of the growth and compression of the nerves are the principal factors causing the painful phenomena. Retention of feces and gas occurs and may account for the pain in the left iliac fossa so frequently complained of, or it may even cause pain in the right iliac fossa. When the rectal growth contracts and results in a decrease in the calibre of the gut, colic and intestinal spasm occur. These indefinite abdominal pains are transitory but they may shoot to the sacrum or lumbar region. This type of pain is a common occurrence in ordinary colitis. If the growth interferes with the rectal functions pain provoked by defecation is added to the spontaneous pain, or local pain, giving the sensation of a large foreign body in the rectum. Pain may occur in the descending colon which results from violent muscular efforts which take place in the intestine.

When the neoplasm projects into the lumen of the gut tenesmus occurs. However, tenesmus may also indicate that the growth is secreting. It must also be differentiated from the desire to empty the bowel which is frequently present and is more of a sensation of weight or fullness occupying the sacral or rectal regions. The patient may have a frequent desire to empty the bowel, but this symptom is apt to be late in occurrence and is in reality no more a symptom of carcinoma than it is of tumescent hemorrhoids or even compression of the rectum from some intrapelvic lesion. When extension of the carcinoma has taken place the pain may then be continuous and very violent. The patient cannot sit and constantly requires opiates. The pain is rectal, sacral, in the left hypogastric or iliac region, or it may shoot to the lumbar region, testicles, or lower limbs. A point to be noted is that these distant pains may occupy the foreground and the rectal growth be overlooked.

ASPHYXIA FROM PERIBRONCHIAL TUBERCULOUS LYMPH NODES.

The symptoms of asphyxia from occlusion of the air passages by tuberculous lymph nodes vary, according to whether this occlusion takes place progressively or suddenly, but in either case the outcome is fatal. A progressive occlusion is encountered when an ulcerative process connects the tuberculous lymph node with the trachea or bronchial tubes by a narrow sinus, allowing only a small amount of caseous material to escape into the respiratory tree. Slowly, however, the ulcerative process assumes larger dimensions, so that a large mass of caseous material may make its exit and obstruct the trachea or bronchi.

The symptoms at the onset are those of tracheo-bronchial adenopathy, followed later by asphyxia. The patient may complain of a vague pain located behind the sternum, more frequently at the upper part, and this may be accompanied by a feeling of constriction at the neck or thorax. Cough is present and during the evolution of the process changes in type and frequency. It may remain dry and paroxysmal; at other times it assumes a spasmodic type similar to whooping cough, with congestion of the face, but never with vomiting, and it is only at the ultimate phase of the process, when a large quantity of caseous material is flowing into the bronchi, that the cough becomes raucous, similar to croup. The paroxysms of coughing may be attributed to irritation of the vagi by the enlarged tuberculous glands. Expectoration is not observed in these cases, because children do not as a general rule expectorate, while the voice is not apt to offer any change in tone.

The respiratory disturbances are varied, some degree of dyspnea always being present. Mild at the onset, it becomes progressively accentuated and from time to time presents periods of exacerbation or even orthopnea. There will then be supra-sternal, supraclavicular, and epigastric inspiratory efforts, with congestion of the face, cyanosis of the extremities, and a weak, slow pulse. In other words, the little patient literally suffocates. The attacks of suffocation are at first slight and infrequent, but progressively increase in intensity until a final explosion carries off the patient.

Two factors seem to intervene in the production of this paroxysmal dyspnea. First, there is compression of the vagi by the tuberculous lymph nodes which are still hard and resistant, after which from ulceration, caseous matter escapes into the aerial tract in amounts sufficient to provoke more or less respiratory difficulty, but which may yet be expelled by coughing.

Pulmonary emphysema is also met with, and it is most probable that both the paroxysms of coughing and compression of the trachea and bronchi are the two principal factors, if not the only ones, in the pathogenesis of the emphysema. It is a difficult matter to be precise as to the physical signs observed in the respiratory apparatus. Palpation and percussion, when carried out over the upper sternal and interscapular regions, may reveal an increase of the thoracic vibrations, as well as a certain degree of dullness. By auscultation, the vesicular murmur is decreased to a variable extent, inspiration is short and silent, expiration is long and whistling, while subcrepitant râles are common.

It is impossible to detect the existence of a tracheal or bronchial perforation by auscultation, and although cavities in the lymph nodes may, perhaps, be detected, it is difficult to distinguish them from the same lesion in the lungs. In case of sudden occlusion of the respiratory tract there will be nothing in the history of the case to indicate the true nature of the process. Suddenly, and without any appreciable cause, a violent paroxysm of dyspnea arises with all the manifestations of approaching suffocation. Auscultation of the lungs will merely show a weakening of the vesicular murmur, and it is in the midst of these tragic symptoms that death takes place.

COMPULSORY HEALTH INSURANCE DIES HARD.

The measure introduced into the legislature of the State of New York providing for compulsory health insurance has been opposed by the Republican members and since the Republican Party has a working majority in both the Senate and the Assembly the prospects for its enactment seemed very slight. Its supporters stated that the objections which had been raised to the measure by the members of the medical profession had been met by certain changes, a statement which is not in consonance with the understanding of many thoughtful physicians who realize the danger to the profession inherent in the measure, a danger not to be disguised or remedied by a few verbal changes. According to recent press dispatches there is a sharp division of opinion regarding the measure which may result in a split in the Republican Party. A group of women who have been looked upon as Republicans have announced their intention of pushing the bill regardless of the men of that party. Every physician, regardless of party affiliations, should bring to bear all his personal influence in opposition to this measure, the passage of which would be the greatest blow to the standing of the medical profession ever delivered by any single law enacted in this State. The effect of compulsory health insurance on the incomes and status of British and German physicians furnishes a warning by which we should profit.

News Items.

Base Hospitals Turned Over to the Public Health Service.—At Camps Beauregard, Hancock, Logan, and Sevier the base hospitals have been turned over to the United States Public Health Service.

National Pathological Laboratory in Brooklyn.—The Natural Pathological Laboratory has opened a clinical and pathological laboratory in the new building of the Chamber of Commerce at 32 Court Street, Brooklyn. The equipment is complete in every respect. Dr. Archibald McNeil is the director of the laboratory, and Dr. J. C. Aikman, manager.

Dinner in Honor of Colonel Edward Martin and Colonel McLean.—The Philadelphia Clinical Association will entertain Colonel Edward Martin, commissioner of health of Pennsylvania, and Colonel John D. McLean, assistant commissioner, by giving a dinner in their honor at the Bellevue-Stratford, Thursday evening, April 10th. Dr. Edward J. Moore, 1619 Arch Street, is chairman of the dinner committee.

Health Commissioner Copeland to Resign.—It is reported that Dr. Royal S. Copeland intends to resign as commissioner of health of the city of New York as soon as "certain departmental matters of a constructive nature are effected." These matters relate particularly to the narcotic drug question and industrial hygiene. Doctor Copeland's decision is not due to any criticism of his administration but to his desire to resume the practice of medicine.

Two Base Hospitals Discontinued.—The base hospitals at Camp Custer, Mich., and Camp Travis, Tex., are to be discontinued, and will hereafter be operated as camp hospitals. No more overseas patients will be sent to these hospitals and overseas patients now under treatment there will be transferred to other hospitals. No more overseas patients will be sent to the hospital at Camp Doniphan, Okla., which will now care for the sick of that command only.

Physical Principles Applied to War Problems.—In connection with the annual meeting of the American Physical Society, to be held in Washington, D. C., April 25th and 26th, there will be an exhibition of apparatus illustrating the application of physical principles to the solution of war problems. The main purpose of the exhibition is to give opportunity to the physicist to see in operation new apparatus developed for war purposes. Military and naval establishments, universities, research institutions, manufacturers, and individual investigators will participate.

Ambulances Assigned to Flying Fields.—An order has been issued by the training section of the Office of the Director of Military Aeronautics, United States Army, directing that at active fields an ambulance with a medical officer and the necessary medical personnel shall be on each flying field during all flying. At inactive fields an ambulance fully equipped will be held at a convenient place ready at all times for immediate action. A medical officer and other necessary medical personnel will be in readiness to respond to a call during the time flights are being made.

Medical Officers of the 27th Division Cited for Valor.—Among the officers of the 27th Division cited for valor by Major General John F. O'Ryan are twenty-eight members of the Medical Corps, three of the Dental Corps, and three members of the American Red Cross.

Mosquitoes Collected from Army Camps for Medical Museum.—Mosquitoes representative of all species at camps or ports where United States troops are stationed are to be collected for the Army Medical Museum in Washington. At present the collection is incomplete.

Guarding against Typhoid Carriers.—The Surgeon General of the United States Army has directed that all overseas patients whose history indicates possible previous infection with intestinal parasites and typhoid and paratyphoid bacilli shall be examined to determine whether or not they are carriers. Those found to be carriers will be treated by appropriate medical and surgical measures to free them from this condition.

Red Cross Relief in the Near East.—The American Red Cross has made a donation of supplies valued at \$1,553,982 to the American Committee for Relief in the Near East. These supplies are to be distributed by a commission which the latter organization is sending to Armenia and Syria to supervise relief work in those countries. Previous cash contributions to the committee by the Red Cross totalled \$4,500,000.

Sir Thomas H. Goodwin Awarded the Distinguished Service Medal.—The United States Government has awarded the Distinguished Service Medal to Sir Thomas H. Goodwin, C. M. G., D. S. O., director general of the British Army Medical Services. Colonel Goodwin represented the Royal Army Medical Services in the Surgeon General's Office, Washington, D. C., as liaison officer, and spent several months in the United States.

Discharged Soldiers with Venereal Diseases Retained for Treatment.—The retention in the army of soldiers having venereal diseases and their intensive treatment until they have been rendered clearly noninfectious, and the reporting of cases of this disease in discharged soldiers, are measures considered by the surgeon general essential to the welfare of the soldier and for the protection of the civil population. Wassermann examinations are to be made on all recruits at recruit depots. A positive Wassermann, however, does not disqualify for service in the absence of active lesions.

No "Basket Cases" Among American Wounded.—Major General Merritte W. Ireland, Surgeon General of the United States Army, denies emphatically the stories that have been widely circulated of the existence of "basket cases" in American military hospitals. He says that he has personally examined the records and is able to say positively that there is not a single basket case either on this side of the water or among the soldiers of the A. E. F. He also wishes to emphasize that there have been no instance of an American soldier so wounded during the war. The rumor of such mutilations have been persistent, but the stories may now be stopped by an absolute denial.

Civil Service Examination for Assistant Physician.—Among the positions for which the Civil Service Commission of the State of New York will hold examinations on April 26th, is that of assistant physician in the State hospitals. Salary in State hospitals is \$1,200, increasing \$100 a year to \$1,600, with maintenance. The examination is open to both men and women, but unmarried men are preferred. For the proper application blanks address the State Civil Service Commission, Albany, N. Y.

Philadelphia Medical Societies.—The following medical societies will meet in Philadelphia during the coming week:

MONDAY, *April 7th.*—Academy of Surgery; Blockley Medical Society; Main Line Branch of the Montgomery County Medical Society.

TUESDAY, *April 8th.*—Pediatric Society; Physicians' Motor Club.

WEDNESDAY, *April 9th.*—County Medical Society.

THURSDAY, *April 10th.*—Clinical Association; Pathological Society.

FRIDAY, *April 11th.*—Atlantic County Medical Society; Northern Medical Association.

A Public Health Fellowship.—The Harvard Medical School, in cooperation with the Boston Dispensary, offers a fellowship to graduates in medicine who desire to take a course of study leading to the certificate of public health in the School for Health Officers, or to the degree of doctor of public health in the department of preventive medicine and hygiene, Harvard Medical School. Full particulars regarding the requirements of this fellowship may be obtained from Dr. Milton J. Rosenau, professor of preventive medicine and hygiene, Harvard Medical School, Boston.

Examination for Medical Assistant in the Bureau of Chemistry.—The United States Civil Service Commission announces that an examination will be held on May 13th, open to men only, for the position of medical assistant in the Bureau of Chemistry, Department of Agriculture, Washington; salary \$2,000 a year. The duties of this position include the reviewing of statements of the therapeutic and curative effects of proprietary medicines and familiarity with current therapeutic literature of the various schools of medicine. The ability to translate foreign medical literature is desirable. For further particulars regarding the examination address the United States Civil Service Commission, Washington, D. C.

American Memorial Hospital at Rheims.—A fully equipped hospital, to be called the American Memorial Hospital, will be established in Rheims by the American Fund for the French Wounded in France. The hospital has already been accepted by the French Government. The city is donating the land, 16,000 acres, and the fund is giving the hospital, which will cost about \$100,000. According to present plans the institution will have about 100 beds and it is expected will be ready in about a year. It will be devoted, at first, principally to women and children. While the hospital is being built an infirmary will be established at Rheims. Parents who lost sons in the war are asked to endow beds in the hospital in memory of those sons. The endowment will cost \$6,000 for each bed, which will endow them for all time.

New York Academy of Medicine.—A regular meeting of the Section in Neurology and Psychiatry will be held Tuesday evening, April 8th. The following programme will be presented: I. Case of Pituitary Tumor, Relieved by Decompression, by Dr. S. P. Goodhart. II. Results of Treatment of Craniocerebral Wounds at the Front, by Dr. Harold Neuhoof; discussion opened by Dr. Foster Kennedy. III. Clinical Features Accompanying Changes in the Sella Turcica, by Dr. Walter Timme; discussion by Dr. Lewis Gregory Cole and Dr. Leon T. LeWald. Dr. Joseph Byrne is chairman, and Dr. Hyman Climenko is secretary of the section.

Retired Medical Officers to Submit Manuscripts to Surgeon General before Publication.—In accordance with the circular issued by the Surgeon General's Office on March 27, and May 22, 1918, all manuscripts written by medical officers of the army and intended for publication must be submitted to the Surgeon General's Office for approval. Colonel Darnall, executive officer in the Surgeon General's Office, has sent a memorandum to editors of medical periodicals requesting that retired officers of the Medical Department, as a courtesy to the surgeon general, shall continue the practice of sending to the Surgeon General's Office copies, in duplicate, of all manuscripts intended for publication. One of these copies will be filed in the records of the Medical History of the War.

Meetings of Local Medical Societies.—The following medical societies will meet in New York during the coming week:

MONDAY, *April 7th.*—Clinical Society of the New York Polyclinic Medical School and Hospital; New York German Medical Society; The Brooklyn Hospital Club.

TUESDAY, *April 8th.*—New York Academy of Medicine (Section in Neurology and Psychiatry); Manhattan Dermatological Society; The New York Obstetrical Society.

WEDNESDAY, *April 9th.*—Medical Society of the Borough of the Bronx; The New York Pathological Society (annual); The New York Surgical Society (annual); Alumni Association of Norwegian Hospital; Brooklyn Medical Association.

THURSDAY, *April 10th.*—New York Academy of Medicine (Section in Pediatrics); West End Clinical Society; Brooklyn Pathological Society.

FRIDAY, *April 11th.*—New York Academy of Medicine (Section in Otolaryngology); Clinical Society of the German Hospital and Dispensary; Eastern Medical Society of the City of New York; Flatbush Medical Society, Brooklyn; Society of the German Hospital in Brooklyn.

Red Cross Honors for Mrs. Wolbarst.—What one busy doctor's wife did during the war is well illustrated in the war record of Mrs. Wolbarst, wife of Dr. Abr. L. Wolbarst, of 119 East Thirteenth Street, New York. Her first endeavors were in connection with the Red Cross National Linen Shower, of which she was the originator, organizer and official executive. As a result of this enterprise, the women of this country donated to the Red Cross, over five million bed sheets, bath towels, hand towels, and handkerchiefs for the hospitals at home and overseas. Mrs. Wolbarst was also appointed director of the Christmas Roll Call Campaign for the State of New Jersey, and her tactful executive ability received approbation from many quarters. Her latest activities were in connection with the Department of Military Relief. As a recognition of these endeavors Mrs. Wolbarst has been awarded the Red Cross Service Medal.

Miscellany from Home and Foreign Journals

The Mechanism of Nerve Injuries in Warfare.

—A. Stoffel (*Zeitschrift für orthopäd. Chirurgie*, No. 38, 1918) remarks that cases are seen in which the gravity of the nerve lesion is in manifest contradiction to the symptoms. There may be a complete division of a nerve with very little destruction of the overlying structures, or a nerve may be intact, although there is extensive damage to the structures covering it. There may be complete absence of a lesion of the nerve, although the bullet track would lead one to suppose the nerve would be injured. Thus one may have cases of comminuted fracture of the humerus, shattering of the head or neck of the fibula, which are not accompanied by injury to the nerve. The reason for this must be looked for in nerve mechanism. The exact position of the nerves in the attitude of rest and during active muscular contraction must be carefully taken into account. One may study this "vital" position of a nerve in man during an operation with the limbs in various positions. In narcosis the integuments of the limb are dissected away and the member is hardened in the desired position by placing it in a ten per cent. formalin bath which kills the animal at once. The hardening of the various viscera is obtained by injecting a four per cent. formalin solution into the thorax and abdomen. The writer illustrates his results with reproductions of microscopic preparations. When the limb is in a relaxed state the nerve folds upon itself like an accordion or Japanese lantern. The nerve becomes ribbon shaped and the folds assume an oblique, transversal or even spiral position. These ribbon like folds are nontransparent but light in color, alternating with nerve tissue darker in hue and somewhat translucent. In the nerve trunk each fasciculus forms individual folds. A longitudinal section reveals the separate undulations of each fasciculus. In certain joints the nerve, although tense, shows evidence of folding called by the writer "reserve folds." A nerve folded on itself and when not in active function is shorter and thicker than when the limb is in a position of activity.

In the various positions assumed by the limbs the nerves are rendered tense according to the given attitude, this explains the various and numerous possibilities of escape from injury from missiles of warfare. The condition of the innervation of the regulator muscles therefore plays an important part in the stretching and relaxation of the nerves.

Operations on the Peripheral Nerves.—A. Blencke (*Zeitschrift für orthopäd. Chirurgie*, No. 38, 1918) points out that contractures may be avoided, by employing gymnastics, bandaging and active work on the patient's part. Vicious attitudes which are produced from the weight of wounded limbs should be carefully combated. When a nerve is divided, direct suture should be made and then await the spontaneous closure of the wound. In the diagnosis of complete division of the nerve, it is impossible to come to this conclusion after a simple electrical examination or after a complete neurological examination. The same applies to the

diagnosis of the seat of the lesion. Nevertheless, a neurological examination is absolutely necessary. Since the dangers of operative interference are practically absent, operation should be resorted to in doubtful cases. In the writer's 250 cases, 311 nerves were involved; seventy-five cases presented complete division and fifty cases of incomplete division of the nerve. In 126 nerves (40.5 per cent.) the character of the injury made complete repair impossible. In thirty-five cases amputation was finally resorted to. The radial nerve was involved ninety-seven times, the ischiatic fifty-six times, the ulnar thirty-one times, the median twenty-four times and the crural once. In forty-four cases two nerves were involved, the commonest (thirty-eight times) being the median and ulnar. Hyperalgesia was particularly marked in lesions of the ischiatic. The lesions, as revealed at operation, may be conveniently divided into three groups: 1, Involvement by fractured bone or cicatricial tissues with the nerve intact; 2, cicatricial tissue in the nerve itself, either perineural or endoneural, the new formed fibrous tissue being apparently often the result of hemorrhage; 3, division of the nerve.

The operative technic as carried out by the writer is complicated and shows an unusual degree of skill and surgical acumen. In the postoperative treatment electricity was successful. In a lapse of time varying from six weeks to four months, thirty-one cases of neurolysis were completely cured, while fifteen others were greatly ameliorated. In the lapse of from six to eighteen months six cases of suture for complete division were improved and one other case was completely cured, while nine were greatly improved. As to partial suture there were four cases of cure and one greatly improved. In the remaining cases it was impossible to come to any conclusion as the length of time during which the patients had been under observation was less than one year.

Surgery of the Spinal Cord.—A. J. Walton (*Lancet*, February 15, 1919) passes in review the recent advances which have been made, as the result of extensive experience in the war, in the matter of the significance of the several symptoms and reflexes characteristic of spinal lesions in their various stages of progress. He points out the work of Riddoch and emphasizes the necessity for an understanding of the three stages of changes through which the reflexes pass in traumatic lesions if one is to avoid misinterpretation of the true progress of such a case. The indications for operation in cases with cord lesions differ with the cause of the lesions, but in every case the surgeon must always have clearly in mind just what benefit is likely to result from surgical intervention. For example it is obviously useless to remove a tumor or an aseptic foreign body when the cord has had its functions irrevocably destroyed, or when it has been cut in two. In the slowly progressing neoplastic lesions the damage is due almost wholly to pressure, and removal of the pressure is likely to be

followed by complete return of function. Early operation is necessary, for in the late stages septic complications may develop or destruction of the cord may become so extensive that recovery is not possible. The slower the progress of the disease, the better is the prognosis for relief by operation. A properly conducted laminectomy is almost devoid of risk, but operation should be avoided or delayed pending the results of treatment in cases of spinal tuberculosis and in neoplasms situated within the bone, for the latter are almost certain to be malignant and secondary to malignant growth elsewhere. Operation should also not be undertaken where the lesion is due to acute myelitis or softening of infectious origin, and cases of disseminated sclerosis should not be operated upon. Practically all other slowly developing cord lesions are amenable to relief by surgical intervention. The case is quite different with the acute traumatic lesions, either civil or military in origin, for in them the damage is almost never due to pressure, but is done at the time of the injury. In such cases, therefore, there is no indication for early or immediate operation, even for the removal of depressed bone or foreign bodies. The only exception to this is when an operation is undertaken with the hope of eradicating local infection and sepsis. In all traumatic cases one should delay until the changes in symptoms definitely indicate whether or not the cord has been completely divided. If division has been complete no operation will be of any benefit in the restoration of function. All available evidence absolutely negatives the possibility of any benefit from the suggested use of cord grafts. In cases in which the evidence of an incomplete lesion is definite early operation should be undertaken, and the earlier the better. In cases in which the diagnosis of incomplete lesion is not possible until after some recovery has become manifest, further damage to the cord may result from pressure due to inflammatory exudates, callus formation, or the contraction of scar tissue. Here the indications for operation are clear and it should be undertaken at once.

Diagnosis in Pelvic and Abdominal Surgery.—Montgomery (*American Journal of Obstetrics*, March, 1919) emphasizes the importance of diagnosis in pelvic and abdominal surgery and mentions some of the common errors. Often the surgeon depends upon signs and symptoms which admit of various interpretations. On account of the situation of the affected organs in the abdomen they are subject to change in position from increased weight and lack of support so the situation is not positive evidence as to the organ involved. The surgeon should secure additional evidence to aid him in making a diagnosis. This will include: an exact history, including the course of the disease affecting the patient; a careful study of the physical signs from the affected and remote organs; complete laboratory investigation, and the employment of x rays. As an example of error in diagnosis, pruritus, fissure of the anus and hemorrhoids are readily recognized by inspection, but before operating, the cause of these conditions should be ascertained. In operating upon hemorrhoids, convalescence may be

interfered with by hemorrhage, delayed cicatrization and often prolonged ulceration due to pressure on the rectum by the retrodisplaced and subinvolved uterus; fibroids may cause more or less impaction, or an ovarian cyst may fill the pelvis. These conditions should be treated prior to the operation on the anus. They may also cause trouble in the upper part of the gastrointestinal tract leading the superficial observer to subject the patient to prolonged treatment for various digestive disorders. The investigation of the rectum of every woman suffering from pelvic disease should be a routine part of the first examination. The nervous relations of the rectum, genital structures and the bladder are so intimate that an error may arise in the diagnosis. This examination will often reveal a carcinoma of the rectum. The rectum affords the best opportunity for investigating the extent of the infiltration of the broad ligaments in carcinoma of the cervix. The most frequent site of errors in diagnosis in women is the right side of the abdomen. Inflammatory conditions of the tube, ectopic gestation, torsion of the pedicle or a cyst; disease of the ureter, or the presence of a calculus and empyema of a dragging gallbladder may be mistaken for appendicitis. At times an appendicitis may be mistaken for some genital infection or complication.

The Pathogenesis of Deficiency Disease.—Robert McCarrison (*British Medical Journal*, February 15, 1919) presents an abstract of his extensive researches upon the clinical, morbid anatomical, histological, and bacteriological features of deficiency diseases. He contends that the term "antineuritic" is a misnomer, but uses it for convenience. From his observations he reaches the following conclusions. The absence from the dietary of certain accessory food factors causes not only functional and degenerative changes in the central nervous system, but also similar degenerative changes in every organ in the body. The resulting morbid state is not a neuritis. The resulting symptom complex is due to chronic inanition, to disorder of the functions of the organs of digestion and assimilation, to disordered endocrine function, to malnutrition of the central nervous system, and to hyperadrenalinemia. The adrenal glands undergo a true hypertrophy, while other organs and glands atrophy in the following order of severity: Thymus, testicles, ovaries, spleen, pancreas, heart, liver, kidneys, stomach, thyroid, and brain. The occurrence of edema is invariably associated with marked hypertrophy of the adrenals and is probably due to increased intracapillary pressure. Wet and dry beriberi are the same disease, differing only in the extent of adrenal hypertrophy. Simple inanition gives rise to the same organic changes as specific deficiency of accessory food factors. Gastric, intestinal, hepatic and pancreatic insufficiency result from a diet too rich in starch and too poor in vitamins and this fact may explain certain of the obscure metabolic disorders of childhood. A state of acidosis results from deficiency of the antineuritic vitamins and is due to the imperfect metabolism of the carbohydrates. The great muscular atrophy is the result of deficiency of the accessory food factors and is due

in part to the disturbance of carbohydrate metabolism as a result of disturbed endocrine functions, and in part to the diminished blood supply to the muscles owing to adrenal oversecretion. The profound atrophy of the reproductive glands is the result of vitamin deficiency and this factor is the probable cause of the condition known as "war amenorrhea." There is little atrophy or cellular degeneration in the central nervous system and the symptoms referable to this system are due largely to impaired functional activity of the cells. The disproportionate atrophy of the thymus, testicles and ovaries suggests that they normally provide a reserve of accessory food factors, which, however, is readily exhausted. The whole morbid process of vitamin deficiency is probably due to nuclear starvation of all tissue cells. Infectious and parasitic agents are also important secondary causes in determining the appearance of symptoms in the face of deficiencies in accessory food factors.

Treatment of Gunshot Wounds.—A. H. Tubby, George R. Livingston and J. W. Mackie (*Lancet*, February 15, 1919) recommend the application to the whole wound cavity, after complete surgical cleansing and drying with absolute alcohol, of a paste of acriflavine. The paste contains one half of one per cent. of acriflavine in a mixture of one part of bismuth subcarbonate with three parts of paraffin. In cases of infected fractures, etc., the establishment of free drainage and removal of all necrosed tissues are followed by irrigation with eusol for from two to five days. The remaining necrosed tissues are then excised, the wound is thoroughly washed out with alcohol, and it is filled with the acriflavine paste. This dressing does not require changing more often than about once weekly. The wound rapidly becomes sterile under it and fine, healthy granulations develop rapidly.

Chronic Amebic Hepatitis.—G. Paiseau and J. Hutinel (*Bulletins et mémoires de la Société médicale des hôpitaux de Paris*, November 21, 1918) have met with a considerable number of dysenteric cases exhibiting signs of hepatitis with repeated exacerbations but without tendency to suppuration. The diagnosis is based on conjoint occurrence of a painful pleuropulmonary reaction on the right side, pain in the shoulder, and induced pain at the phrenic points. The effects of emetine treatment are especially suggestive, the pains being immediately relieved and the other symptoms and general condition soon showing improvement. In administering the emetine due attention must be paid to the possibility of cumulative intoxication. A first series of treatments should be given comprising injection of 0.08 gram of emetine per diem on six successive days. A month later, treatment is resumed with a 0.06 gram dose for eight days. Subsequently, treatment is given every two months with a 0.04 gram dose for ten days. Such series of treatments are to be repeated three or four times. Prolonged treatment is necessitated by the fact that in long standing cases the results obtained may be incomplete, mild discomfort in the hepatic region persisting and recurrences taking place with relatively great frequency.

Life of Transfused Blood Corpuscles in Man.—Winifred Ashby (*Journal of Experimental Medicine*, March, 1919) used the four blood groups of Sanford as a basis for differentiation between the corpuscles of the donor and the recipient, thereby obtaining a means of determining the length of life of the transfused corpuscles. As it is possible to transfuse a patient with blood other than that of his own group, and since the corpuscles of two groups that have been mixed may be separated by agglutinating the corpuscles of one group and leaving the corpuscles of the other unagglutinated, it is possible by taking samples of the patient's blood from time to time after transfusion and differentially agglutinating his own corpuscles, to tell from the abnormal number of unagglutinated corpuscles present how long the transfused blood remains in the circulation. The life of the transfused corpuscle has been found to be thirty days or more, by this method. The beneficial results of transfusion are credited to the functioning of the transfused blood corpuscles. Ashby states that the logical procedure in transfusion is to give transfusions until the blood count reaches normal, making the time limit between transfusions only long enough to allow the fluid content to establish itself, which would be indicated by the rise in the blood count occurring a day or two after transfusing.

The Problem of Hypnotism.—Sidney Alrutz (*Hygiea*, December 31, 1918) presents studies and experiments, the conclusions drawn from which would throw a new light upon the phenomena of hypnotism. While it is generally assumed that suggestion or autosuggestion are the factors which cause the results obtained by the hypnotizer when he, in making strokes and passes over the body of his subject, induces sleep and at times analgesia, contractions of muscles, etc., the author's researches, based upon experiments which carefully eliminate the factors of suggestion or autosuggestion, and also every thermal and mechanical stimulation, would apparently demonstrate that there is a specific somatic influence at work in inducing hypnotic phenomena, a form of nervous energy capable of radiating from the human organism, an effluence from the hypnotizer, so to speak, affecting the sensation and muscular contraction of the human body exposed to it. Moreover this effluence is shown to be transmissible undiminished through certain media, such as glass and metal plates, but only slightly so through others such as wool and cardboard. Thus an illustration is shown of an arrangement by which a sheet of glass is fixed by means of a stand and clip over the arm of the subject, the operator making passes over the arm of the blindfolded subject who is in light hypnosis, hyperesthetic and hyperalgetic. The downward stroke causes analgesia, while the upward stroke restores the sensibility. Similarly Alrutz has demonstrated this effluence to be operative when pointing, without contact, with finger or glass rod towards a muscle, tendon or nerve in evoking the corresponding muscular contraction. The description of the author's studies covers sixty pages with illustrations. His research work was done mostly upon two hysterical subjects, but many others were studied with similar results.

Atrophy of the Skin in Idiopathic Atrophy.—Burkhardt (*Dermatologische Zeitschrift*, No. 25, 1918) has encountered a case of progressive atrophy of the skin with acrocyanosis, forming the typical picture of the affection called "diffuse idiopathic atrophy of the skin." This disease produces an atrophy although all clinical evidences of an inflammatory nature are absent. However, it is true that histologically numerous areas of cell infiltration of inflammatory origin are found. Idiopathic atrophy has been considered up to the present, as its name implies, as an individualized syndrome, an affection *sui generis*. However, basing his remarks upon his personal case the writer combats this conception. The cutaneous phenomena take place at the same time as the motor disturbances occur. The feelings of weakness in the limbs increase with the cutaneous manifestations, to such an extent that the patient could hardly stand up. Besides, an anesthetic area was found on the left forearm. Thus there were trophic, motor and sensitive disturbances developing simultaneously. Raynaud's disease could be eliminated from the diagnosis on account of the complete absence of paroxysmal pain. Therefore, the diagnosis of syringomyelia was made. The cutaneous atrophy should in this case be looked upon as neurogenous in nature and not idiopathic. A study of reported cases shows that in quite a large number nervous lesions accompanied the atrophy of the skin. Even in the cases where these lesions appeared to be wanting, it is probable that neurogenous factors were the cause of the cutaneous process. The nervous lesions may be so minute that they do not give rise to clinical signs. According to Cassierer, the pathological substratum in trophic lesions of the skin is a lesion of a reflex mechanical nature which unites the sensitive tracts to the motor tracts. If a lesion, no matter how small, interrupts this reflex, a trophic lesion of the skin may result. According to the writer's opinion, this atrophy is therefore not idiopathic but neuropathic. If one takes into consideration its localization over the ends of the limbs it should be properly be termed akroatrophia cutis neuropathica diffusa.

Nitrogen Metabolism in the Administration of Desiccated Thyroid Gland.—Alice Rohde and Mabel Stockholm (*Journal of Biological Chemistry*, February, 1919) undertook this problem, using dogs, to determine the value of small doses of commercial desiccated thyroid gland, given by mouth, as a means of increasing nitrogen elimination. In order to eliminate the determination of a nitrogen intake, the dogs were given only sugar solutions, and their nitrogen excretion, following the administration of the thyroid gland preparations, was carefully studied and tabulated. Examination of the tables presented, which show the average nitrogen figures for three days preceding thyroid feeding and for the days of administration, and two days subsequent to it, would indicate that a daily dose of 0.05 to 0.1 gram of desiccated thyroid mixture per kilo of body weight is sufficient to produce a marked effect on the nitrogen elimination, with a somewhat greater loss in weight than in the control animals.

Detection of Saccharosuria, Inosuria, and Lactosuria by a Mycological Method.—Aldo Castellani and Frank E. Taylor (*British Medical Journal*, February 15, 1919) have applied the methods employed for the differentiation of bacteria and higher fungi by means of their fermentation reactions to the problem of the detection of fermentable substances in the urine by means of combinations of bacteria. Where a fermentable substance is sought the urine is obtained sterile or is sterilized in suitable fermentation tubes. It is then planted with organisms having known specific fermentation reactions, two or more tubes being used, each sowed with a different organism. These are then incubated and the presence or absence of fermentation noted by the production of gas. The presence of gas is indicated by +, its absence by O. The several tests available for different fermentable substances are stated in the form of mycological formulas, a number of which are presented. The several formulas are explained briefly in the paper. Some of the formulas are:

Bacillus coli Escherich.....	+	= Saccharose
Bacillus neapolitanus Emmerich.....	+	
Bacillus coli Escherich.....	+	= Saccharose
Bacillus asiaticus Castellani.....	+	
Bacillus paratyphosus B, var. M.....	+	= Inosite
Bacillus paratyphosus A.....	+	
Bacillus neapolitanus Emmerich.....	+	= Lactose
Bacillus pseudoasiaticus Castellani.....	O	

In addition to the few sample formulas selected some twenty others are given, covering the detection of all of the sugars and other fermenting substances which are known ever to occur in the urine.

Control of Nausea and Vomiting by Corpus Luteum.—Hirst (*American Journal of Obstetrics*, March, 1919) reports 111 unselected cases taken from his private practice. Women during the period of their sexual activity absorb corpus luteum. With the onset of pregnancy, this absorption ceases. The corpus luteum of pregnancy reached its maximum size at the end of the third month, and is then gradually absorbed. The nausea of pregnancy beginning at the period of nonabsorption, disappears at the time that the corpus luteum begins to be absorbed. Therefore the corpus luteum injected intramuscularly replaces that normally manufactured by the body. Mouth administration is not effective. In the average case the dose is one mil every other day for five or six doses. In more severe cases, with constant nausea the dose is one mil daily for about twelve doses. The patient should rest as much as possible during the treatment. In the pernicious cases as much as one mil twice daily has been administered. The deltoid is the site of choice for the injection. The material used comes in ampules, containing one third grain soluble corpus luteum powder in sixteen minims of physiological salt solution, saturated with chlorbutanol, for its local anesthetic effect. This amount is equal to 2.5 grains of desiccated corpora lutea. There was not a single abscess caused in the many hundreds of administrations. The extracts of various animals were used and apparently the effect was the same. In two of the cases there was an anaphylactic reaction. These cases were failures. The risk of abortion is not increased by the use of the extract. In the 111 cases

only four patients aborted. There were eleven cases of pernicious vomiting in the series. In two cases pregnancy had to be interrupted to control it. Of the eleven, five responded to treatment. The use of the drug had a sedative effect upon the patients. There was no additional treatment given in the successful cases other than the administration of the extract. In the favorable cases relief usually comes after the fourth or fifth dose, or when the patient begins to absorb the drug. Ninety-nine of the cases were favorably influenced by the extract.

Formaldehyde Sprays to Check an Epidemic of Influenza.—Angus Wylie (*British Medical Journal*, February 8, 1919) reports the prompt checking of the spread of epidemic influenza by the thorough spraying of the billets every day with a one per cent. solution of formaldehyde. Two days after the spraying was begun the new cases dropped from twenty to nil and the epidemic was practically checked, although occasional single new cases appeared until the eighth day of the outbreak.

Influenza in the Italian Army.—Francesco Pancrazio (*Gazzetta degli Ospedale e delle Cliniche*, September 5, 1918) states that in April, 1918, there appeared in the Italian army a condition with all the characteristics of influenza, where the Bruschettini-Pfeiffer bacillus was found only irregularly. Prophylaxis consisted in intensification of measures of general hygiene, rapid isolation of infected individuals, disinfection of the quarters and articles used by these men, preventive disinfection of the nasal and oral mucous membranes with a salicylic solution in the strength of one per thousand. Aspirin was apparently efficacious in protecting those exposed to infection. Salicylic acid derivatives especially aspirin were the most reliable therapeutic agents, and the hacking cough and respiratory distress were relieved by poultices of linseed and mustard. Small doses of adrenalin solution 1-1000, were found very useful in combating the asthenia.

Bacillus Influenzæ from Throats and Saliva.—Ida W. Pritchett and Ernest G. Stillman (*Journal of Experimental Medicine*, March, 1919) used oleate hemoglobin agar because of its selective action as a medium for cultivating *Bacillus influenzae*, with very satisfactory results. From forty-nine cases of uncomplicated influenza *Bacillus influenzae* was recovered in forty-one instances, or eighty-three per cent. In forty-three cases complicated with bronchopneumonia the organism was isolated from forty individuals, a percentage of ninety-three. Six cases of bronchopneumonia all showed the influenza bacillus. In twenty cases of lobar pneumonia this bacillus was only found eleven times. A point of interest is the distribution of pneumococcus in these cases: Types III and IV, those occurring frequently in normal mouths, were usually recovered from the cases of bronchopneumonia following influenza. A study was made of 231 normal individuals and late convalescent cases to determine the incidence of *Bacillus influenzae*. Of these, seventy-three showed positive cultures from a throat swab, and fifty-five positive cultures were obtained from saliva. Of 177 persons examined seventy-four carried *Bacillus influenzae*.

Bacteriology of Influenza.—Meunier (*Bulletin de l'Académie de médecine*, January 14, 1919), in bacteriological studies conducted in southwestern France, found during the first wave of the epidemic August wave, and subsequently, the Pfeiffer bacillus was predominating microorganism, sometimes occurring in pure culture. The disease at that time was widespread, but mild. During the second or August wave, and subsequently, the Pfeiffer bacillus was, from the outset, rather abundant in the nasopharyngeal or bronchial mucus, multiplying considerably in the sputum after the first few days in patients suffering with bronchitis, and occurring either alone or in association with the catarrhal micrococcus or the pneumococcus. As soon as a complicating bronchopneumonia or pneumonia appeared, an outburst of pneumococcal or streptococcal infection was noted, these organisms sometimes even replacing completely the Pfeiffer bacillus. The same pyogenic cocci were found in pleural effusions, except in the cases in which the influenza bacillus occurred in pure culture. If the specific virus of influenza is actually, as Nicolle asserts, a filterable organism, the Pfeiffer bacillus must nevertheless be almost constantly in symbiosis with it, the author having found the influenza bacillus in nearly all cases, from the beginning of the disease. The pneumococcus and streptococcus, on the other hand, are unquestionably agents of secondary infection, just as they are in measles. They become implanted on the fourth to the sixth day by virtue of the breach made in the body defences by the Pfeiffer organism, and following their own course of development in a system already poisoned and nervously impaired.

Comparative Respiratory Percussion in the Diagnosis of Pleuropulmonary Diseases.—J. P. Ménard (*Bulletins et mémoires de la Société médicale des hôpitaux de Paris*, November 21, 1918) calls attention to the diagnostic significance of variations of the percussion note upon deep, sustained inspiration—a mode of examination originally brought to light by Auenbrugger but since rather neglected. Ménard finds there is ample radioscopic evidence to the effect that absence of any change in the percussion note in forced inspiration, coupled with a higher pitch and marked diminution of the elasticity of the chest wall, indicates pulmonary impermeability or a severe pleural affection. Diminution from the normal change in percussion note in forced inspiration indicates a corresponding degree of pulmonary or pleural disturbance. Study of this sign is of especial importance in chronic tuberculosis, the degree of reduction of permeability it indicates corresponding in a measure to the severity of the pathological condition. Absence of inspiratory change of percussion note over the upper lobe shows a severe pulmonary infiltration, fibrosis, or cavity formation. Elsewhere over the chest, pleural lesions may instead exist. As Auenbrugger pointed out, however, change of note upon deep inspiration in the presence of dullness at the base of the lung excludes pleural effusion. The change of note is abolished in pachypleuritis with pleural adhesion and more or less diminished in unorganized dry pleuritis.

Proceedings of National and Local Societies

INTERNATIONAL CONFERENCE ON REHABILITATION OF THE DISABLED.

Held in New York, March 18 to 21, 1919, under the Auspices of the Red Cross Institute for Crippled and Disabled Men and the Red Cross Institute for the Blind.

The Hon. CHARLES E. HUGHES in the Chair.

The meeting was attended by official representatives of the principal Allied nations. The conference was arranged and its success was largely due to Mr. Douglas C. McMurtrie, director of the Red Cross Institute for Crippled and Disabled men.

The program was exceedingly long but was characterized by a remarkably high standard of papers read. At the opening meeting on March 18th, the question of national organization of rehabilitation was discussed in a general way.

SECTION IN REHABILITATION.

Dr. MAURICE BOURRILLON, president, Comité Permanent Interallié, Director, Institut National Professionnel des Invalides de la Guerre, St. Maurice Rene, read the first paper. He described in a general way the principles governing the system of rehabilitation followed in France and the methods in this direction pursued at Saint Maurice in particular. Early in 1915 the French Ministry of the Interior established an interministerial committee, composed of representatives of the different ministries which were interested in the question. They studied conditions and adopted a program. This program was carried out first by the establishment of centres for reparative surgery, for physiotherapy, for prosthesis, and for orthopedic treatment, all aiming at functional restoration. Then technical schools were opened, to provide vocational education, and, finally, wise protective legislation was enacted, culminating in the foundation of a national office for discharged and disabled soldiers. The system of reeducation and vocational training in vogue at Saint Maurice, which is the chief rehabilitation centre in France, is now followed throughout the country. There are at the present time, 124 such schools, extending from Paris to Algeria. After a decision has been reached as to the kind of reeducation suitable to the disabled man, Doctor Bourrillon pointed out that this reeducation is undertaken in a variety of ways. First, by means of schools established especially for the training of disabled men, and in which the instruction is directed by experts. The various departments, as the Ministry of the Interior, of Commerce, of Public Instruction, of Agriculture, and the Medical Corps of the Army have participated to a certain extent, in the organization of these schools, which were usually founded by departments, municipalities, public institutions, or industrial groups.

Disabled soldiers are likewise admitted to the different kinds of special schools and colleges which existed before the war, but, as a rule, these require more preparatory training than the young soldier has received. Beside, the men appear singly, and

at odd times of the year, so that very few could be admitted to schools in which the work is systematically arranged by terms, or covers a period of several years. The Ministry of Munitions has also provided theoretical and practical training for disabled soldiers in the large factories making war material. Lastly, disabled men are placed as apprentices in different smaller workshops. From this method only mediocre results have been obtained, at least in the large cities where control and supervision are difficult to provide. In these schools 45,767 disabled veterans have been reeducated. Of the 45,767 reeducated men, 25,964 undertook training in their former occupation and 19,753 in a new one. Doctor Bourrillon said in conclusion that the official lists of the French casualties, up to November 1, 1918, were 34,300 officers and 1,351,000 soldiers and sailors, making a total of 1,485,300 killed or missing, and 694,000 incapacitated by disease or wounds.

BELGIAN REHABILITATION.

M. LOUIS ALLEMAN, chief of the educational staff, Institut Militaire Belge des Invalides et Orphelins de la Guerre, Port Villez, France, discussed the national organization of rehabilitation of Belgian disabled soldiers being carried on in France. The difficulties encountered of establishing means for reeducating and training these disabled men in an alien country were dwelt upon. Eventually most of these difficulties were partially overcome, and the result is the very excellent Institute at Port Villez. M. Alleman pointed out that the organizers of the school for the disabled at Port Villez believe that the reeducation of the mutilés, like the education of youth, must obey certain pedagogical principles which apply wherever the ensemble forms the basis of instruction. Thus it has given a favorable place in the machinery of its organization, to the pedagogical department, the branch which M. Alleman directs.

REHABILITATION IN ITALY.

Dr. VITTORIO PUTTI, professor of orthopedic surgery in the University of Bologna and director of the Rizzoni Institute, Bologna, Italy, said that before the war, Italy had no institution whatever which could serve as an example for future work. In Milan, alone, there existed a school for the vocational education of disabled civilians, which, however, could only aid a very limited number of patients. Men were not lacking who were experienced in this direction, to whom is owed the rational and practical methods adopted from the beginning by Italian organizations, in order that the committees in the various regions of Italy might work with uniformity of standard. In 1915, at Rome there was founded the Federation of Committees for the Relief of the Disabled, and to this organization goes the credit of intense propaganda, and the collection of huge funds. The larger cities of Italy were immediately provided with institutions especially suited for the cure and training, both functional and vocational, of the handicapped men. Among these the principal ones are in Milan, Palermo, Bologna, Turin, Florence, and Rome. Soon

this example was followed by other centres and schools sprang up in Genoa, Rescia, Napoli, Pisa, Leghorn, and Venice. But in the place of private initiative came the Government's action. The task was undertaken on the one hand by the War Department, and on the other by the National Commission for the Relief and Protection of the Disabled, provided for by the law of March, 1917. The law not only provides for the technical reeducation but also for the important and complex problem of the after care and social assistance of the individual, whether he be incapacitated by injuries or disease. Both the War Department and the National Commission appointed committees composed of persons competent in orthopedics and of representatives of the association of the disabled who were to control the work of each factory for the construction of artificial limbs. Recently the War Department has adopted a standard type of appliance for use in the case of amputated inferior limbs, which has not yet been tested. Two central commissions residing in Rome, are intrusted with the problem of encouraging new developments in the construction of artificial limbs, by examining models submitted, by organizing contests, etc.

At the end of the physical and orthopedic treatment the disabled remains in the school for vocational training. This reeducation is not compulsory in Italy, but the law commands that each man, after having recuperated physically, shall pass at least fifteen days in the training school. The provision of the law which has been made by the Government upon the example of the Bologna School for Vocational Training, allows the invalid, perhaps ill disposed toward this reeducation, to witness its good effects and results in the vocational training of a far greater number of men.

Experience in Italy has taught that the resident system is greatly superior to the nonresident system and therefore the former has been put into more extensive practice. Moreover, experience has taught that the larger institutions are more efficient than the small ones, and the National Commission has therefore, decided to give the maximum support to the more active and best organized of them. The Italian disabled generally find in the schools the training they require. The more common trades taught are: shoemaking, tailoring, saddlery, carpentry, mechanical trades, and bookbinding. Furthermore, all trades indigenous to agricultural districts, as, for instance, basket making, cartwright, and cooper trades. There are also commercial courses, bookkeeping, typewriting, drawing, telegraphy; all the disabled are compelled to attend, in addition, elementary courses of study for a few hours each day.

Professor Putti quoted the conclusions to which Mr. Chevelley has arrived with regard to dealing with the disabled man in the choice of his occupation. 1. Whenever it is possible, the disabled men ought to be retained in the trade followed by them in the prewar days, or in one similar to it. 2. This rule ought to be applied especially to agricultural laborers, who constitute in Italy about eighty-five per cent. of the total number of disabled men. 3. In view of the very large number of dis-

abled men who aim at obtaining small Government appointments, the necessity has been recognized of discountenancing their applications, and by so doing, sparing them many future disappointments; it has also been recognized that it is infinitely preferable to give the disabled men a thorough training in appropriate trades and callings, which, besides being of a more profitable and independent nature, are also not so much sought after. 4. The authorities have also come to realize the necessity of discouraging the tendency which has increased to big proportions, of crowding into cities. This has been obtained by persuading the disabled men to return to their native towns or villages as much as possible. As for the treatment of the blind, Professor Putti said that at Milan, Florence, and Rome concentration hospitals for the blind have been erected. From these hospitals the soldiers pronounced completely and irreparably blind are transferred to the special hospitals or schools in Florence, Rome, Naples, Milan, Padua, Catania, according to the locality of their birth, for their reeducation or after care. The work of the reeducational school is greatly simplified by a disposition of law which provides that the blind soldier, when still in the concentration hospitals, be given a practical view on his new life and a methodical seasonal education. The choice of the trade, though often made by the council of directors of the schools, after an adequate test period, is left free to the injured. The work of the blind is generally simplified by the use of special apparatus. In the vocational schools at Florence much experimenting has been done in successfully training the blind for agricultural occupations. At Rome the wood and leather trades have succeeded best. The more cultured blind are encouraged to become masseurs, linguists, musicians, or office employees, as typists.

TUBERCULOSIS IN ITALY.

Professor Putti drew attention to the fact that according to the Italian law dealing with the assistance to the disabled, the patients suffering from tuberculosis are considered as belonging to the disabled class, from a physical and practical point of view. Tuberculosis has been greatly increased in Italy, since the return of the prisoners of war, who left behind them in the Austrian concentration camps, their health and youth, coming back tainted with this malady. The antituberculosis fight was begun December 20, 1916. In obedience to this document, in every territorial army corps, and at the base of every army in the war zone, special sections for the diagnostic study of incipient or latent symptoms of this malady were created. The first symptoms having been discovered in time at these diagnostic sections, which are under the management of specialists, the patients are promptly sent away from the ranks of the army, and benefit by a whole series of dispositions and provisions drawn up with a view of receiving them, treating them, and giving them antituberculous instruction. A medical centre for the selection of tuberculous soldiers was at first established at Nervi. This is a large first grade institution for the gathering together of the numerous tuberculous patients that have been returned by the enemy, where the diagnosis is made,

and the degree of specific lesion ascertained before transferring the patient to other hospitals adapted to their case. Contemporaneously with the institution of the health centre at Nervi, which can accommodate 1,200 patients, another centre for selection, of more than 600 beds, was set up in the rear of the war zone to gather together and select the patients coming from the ranks of the army. The second sanitary centre for selection, organized on the same lines as the one at Nervi was opened at Carregi, not far from Florence. Through both of these centres, as in all the other diagnostic sections belonging to the various army corps, the patients are divided into three categories, according to the gravity of the sickness. As soon as the condition of the men is ascertained they are received in special tuberculosis wards at the different hospitals where these same wards have been instituted in the territories belonging to the different army corps. The patients who are not so seriously ill are sent to appropriate sanatoria that have been instituted in each territorial army corps, where they are kept for about three months, and where once this period is passed, they are given their discharge. With their discharge, however, the assistance given to the class of disabled men does not cease. As a result of an agreement between the Ministers of War and of the Interior, all of these patients are entitled to continue to receive all possible assistance, both medical and practical, unless they end by being recognized as disabled as a result of war service and, as such, entitled to all their pension rights.

With regard to the men who have a latent form of tuberculosis, they are sent to special sanatoria for treatment of initial tuberculosis. Patients can remain in these institutions six months entirely at the expense of the military administration. Once this period of treatment is over, the same administration reserves the right to have the patient reexamined at the diagnostic sections, where it had been decided to have them sent to these sanatoria, and where further decisions as to the care of the men are taken.

WORK OF THE ITALIAN GOVERNMENT.

From the very first months of the war, much has been done in Italy for the aid of those facially mutilated and those whose nervous systems have been seriously impaired. For the assistance of the former, concentration hospitals conducted by specialists were erected in the war zone. From these the injured were sent to the base hospitals where all the possible aid was given them, not excluding prosthetic appliances. In this field, in the opinion of Doctor Putti, the Italian specialists have accomplished a truly admirable achievement. The prosthetic appliances are furnished by the Government with the same criteria as that used in the distribution of artificial limbs. Similar organizations have been instituted for those suffering from impairment of the nervous system. From the concentration hospitals they are sent to the so called neurological centres in the principal cities. Each of the centres is divided into two sections: one for the patients suffering from organic injuries, the other for those displaying neuropsychic phenomena.

REEDUCATION IN GREAT BRITAIN.

Miss ETHEL WOOD, secretary, Local War Pensions Committee, London, England, informed the conference of the work that is being done to train the widows of British soldiers in trades which will render them self supporting. Another feature of the British governmental system of reeducation is that discharged soldiers are placed on the local pension committees. In Great Britain, generally very much of the rehabilitation work is done by patriotic workers whose efforts are controlled and directed by governmental agencies.

CANADIAN REPORT.

Mr. F. GERALD ROBINSON, Deputy Minister, Department of Soldiers' Civil Reestablishment, and, Mr. W. E. Segsworth, director of Vocational Training, Department of Soldiers' Civil Reestablishment, Ottawa, Canada, described the rehabilitation work which is being done in Canada.

PHYSICAL RECONSTRUCTION IN THE U. S. ARMY.

Colonel FRANK BILLINGS, chief of the Division of Physical Reconstruction, Office of the Surgeon General, U. S. Army, described the work which has been done and is being done for the physical reconstruction of the American soldier. Colonel Billings said in part, that up to the time of the signing of the armistice 85.5 per cent. of America's wounded were returned to the battlefield, while five per cent. of those who suffered from disabilities caused by the enemy, were sufficiently cured to be assigned to limited service groups. Only about 10,000 had been shipped home for further treatment, which signified that less than ten per cent. were then regarded as seriously disabled. Colonel Billings declared these astonishing results were due to the directions given by the Surgeon General's Office as to vocational training and curative work in hospitals in Europe. He emphasized the point that if such results were possible, with limited facilities and under war conditions in a foreign country, how much more complete should be the results of the treatment at home at the present time and in the future, with almost perfect facilities. The speaker pointed out that when hostilities ended there were 192,000 men in French and English hospitals. Since that time 80,000 have been brought home for treatment. Psychotherapy or curative work is now being carried on in forty-eight hospitals under the Division of Physical Reconstruction.

VOCATIONAL EDUCATION.

Dr. C. A. PROSSER, director of the Federal Board for Vocational Education, described some of the work which had been undertaken and which is now in progress by this board. He pointed out that the United States Government had promised three things to its wounded soldiers. First, the promise of physical care, then the promise of compensation for injury, and lastly that those who came back crippled or disabled in any way, whether from wounds or disease, were pledged the nation's honor that they would be retrained, reeducated so as to be able to assume a responsible place in the economic life of the country. Doctor Prosser showed how

these promises have been and are being fulfilled. In the first place he pointed out that so far as the question is concerned, the United States found herself in a somewhat better position than the governments of the Allies. While they were engrossed with war, private concerns took up the matter of rehabilitation, and generally speaking these are in charge of the problem at the present time. On the other hand, there was already organized and in operation in this country a board which had been doing the same work for civilians that the government now wants done for the soldiers. In June, 1918, by the Vocational Rehabilitation Act, Congress transferred to this board the entire task of reeducating and placing in employment the discharged soldiers, sailors, and marines who have been so disabled that they are entitled to compensation from the War Risk Insurance Bureau and require the help of reeducation and placement in order to "carry on" successfully in the pursuits of civilian life.

SECTION IN FUNCTIONAL RESTORATION.

Functional Reeducation in France.—Dr. ANDRÉ TREVÉS, chief of staff, Centre d'Appareillage et de Rééducation Professionnelle, Rennes, France, stated that the French Government had made liberal appropriations to its department of physiotherapy and had installed all the necessary methods of treatment; massage, mechanotherapy, with the most varied apparatus, thermotherapy, aerotherapy, radiotherapy, and other physical methods of treatment. Also, thanks to her wealth in mineral waters, France has been able to give her wounded the benefit of those valuable therapeutic measures. In June, 1916, M. Justin Godart, Under Secretary of State for the Medical Service, created centres for prosthetic appliances and vocational reeducation in each of which was included a service of physiotherapy and these were in addition to the main "centres" or hospitals of orthopedic surgery and centres of functional reeducation, called in France centres of physiotherapy and which were established in December, 1914. Every week there is a meeting at the appliance centre of a committee composed of the chief surgeon of the sector and the chief doctors of the centres of prosthetic appliances, reeducation, physiotherapy and neurology. The committee inspects the patients and decides on the treatments which they shall receive and the hospitals to which they shall be sent. Doctor Trevés insists upon the fact that the French medical profession is of the almost unanimous opinion that physical work constitutes the best kind of mechanotherapy, the best functional reeducation. After referring to the importance of farm work from the economical and functional restoration standpoints, he pointed out that many centres of physiotherapy, also, possess work shops where the wounded men improve their physical condition by working at carpentering, tinsmithing, shoe repairing, harness-making, etc. One can cite as a model in this line the hospital of the Grand Palace at Paris, which possesses an admirably organized service of physiotherapy, shops where working appliances are made on the spot, and a school of vocational reeducation. The last was formed by the Union des Colonies

Etrangères en France, in which Americans have played an important rôle, and fits the wounded either to resume their former occupation or to follow a new trade.

CAPTAIN P. G. SHARP, Shepherd's Bush Military Orthopedic Hospital, London, England, spoke of the work done at the Shepherd's Bush Military Orthopedic Hospital, the first opened and the most important of that remarkable chain of such institutions initiated and developed mainly by Colonel Robert Jones. Captain Sharp laid especial stress on the point of the successful results obtained from the curative workshop system, the system which is chiefly used in the British orthopedic establishments. He emphasized the value of occupational work for the men while they are still in hospitals, giving it as his opinion from experience gained in treatment of injured limbs and other disabilities of war that when the disabled man is given some interesting occupation while he is in the hospital undergoing treatment, it not only serves to restore his functions, but also gives him confidence that he can do useful work again, and this encourages him to make a fresh start. Indeed, it is the psychological influence almost as much as the physical therapeutical effects that render the curative workshop methods of restoring function.

MEDICAL GYMNASICS AND OCCUPATION.

Dr. R. TAIT MCKENZIE, professor of physical therapy in the University of Pennsylvania and formerly major, British Army Corps, gave an address on medical gymnastics and occupation. Professor McKenzie while allowing that the curative workshop methods had been and are productive of a great deal of good to disabled soldiers, thought that the methods should not be relied on solely as a means of functional reeducation. No doubt the psychological influence of doing work which was at one and the same time useful and interesting yet it must yet be borne in mind that the curative working shop system did not always exercise limbs in the proper localities nor in the correct manner. He held that mechanotherapy and massage are not opposed to the curative workshop methods but rather are adjuncts to the latter mode. The methods are not antagonistic but should be coordinated. All the methods of physical therapy when properly and intelligently employed are of value.

CAPTAIN E. A. BOTT, Military School, Hart House, Toronto, Canada, discussed the training of lay workers for functional restoration. Captain Bott pointed out that the lessons learned in the work as to rehabilitation will be useful when applied to civil conditions of living. He suggested that lay workers be trained in physical therapy, in passive and active movements and in various forms of applied exercises. Lay workers are now difficult to obtain, but it was obvious that if physical therapy is to be conducted with success, trained lay workers must be relied upon mainly to do such work. The training itself is a matter of much concern. Intensive training is not successful. Two hours a day for a period, and one hour after this time is sufficient. Moreover, the lecture system of training does not bear good results. Candidates should be taught in groups of not more than eight.

On the whole women are the best pupils and, in many respects, are the best exponents of physical therapy. They are more patient and careful as to details. Captain Bott said that the lessons of the war with regard to physical therapy should and could be applied to the conditions of civil life with the most gratifying results, but in order to do this, it is essential to have a sufficient supply of well trained lay workers. At the present time the supply is not equal to the demand and steps should be taken promptly to supply this lack.

Dr. W. GILMAN THOMPSON, president of the Clinic for Functional Reeducation, New York, who is a follower of Doctor McKenzie and agrees with him and Captain Bott that mechanotherapy when properly employed is of the utmost service in functional restoration and that curative workshop methods should not be wholly substituted for various mechanical methods of exercise, said that in this country mechanotherapists had received their inspiration from Professor McKenzie and Captain Bott. He agreed thoroughly with the principle that in order to obtain the most satisfactory results, physical exercises should not be monotonous. If, however they are made interesting they are in a high degree beneficial. He pointed out that Professor McKenzie and Captain Bott have devised an apparatus which fulfills this and is both interesting and of much therapeutic value. By its energy can be measured in reaching an object and also skill is required to bring the machine back to rest. It exercises the various muscles in the right way. By it the exercise can be accurately gauged and measured. In the opinion of Doctor Thompson one method is empirical and the other scientific. Work is of much importance, but so as to procure the best results the methods should be intelligently combined.

(To be concluded.)

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of Wednesday, November 27, 1918.

The President, MAJOR FRANK C. HAMMOND, in the Chair.
SYMPOSIUM ON THE COMPLICATIONS AND SEQUELÆ
OF THE RECENT INFLUENZA EPIDEMIC.

Medical Complications and Sequelæ of Influenza.—Dr. THOMAS MCCRAE said that a great many of the statements regarding the recent epidemic would not have been made if men read history a little more. Whatever its etiology, influenza is a disease which occurs about three times in a century. Naturally a great many medical men do not have a chance to see it more than once; some see it twice; none, three times. Consequently it comes as more or less of a new disease to the great majority of the profession. Considering that the disease was a multiple infection the wonder was that complications occurred so rarely. Edema of the lungs was one of the most striking complications among those of the respiratory tract; when associated with pneumonia, however, death usually occurred as the result of the pneumonia and toxemia. Pneumonia was rather a feature of the disease than a complication of influ-

enza. Following the epidemic of 1890 we saw a number of curious, atypical cases of pneumonia, shifting from one apex to another in a way to make one question the diagnosis. A generation has grown up which knows nothing about that phenomenon and we shall probably see in the next two or three years a number of cases diagnosed as tuberculosis when we really have a post-epidemic influenzal pneumonia. There has been also in many cases a peculiar persistence of consolidation. The longest time in which I have observed this has been nine weeks. It then entirely disappeared. The occurrence in many cases of slightly bloody serous effusion, small in amount, and which had been responsible for many of the atypical cases, and was one of the particularly interesting signs in the pleura. A curious feature of the influenzal pneumonia cases was the occurrence of fibrinous pleurisy after the recovery of the patient. The question arises whether this was a tuberculous pleurisy, but I was inclined to regard it as a remnant of the disease.

In many of these cases, with the well marked percussion note, there was practically no pain. The majority of cases of influenza went through the attack without serious heart involvement. I saw endocarditis only once; pericarditis impressed us as to its rarity. In comparison with the epidemic of 1890 we were having, apparently, not one per cent. of the cardiac disturbances after the disease was over that we had at that time. A striking feature of the vasomotor system was the curious cyanosis which comes on quite early. The low blood pressure was striking and formed a feature of considerable prognostic importance. The early nosebleed was not in my experience of favorable prognostic import. I saw only one patient with severe intestinal hemorrhage who recovered. The severe toxic condition in these cases was probably akin to that seen in yellow fever. In all the cases dermatitis purpura was extreme. Jaundice was very common if one looked for it, being largely of a low grade. In a few cases it looked like the jaundice of acute yellow atrophy. The glands of the body suffered; particularly the parotid. In the effect on the nervous system we saw two extremes—a severe depression and a condition of exhilaration. One patient within an hour of death was very cheerful, saying that he never felt better. Those of us who saw the disease in 1890 will remember that one of the features was the profound depression which it left, and in many cases the effect on the nervous system lasted for one or two years. Following the last epidemic there were seen at medical clinics many cases of bronchiectasis in many of which the influenza bacilli pure culture could be obtained. This should be borne in mind at the present time. We had every reason to suppose that following this epidemic there would be a great increase in tuberculosis in the next year or so. Personally I have been impressed with the number of patients who following the influenza have had large profuse pulmonary hemorrhage. In the majority of these cases it has been impossible to say whether the hemorrhage has been the result of some lesion of the influenza or whether it meant tuberculosis.

Influenza in Parturient Women.—Dr. EDWARD P. DAVIS said that the parturient woman, for anatomical and physiological reasons, was a favorable subject for the recent epidemic of influenza. In the mild attack of the disease abortion or premature labor did not occur. In the severe cases a hemolytic germ was evidently present, producing a rapidly fatal toxemia. Striking evidence of disintegration of the blood was observed in many of these cases. In early pregnancy many aborted; in those near term, labor occurred; in midpregnancy, interruption was rare. Among the interesting complications and sequelæ were abortion followed by persistent and often fatal hemorrhage; mammary abscess; noma or swelling of the tissue about the mouth preceded death and pernicious nausea and vomiting; occasional pulmonary embolism. In prophylaxis much was accomplished by keeping away from crowds and the disinfection of nose and throat with mild saline antiseptics. The firm belief that if attacked death would not inevitably ensue was of great assistance. The prompt isolation of the patient was useful in limiting the disease. As soon as a pregnant patient was attacked with nasal and bronchial catarrh with rise of temperature however trifling, she was put to bed; the bowels were freely emptied, a liquid diet with abundance of water was given and the patient kept warm by blankets. Sweating was encouraged and the nose and throat disinfected. With a tendency to congestion over the bases of the lungs dry cupping was very useful; applications of camphorated oil were also of value. Local foci of infection were treated as indicated; mammary abscess was thoroughly drained. The giving of acetanilid, phenacetin, salol and aspirin was peculiarly injurious. A safe clinical rule in dealing with pregnant patients not to interrupt the pregnancy in the presence of acute bacterial infection. That the child often escaped the disease was especially true when it was not nursed. The maternal mortality closely resembled that of puerperal septic infection. Where the streptococci did not enter the blood and were not hemolytic the mortality rate did not exceed ten to twenty per cent.; where they did enter the blood and were hemolytic the mortality rate rose from fifty to seventy-five per cent. There was no positive decision that serum and vaccines gave protection or hastened recovery. Sterile horse serum was, however, of value in actively toxic cases.

The Surgical Complications and Sequelæ of Influenza.—Dr. JOHN B. DEEVER stated that George B. Wood in the Fifth Edition of his *Practice of Medicine* (1858) described an outbreak in Rome in 1850 during which 9,000 persons are said to have died of the disease. In several recently recovered cases of influenza coming to operation for intestinal obstruction the intestines were knotted and bound down by plastic exudate and adhesions somewhat resembling a tuberculous peritonitis. While the impression was gained that this was the direct result of the influenza there was no positive evidence of the fact. Many of the increased number of cases of appendicitis in influenza years are most like so called pseudoappendicitis due to the gastrointestinal symptoms frequently part of the syndrome of influenza; others are undoubtedly genuine appendicitis result-

ing from the increased virulence of the usual intestinal microorganisms, and particularly from a predisposition on the part of the patient to appendix trouble. The explanation of lowered resistance and diathesis undoubtedly serves for the various neuralgias, diseases of the bones and joints, as well as for phlebitis, parotitis and other resulting conditions requiring operation. The recognition of pus in the thoracic cavity is of the utmost importance to the surgeon. When the fluid is seropurulent or purulent withdrawal by aspiration is desirable as a preliminary step to thoracotomy or rib resection. A rational operation for empyema is the one devised by Lilienthal in which a wide opening in the thoracic cavity is obtained by means of a long costal incision and wide rib spreaders. The wound is closed completely except for a wick of rubber tissue at each end of the incision. In the streptococcic pleuritis observed in epidemics of pneumonia occurring during the past year at the various training camps late operation, rather than early as in the pleuritis following ordinary lobar pneumonia, gave the better result. It is desirable that all pneumonia cases at the end of the second week be subjected to x ray examination for early detection of the presence of fluid not evidenced by physical signs. Dr. Henry K. Pancoast states that effusion in influenzal empyemas shows a ready tendency to become plastic and to wall off. In such cases the pleura becomes thickened and the lungs are crippled by the resulting adhesions. In the total thirty-five cases treated by us thirteen were interlobular empyemas, several of which had ruptured into the lung, and in one instance pus from the general cavity had broken through into the lung. Thoracotomy, except in rare instances, is decidedly not the proper procedure in these cases. The operation of choice for empyema is rib resection, opening the pleural cavity and exploration with the gloved finger or hand, flushing and wiping the cavity with Dakin's solution and providing continuous and free drainage until the fluid returned is practically sterile. Closure of the wound is a matter of circumspection unless there is a free expansion of the lung. In our thirty-five cases of influenzal empyema our mortality has been 11.6 per cent.

Nose, Throat, and Ear Affections in the Recent Epidemic of Influenza.—Dr. J. LESLIE DAVIS reported that there seemed to be a common agreement that practically every case of so-called influenza at some stage of the disease manifests symptoms of varying degree of the upper respiratory tract. The most characteristic feature of these conditions was the utter lack of any special order of invasion or degree of persistence. Reports from army, navy, and civilian hospitals show the contrasts in the various structures and tissues involved, and variations in the predominating bacterial organisms. A characteristic feature was the precipitateness of invasion of the disease following the appearance of the first cases regardless of whether or not those attacked had been in contact with the already infected. This was as true of sparsely populated districts as in a grouping of many people. Bacterial research seems to have failed to isolate any specific organism as the

exciting cause, but has found in practically all cases the usual group of bacteria common to infections of the respiratory tract, their order of predominance varying in different localities and in different individuals in the same locality. The character of atmosphere that seems most frequently to predispose in normal times to infections of the upper respiratory tract is that usually preceding a storm. The greater the meteorological disturbance the more common and more marked are the symptoms observed. The meteorological state seems to favor the development of two conditions influencing the rapid spread of infection—proliferation and increased virulence of the host of bacterial organisms habitually present in the nose and throat; and, second, weakening of tissue resistance to bacterial invasion. Lowered blood pressure, insufficient hepatic secretion, and toxemia are the usual accompaniments of such infections. Whether the lowered blood pressure with its effect upon the mucous membrane is the initial step in the infection, or whether the circulatory disturbance and the membranous congestion in the head are both results of toxemia are questions for further investigation. In my experience the toxic effect of diseased faucial tonsils is a more dominant and constant factor than their infective influences and that the chief deleterious effect is felt upon the liver. Considering the whole symptom complex of the disease and the fact that meteorological conditions over the whole earth have shown unusual disturbances during the past two or three years, the probability of such meteorological disturbances being a causative factor in the great pandemic seems to be an interpretation worthy of more than passing consideration.

Dr. F. J. KALTEYER emphasized the fact that a point of considerable interest is that this disease apparently occurs in all climates at any season of the year and under almost all conditions. While many have attempted to attribute its spread to atmospheric conditions, we often find that it spreads against prevailing winds, that it will occur at the same time in the tropics and in Iceland, and that it attacks all classes of individuals. I was interested to know whether the pneumonia was due to the extension of inflammation from the throat or whether it developed in the absence of this. Pathologists whom I consulted differed on this point. I sometimes wonder whether some of the complications are not directly attributable to the cough mechanism which perhaps influences the drainage of the Eustachian tube and leads to ear complications. I have been impressed with the great importance of the early treatment of cough. In some of the cases of the so-called cardiac type the attack began as an ordinary influenza, but in a short time there was rapid development of cardiac asthenia and death followed within a few hours. We are now seeing some of the cases of myocardial weakness the result of the epidemic. Another condition of great interest and frequent occurrence was that of vomiting with abdominal distention and occasional diarrhea dominating the whole system complex. The complications were much influenced by the previous health of the patient; those with a previous nephritis or chronic

valvular disease generally had their pneumonia without crisis, death occurring in a few days.

Dr. D. L. DESPARD said that he had been impressed with the comparatively few complications during the epidemic requiring operation. A possible explanation may be found in the experience at two of our hospitals where in 299 cases admitted 130 developed bronchial pneumonia. Of that number ninety-one died or seventy per cent. None of those died who had no lung involvement.

Dr. RICHARD C. NORRIS stated that in the past epidemic we had really had two epidemics—one of influenza due to its specific organism, and a widespread epidemic of bronchopneumonia frequently associated with streptococcic germs.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Memoranda on Army General Hospital Administration. By Various Authors. Edited by P. MITCHELL, M. D., Aberd., Lieutenant Colonel, R. A. M. C. (T. F.), Officer Commanding No. 43 General Hospital. New York: Paul B. Hoeber, 1918. Pp. xi-110. (Price, \$2.25.)

The problems of administration involved in the conduct of an army general hospital are so different from those met with in civil life that the reserve corps officer will gladly welcome this volume as a guide in his duties. The volume is composed of contributions from several authors, each of whom speaks with the authority of experience and is illustrated with charts and diagrams which will be found most useful.

Births, Marriages, and Deaths.

Died.

BLACK.—In Detroit, Mich., on Monday, March 10th, Dr. William Clark Black, aged fifty-five years.

CLARK.—In Washington, D. C., on Friday, March 21st, Dr. James J. Clark, aged ninety years.

DOLE.—In Sharon, Mass., on Tuesday, March 25th, Dr. Charles Frederick Dole, aged forty-three years.

DRUMMOND.—In Woodbridge, N. J., on Saturday, March 22d, Dr. Bruce L. Drummond, aged forty-nine years.

FIDLER.—In New York, N. Y., on Wednesday, March 26th, Dr. Benjamin Fidler, aged forty-eight years.

HOGAN.—In Oregon, Mo., on Wednesday, March 12th, Dr. Joseph L. Hogan, aged thirty-five years.

HUTCHESON.—In Lynbrook, N. Y., on Sunday, March 30th, Dr. James Alexander Hutcheson, aged fifty-two years.

KING.—In Belchertown, Mass., on Friday, March 21st, Dr. Calvin B. King, aged seventy-nine years.

MACKENZIE.—In New York, N. Y., on Wednesday, March 26th, Dr. Stewart MacKenzie, of Toronto, Canada, aged forty years.

MAURY.—In Memphis, Tenn., on Monday, March 17th, Dr. Richard Brooke Maury, aged eighty-five years.

MULLINS.—In Baldwinville, Mass., on Saturday, March 22d, Dr. Eugene Norton Mullins, aged sixty-eight years.

SMITH.—In Rochester, N. Y., on Tuesday, March 25th, Dr. Frederick R. Smith, aged forty-eight years.

SOULE.—In Exeter, N. H., on Thursday, March 27th, Dr. Nicholas E. Soule, aged ninety-four years.

WINDELL.—In New Albany, Ind., on Sunday, March 9th, Dr. Lafayette Windell, aged seventy-one years.

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WHOLE No. 2106.

Original Communications

WHAT THE GENERAL PRACTITIONER SHOULD KNOW ABOUT CHRONIC GONORRHEA.

BY ABR. L. WOLBARST, M. D.,
New York,

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Cystoscopist, and Chief of Urological Clinic, Beth Israel
Hospital; Attending Genitourinary Surgeon,
West Side Dispensary and Hospital.

In a recent article by the present writer (1), the subject of acute gonorrhea in the male was considered from the standpoint of the general practitioner. No attempt was made to cover the subject in the conventional textbook manner, but rather to point out briefly what the general practitioner should know in a general way about this all important subject, so that he might be enabled to make a correct diagnosis and apply proper therapy.

In the present paper, chronic gonorrhea is taken up in the same spirit, and in the full conviction that the subject is a difficult one to master and a still more difficult one to elucidate within the narrow limits of a single article. Moreover, with the return to civil life of hundreds of thousands of young men from service in the army and navy, there must inevitably be an appreciable increase in the number of cases of chronic gonorrhea that will require treatment; and it is well that this subject be studied and understood so that these young men shall receive the best attention obtainable.

In the first place, we should remember that "chronic gonorrhea" is a loose, somewhat generic term which serves to describe any longstanding inflammation of the genitourinary tract due to gonococcus infection. It is immaterial, as far as the use of this term is concerned, whether or not the gonococcus can be recovered in the genital secretions; all of these allied conditions are included in the general term, "chronic gonorrhea." Where acute gonorrhea ends and chronic gonorrhea begins is not easy to determine, for the dividing line is not a sharp one and the acute form merges gradually into the chronic. Broadly speaking, however, we may say that any attack of gonorrhea that has not been thoroughly cured within from ten to twelve weeks may rightfully be called chronic.

It is well to emphasize, in the beginning, the great importance of securing a proper history of the case. This is a most valuable aid in the determination of the location and character of the

lesion, and it usually will reveal data that will prove most useful in the diagnosis and treatment. In my own experience, certain answers given by patients to particular questions have attained a well defined meaning. For example, the patient may say he has had two previous attacks, the present being his third. It will not do to accept this statement dogmatically and decide at once that this man has been unfortunate enough to have been infected at the shrine of Venus three distinct times within a period of a comparatively few years. Careful questioning will reveal the additional information that these so-called attacks have come quite close together, that after the first attack, they were all comparatively mild yet stubborn in character, and that he really never felt altogether well at any time after the first attack. In other words, the patient

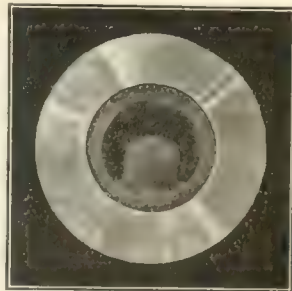


FIG. 1. Ureterostomy seen through a simple straight or curved tube.

has had a series of more or less mild recurrences all of them characterized by the presence of a slight or moderate persistent discharge as the most important symptom. In the presence of such a history, it is more than an even chance that we are dealing with a stricture of the urethra or a chronic prostatitis or vesiculitis. One can readily see, therefore, that it is essential to bear in mind the importance of a carefully taken history of the case.

When the specialist sees these cases, as he eventually does, they have usually been under the administration of one or more physicians for a variable length of time; usually three or even four months have passed before the patient becomes tired of expecting a cure and decides to change physicians. It is not an uncommon thing to see these cases treated for many months and even an entire year before the physician himself realizes that the acute and subacute conditions have slipped by and have left in their place, an obstinate, intract-

able, unresponsive, chronic inflammation. The practitioner is apt to be oblivious of the fact that when an acute infection has dragged along for three or four months with the end not yet in sight, there is something wrong either with his diagnosis or his treatment, or both.

It is well to bear in mind, that there are two

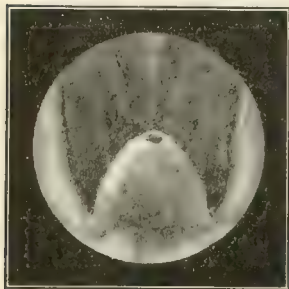


FIG. 2.

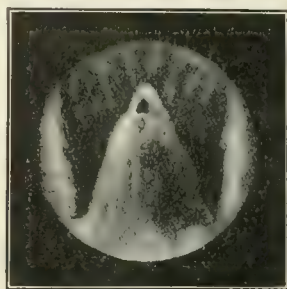


FIG. 3.

FIG. 2.—Domes shaped verumontanum, with urethra situated at the apex.

FIG. 3.—Coneshaped, with urethra on anterior aspect near apex.

general types of chronic gonorrhea. The first is more common, milder and more resistant to treatment, and is characterized primarily by what is known as the "morning drop." This discharge, usually mucoid or watery, may or may not reveal the presence of gonococci; it is more often than otherwise retained within the fossa navicularis and is usually made more evident by the patient squeezing or milking the glans, perforce of acquired habit, on arising in the morning. This type usually is associated with shreds in the urine, and in a great many cases these shreds constitute the only symptom. This condition is also associated in a large number of instances with phenomena that have little or no apparent relationship to the original disease and which, for want of a more exact diagnosis, the practitioner calls neurasthenia.

The second and less common type of chronic gonorrhea is characterized by the presence of pus in the urine, and a fairly moderate amount of discharge in which the gonococcus and other bacteria may or may not be found. These cases though more severe apparently, are really more amenable to treatment than the cases with shreds in a non-purulent urine. It is well for the practitioner to bear in mind that he must satisfy himself as to the exact origin and bacteriological character of the pus before undertaking the treatment of these cases. It is conceivable that a patient may have a chronic gonorrhea with a moderate discharge arising from the anterior urethra, associated with a coexisting stone in the bladder or a surgical kidney. In such circumstances, the discharge on microscopic analysis would reveal the presence of gonococci, while the urine passed by the patient would be loaded with pus, nearly all of which had its origin in the kidney or bladder. A correct diagnosis of the existing condition can not be made without the employment of the urinary tests that have been devised for this purpose. In the circumstances just mentioned, the proper use of these tests would show that the discharge obtained at the meatus contained many gonococci, whereas the pus obtained from the blad-

der uncontaminated by the urethral discharge would be negative as to gonococci. These urinary tests therefore, are of the greatest importance in determining the character of the pus as regards its bacterial content; likewise as to its origin, thus pointing unequivocally to the coexistence of two or possibly more distinct infections each producing its own pus and bacterial elements.

The practitioner should never lose sight of the fact that chronic gonorrhea owes its existence to a pathological lesion somewhere in the genitourinary tract and that it is his business to discover the location and character of this lesion. Every means at his disposal must be employed to attain this end. He must determine whether the infection is located in the anterior urethra or the posterior or in both portions of the canal. Its character must likewise be determined accurately. He must inquire whether he is dealing with stricture, infected follicles, colliculitis, prostatitis or vesiculitis, and in a fairly large proportion of cases, he may find all of these conditions coexistent.

It is not a simple matter to state within the limits of this paper, how to determine the existence of these various lesions or to interpret their diverse manifestations so that the inexperienced practitioner shall be able at a glance to tell what particular kind of a case he is dealing with. As has been suggested, he should be acquainted primarily with the various irrigation tests that have been devised for the purpose of determining the origin of pus and shreds in the urine. These tests have been fully described in previous publications (2) and it is sufficient merely to mention them by name in the present connection. The most useful are those known as the Smith irrigation test, the Jadassohn-Goldenberg test, the Kollmann test and the Wolbarst test (3). With a fair knowledge of these tests and their method of employment, any practitioner will be able to determine with a reasonable amount of accuracy, the origin of any pus or shreds in the urine, voided by the patient. This is the first step in the diagnosis of chronic gonorrhea, and once

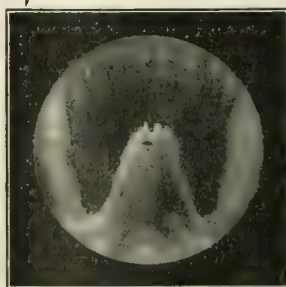


FIG. 4.

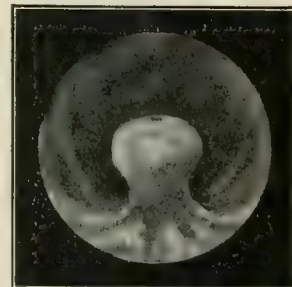


FIG. 5.

FIG. 4.—Verumontanum with flattened top.

FIG. 5.—Doorknob or bulbshaped verumontanum. Compare with Fig. 1. Note magnification and greater illumination obtained with the cystourethroscope.

we have determined in what portion or portions of the tract the disease is located, we have advanced considerably on the road to a correct diagnosis.

The next step is to determine the character of the lesion. Let us assume that the urinary tests have shown that the disease is located exclusively in the

anterior urethra. We should determine whether we are dealing with a stricture or a chronic inflammation of the urethral follicles. For the former, the metallic bougies-à-boule are usually employed, but in my experience they are far inferior as a diagnostic aid to the urethrometer devised by Otis. If we find there is no stricture in the anterior urethra,



FIG. 6.—Large deformed verumontanum, with thick ridge on postmontane floor. Clinically, chronic recurrent gonorrhea.

we must resort to the use of the urethroscope for our diagnosis. This instrument if properly employed and correctly interpreted—and these require considerable experience and patience—will give us a clear view of the infected follicles and the urethral mucosa, and thus make possible a correct diagnosis of the cause of the trouble.

If, however, we find by the use of the urinary tests above mentioned that the pus or shreds are derived from the posterior portion of the genitourinary tract, our difficulties both as to diagnosis and treatment have been considerably increased. We have no exact method of determining the existence of a large caliber stricture in the posterior urethra. It is true the bougie can be employed, but its results except in the case of a fine stricture are not altogether satisfactory. The same is true as regards the practice of inserting a steel sound for diagnostic purposes; the information thus obtained, while of considerable value in some cases cannot be said to be entirely conclusive. It is only when we are dealing with a stricture of fine caliber that the passage of a sound can give reliable information and even in these circumstances, we are not altogether certain as to whether the resistance to the passage of the instrument is due to the presence of a stricture or of a spasmodic contraction at or near the vesical orifice; so that the question of the existence of a stricture in the deep urethra is one that is not always capable of exact determination. In the vast majority of cases, however, any existing doubt may be cleared up by the employment of the posterior urethroscope which will tell us with reasonable ac-

curacy whether the obstruction is a true stricture or merely a spasmodic contraction or contracture. When the narrowing of the deep urethra, is so marked as to prevent the passage of the urethroscope, even under local or general anesthesia, we must consider the obstruction as a true organic stricture.

Apart from the subject of stricture, however, the lesions in the deep urethra are readily subject to precise investigation and correct diagnosis, thanks to the perfection of the posterior urethroscope and the improvements and technic which have been developed in the past few years. Here we are dealing with a method which involves extensive experience and practice, not alone as regards the use of this invaluable instrument, but also as regards the correct interpretation of the picture which it presents to the examining eye. It may be questioned whether the general practitioner with his multifarious duties should be expected to acquire the extensive experience which the correct use of the urethroscope implies; but it goes without saying that if he wishes to treat chronic posterior gonorrhea he must be qualified to use every available means of investigation not only in justice to his patients but to his own reputation as well. It is therefore evident that a reasonable amount of proficiency in the use of this instrument is a *sine qua non* in the correct diagnosis of posterior urethral conditions; and it may be said in passing that the same is true as regards their treatment.

In addition to the urethroscope, there are other methods of examination which are of equal impor-

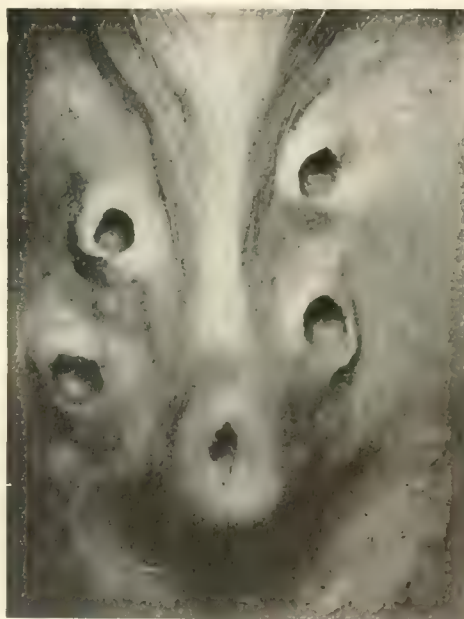


FIG. 7.—Large verumontanum, utricle, and ejaculatory ducts enormously dilated, thickened postmontane ridge. Clinically, premature ejaculation and partial impotence following chronic gonorrhea.

tance and with which the practitioner should be thoroughly familiar. Principal among these is the information obtained by a rectal examination of the prostate and seminal vesicles and of secretion brought forth by massage and stripping of these organs. Palpation, when properly performed, of-

fers a vast fund of information. It is essential to know the boundaries of the prostate and the normal location and size of the vesicles, for in many of these chronic cases, especially in those which have a stormy acute history, one is apt to find the prostate and vesicles matted together so that it is diffi-



FIG. 8. Hypertrophied and distorted verumontanum, urethra dilated. Clinically, urinary distress following chronic gonorrhoea.

cult to make out anything definite. Often, there is nothing but a large mass filling the lower bowel more or less soft and doughy and at times exceedingly tender. The slightest contact with such a prostate sometimes will bring forth a flood of prostatic secretion at the urinary meatus.

On the other hand, whether as a result of previous treatment or otherwise, the prostate occasionally will be found fairly small and quite normal to the touch, but on one or both sides, a large, tender, swollen vesicle will greet the finger tip tantalizingly. Stripping such vesicles is easily spoken of but not so easily done, unless one has had the good fortune to lose his middle finger in some previous accident. The index finger usually comes in contact with the inferior extremity of the vesicle so that it can be felt and its increased size and tenderness can be determined definitely; but as far as stripping the little organ is concerned, the average index finger is a full half inch too short to enable the operator to accomplish much toward the desired end. It would be most desirable and useful, therefore, to abandon the generally accepted idea that the vesicles can be stripped or massaged by the finger in the rectum except in those comparatively few cases in which they hang low in the rectum and for that reason are within easy access of the finger.

It goes without saying that the massaged prostatic secretion (and vesicular secretion if it can be obtained) should be examined repeatedly for gonococci; the progress of the case toward a cure and the question of the cure itself will be determined very largely by the result of these microscopic ex-

aminations. The presence of bacterial life and pus in the prostatic secretion is proof positive of the fact that we are dealing with an inflammation that might become active at any moment. This means that there must be no let up in our treatment. A negative examination, however, does not necessarily mean that all gonococci have been eliminated. They may not be discovered in five successive examinations but they may appear on the sixth. It is thus obvious that oft repeated microscopic examinations are of the utmost significance and importance in these conditions. Eternal vigilance and patience are the price of definite knowledge and information.

The study of the urine likewise is of considerable importance. It should be examined at every visit made by the patient. It may be quite clear or it may contain some shreds or a small amount of pus. Trying to find gonococci in clear urine voided by the patient is equivalent to seeking the proverbial needle in a haystack. After massage of the prostate the urine voided in many instances will contain an increased quantity of pus, not only, but in addition, a considerable amount of detritus, often assuming the shape of a prostatic follicle. Gonococci may also be present in these bodies. The latter are essentially casts of the affected follicles and can be obtained only through vigorous massage of the prostate. The same is true of the products obtained by stripping the seminal vesicles, when it can be accomplished. The point to remember is that in many of these cases of chronic prostatitis and vesiculitis the urine usually is deceptive. It may be

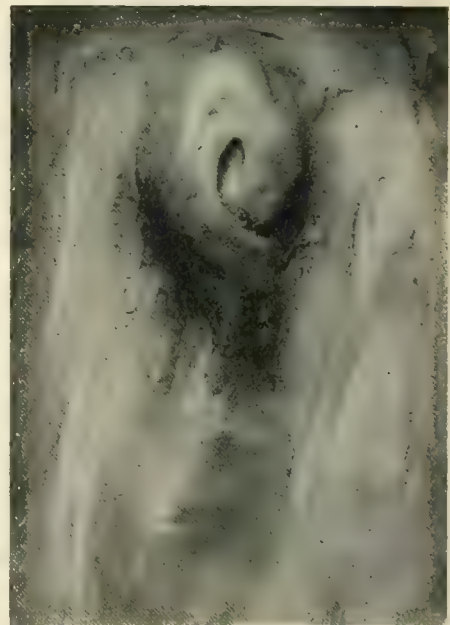


FIG. 9.—Same case as Fig. 8, after six months' treatment. The veru is more nearly normal in size and shape. Clinically, much improvement, followed eventually by a complete cure.

perfectly clear and nevertheless these organs will be found considerably enlarged and congested when examined per rectum, and the character of the urine will be altered completely after the massage and stripping. The practitioner therefore should know that a vast fund of information relative to these

organs can be found at his finger tip if he but trains it properly.

Reverting to the subject of the information revealed by the posterior urethroscope, we must give due consideration to the verumontanum, and to the information which this little organ is capable of



FIG. 10.—Verumontanum moderately enlarged; ejaculatory orifices greatly dilated, postmontane floor of urethra trabeculated like ruts of varying depth. Clinically, pain in perineum lasting fifteen years after acute posterior gonorrhea. Cured after several months' treatment.

furnishing. Previous to the development of the urethroscope and the perfection of its technic, it was customary to believe that the prostate proper was the exclusive seat of the inflammation in chronic posterior gonorrhea. We have learned, however, and this the practitioner also should know, that the verumontanum may be and often is the actual seat of the lesion even though the prostate itself shows no outward evidence of disease. Usually, however, the verumontanum is associated pathologically with the seminal vesicles and because of this close relationship, it has often been termed the "mirror of the vesicles." A diseased seminal vesicle generally means a pathological verumontanum, and *vice versa*. The practitioner should therefore be able to recognize the verumontanum and distinguish between its normal and pathological appearances.

This brings us to the subject of the normal and abnormal verumontanum. To describe the normal appearance would be extremely difficult for there is no fixed type or form of the organ. Its appearance on examination, depends in a great measure on the type of examining instrument used. Examine the verumontanum with a simple straight or curved tube and compare the picture with that seen through one of the indirect types of instrument. The difference is very striking. With a simple tube, the organ is seen (sometimes it can not be seen at all) as a small body rather poorly illuminated and protruding into the posterior urethra like a small red

pea (Fig. 1). A positive diagnosis based on such a picture is obviously a difficult matter. With an indirect instrument, however, the verumontanum is seen as a distinct, well lighted projection from the floor of the urethra into the urinary canal. Generally it may be said to resemble an enlarged glans clitoris, or in some cases, it resembles a small cherry or strawberry. Sometimes it assumes a dome shape with the utricle situated at or near the pointed or flattened summit (Fig. 2); often it resembles a cone, the walls rising and meeting sharply in a pointed peak (Fig. 3); occasionally the organ is flattened as if the apex were sawed off (Fig. 4); again it may assume a rounded bulbous shape resembling a doorknob or an electric bulb (Fig. 5). Whatever its shape may be in the normal condition, the general outline usually remains pretty much the same in the diseased condition except that the smooth wall may become turgid and roughened or replaced by corrugations, excrescences or cysts of distinctly inflammatory origin. In many instances the organ is found exceedingly distorted.

Though the organ is firmly fixed on its broad base, it is capable of considerable movement to and fro and from side to side. This is seen very satisfactorily when the irrigation fluid is turned on and off suddenly. With the water flowing at a brisk pace, the verumontanum will be seen to move perceptibly in response to the impulse of the stream and the lateral sulci will become wider and more distinct as the fluid compels the outward bulging of the lateral urethral walls; and when the current is turned off suddenly, the organ will rebound to its former posi-



FIG. 11.—Verumontanum somewhat atrophied, trabeculation of urethral floor, ejaculatory orifices invisible, thick ridge anteriorly. Clinically, azoospermia, and frequent nocturnal emissions.

tion. In this manner, by turning the stream of water on and off suddenly and repeatedly, a much better view of the organ in its various aspects can be obtained than is otherwise possible.

The pathological verumontanum is a subject that has received a great deal of well deserved study

during the past few years and a formidable literature has already accumulated as a result of this effort. Suffice it to say in the present connection, that the general practitioner who is treating chronic gonorrhea in its various manifestations, will quickly learn to distinguish the pathological from the nor-



FIG. 12.—Large verumontanum, dilated utricle, urethral floor cut up into ruts extending to the vesical neck; cystic bodies in right posterior urethral walls. Clinically, chronic gonorrhea.

mal. A few illustrations showing some of these pathological conditions as reproduced in wax models (4) by the author from some of his cases, are shown herewith (Figs. 6 to 13).

Before proceeding with the subject of treatment, the so-called reflex or neurasthenic manifestations must be considered. These may be divided arbitrarily for the sake of convenience into three classes, genital, urinary, and constitutional or mental.

The genital phenomena manifest themselves generally in the form of vague rectal pains, frequent seminal emissions, premature ejaculation and impotence, all more or less marked. Invariably careful examination will show a direct relationship between these phenomena and a pathological state of the verumontanum and ejaculatory ducts. The former will be found very large, red, congested and more or less deformed (Fig. 6) and the urethral floor and walls will share in the general congestion; the orifice of the ejaculatory ducts will be found enormously dilated, flabby, and apparently without tone (Fig. 7). Massage of the prostate and vesicles with the urethroscope *in situ*, will result in the expulsion of enormous masses of detritus from the ejaculatory ducts. The prognosis as to cure is very good, but these cases require a great deal of skilful, patient attention.

The urinary manifestations are somewhat more vague and less definite in character. Most frequently, they are characterized by an increased frequency, particularly by day, associated with more or less pain; the urine is apt to be strongly acid in

reaction, though there are many instances in which it is alkaline and loaded with phosphates. In these cases, the verumontanum will be found considerably altered in appearance; appropriate treatment directed to this organ will speedily restore the urinary function to the normal.

This subject brings to mind the case of a man who complained of very frequent and painful micturition. The urine being clear and negative microscopically, his physician sought to control his symptoms by the simple expedient of giving him hypodermic injections of morphine, with the result that the pain and frequency did actually diminish for a few weeks; but the patient fearing that he might become an addict, sought treatment elsewhere. On examination, I found later, that the verumontanum and the postmontane space (bladder neck) were very greatly inflamed and deformed (Figs. 8 and 9). Local treatment of this region eventually brought about a complete cure of his urinary symptoms.

In the third class, the patient is generally neurotic and may complain of anything one can think of. Some of these patients behave as though they were fit candidates for a hospital for the insane; and it is quite probable that many a man has been committed as insane when in reality he was suffering from a severe type of chronic infection of the posterior urethra. In a study of a large number of cases which I made some years ago at the Central Islip State Hospital, I found quite a number of cases of chronic prostatitis of gonorrheal origin; in a few of these cases the gonococcus was isolated in the massaged prostatic secretion, though the pa-



FIG. 13.—Same case as Fig. 12, after four months' treatment; marked improvement visually and clinically.

tients had been in the hospital for many years without signs of an active gonorrheal infection. The psychiatrists naturally did not attach much importance to the suggestion that there might be some connection between the chronic prostatitis and the abnormal mental condition; I feel convinced, how-

ever, that a fairly large proportion of the so-called nonsane constitutional psychopaths are sufferers from chronic gonorrheal prostatitis, and that their condition is due in great measure, if not entirely, to the absorption of toxins derived from the diseased prostate acting on their inherently weakened constitutional resistance. I have observed that these men often develop what is almost a mania for prostatic massage. They come to the office or clinic and literally beg for a massage. Undoubtedly this procedure gives them temporary relief, and like any other artificially stimulated appetite, they crave the sort of stimulation and satisfaction that the prostatic massage affords them.

These so-called neurasthenics are not easily cured. They are difficult to handle and do not respond kindly to treatment. They do not seem anxious to part with their favorite aches and pains, they acquire fixed ideas, and if perchance you succeed in producing an alleviation of one set of symptoms, you are confronted immediately with an entirely new set referable to some other part of the body.

Now these men must not be set down as neurasthenics and sent home with a prescription for bromides, as is so often done. These men have a definite pathological lesion in the genitourinary tract (Fig. 10), a lesion that can be seen and must be attacked through the posterior urethroscope. In every case, an attempt must be made to get at the source of the trouble, and in doing so, to win the confidence and the cooperation of the patient. The use of the urethroscope, besides restoring the verumontanum and the adnexa to the normal, exerts a distinctly favorable psychic effect on the patient. He is made to feel that we are taking him and his pains seriously. The worst thing to do is to laugh at him, give him a prescription and tell him to forget it. We must locate his lesion and rid him of it, and the proportion of cures or of at least marked improvement will be truly surprising.

Gonorrheal arthritis constitutes still another important factor in the management of chronic gonorrhea. It is probably accepted everywhere today that a gonorrheal joint cannot be restored to normal as long as there is a gonococcus focus somewhere in the deep urethra or adjacent to it. Every obscure joint disease in an adult (and even in children) must be regarded as potentially gonorrheal in its etiology, and as such the treatment must be directed to a search for the infection focus in or near the deep urethra.

Sterility in the male occurring in cases without history or evidence of double epididymitis, likewise must be ascribed in a large proportion of cases to chronic gonorrhea. It will be found in many of these cases that the sterility is due to complete absence of the sperma (azoospermia), or to a diminution in the number and vitality of the sperma (oligospermia) caused by some abnormal condition in the genital tract. As has been shown in a previous study of this subject (5), it can be demonstrated that a frequent cause of azoospermia is found in the choking up of the vasa deferentia or the ejaculatory ducts. On the other hand, a pathological condition of the prostatic and vesicular secretions will so affect the sperma passing through these organs as either to kill them outright or to weaken them

sufficiently to make impregnation impossible (Fig. 11). The general practitioner should remember in this connection that the sperma are either killed or seriously injured by a pathological prostatic or vesicular secretion. Consequently, it is necessary to make these organs and their secretions as nearly normal as possible for fecundation to take place.

Treatment.—The treatment of chronic gonorrhea consists in the main in recognizing the various pathological conditions above mentioned and applying such remedial measures as the knowledge, training, and experience of the practitioner can suggest. No man can tell another how to treat chronic gonorrhea. There are too many factors involved. We must not treat the disease so much as the man himself. We must study him and know his diatheses and idiosyncracies, and we must adjust our therapy according to our findings. What is good for one man may be injurious to another. Probably the internal secretions are an important factor in this connection, but we are as yet unfamiliar with their workings. Each case must be treated as a law unto itself, the therapy depending in a large measure on the character, extent, and duration of the infection and the nature of the man himself.

Briefly speaking, the treatment of these conditions may be summed up as follows: A large, soft, doughy prostate must be made small and normal by massage, hot rectal irrigations, and deep urethral instillations and irrigations. A distorted, damaged verumontanum (Figs. 12 and 13) must be restored to the normal by means of local applications, preferably of silver nitrate ten per cent. solution, made through the posterior urethroscope. The high frequency current, fulguration, galvanism, and other forms of electric intervention may be required. True, the patient may not get well even through the administration of these measures, but the chances are 100 per cent. against him if they are withheld from him. Cysts, adhesions, ulcers, tears, and warty growths in and about the deep urethra likewise must be treated through the urethroscope. We have no other means of attacking them.

Large, tender, pus filled, seminal vesicles must be treated like pus accumulations elsewhere in the body; that is, by drainage and irrigation, and if conservative measures do not succeed, more radical means must be adopted. The latter include the operation of vesiculotomy and in more serious cases, vesiculectomy. In my opinion, however, these operations can be obviated in the average case by the employment of more conservative measures. This opinion is based on a personal experience covering numerous cases in which the measures hereinafter described brought about a most satisfactory improvement or cure of a longstanding, chronic vesiculitis. These conservative measures consist first, of improving the drainage of the seminal vesicles by catheterizing the ejaculatory ducts and secondly, injecting an antiseptic solution such as argyrol, protargol or collargol into the vesicles through a small incision made in the vasa deferentia. This procedure, known as vasopuncture, was originated by Belfield, of Chicago, and has given splendid results in chronic vesiculitis.

Strictures require dilatation with sounds or

preferably with a dilator, anterior or posterior as the case may be, and occasionally by urethrotomy. This is particularly true when the stricture is deep-seated, of small caliber and interferes with the function of micturition.

Infected follicles, granulations, papillomata and infiltrations of the urethra can be treated only through the urethroscope. They may merely require local applications of silver nitrate, or they may have to be destroyed by one of the electric currents.

Closely related to endoscopy in the treatment of chronic gonorrhea is the little operation of meatotomy in cases in which the meatus is smaller than normal. Cases innumerable which have resisted all remedial measures have responded most astonishingly to the enlargement of the urethral orifice. I am convinced that a small meatus is an almost certain guarantee of the development of chronic gonorrhea. It seems very much as though it interfered with proper urethral drainage; whatever the cause may be, meatotomy should never be overlooked, especially in cases in which it is necessary to use the sound or the urethroscope. It is a common thing to observe cases of stricture of a caliber of say twenty-three French, treated by number nineteen or twenty sounds because the meatus would not admit a larger sized instrument. It must be obvious that the primary indication in chronic gonorrhea is to have the meatus large enough to admit easily any instrument that may be required for therapeutic purposes.

In conclusion, it must be said that chronic gonorrhea constitutes one of the most difficult and obstinate diseases known to medicine, and that its treatment requires skill, patience, and conscientious study on the part of the practitioner.

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113 EAST NINETEENTH STREET.

HOMONYMOUS HEMIANOPSIA AND CENTRAL SCOTOMA IN NEUROLOGICAL CASES, WITH QUESTION OF LOCALIZATION.

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While neither homonymous hemianopsia nor central scotoma is so very uncommon as to demand a special report, it seems to me that the cases to be described below are sufficiently interesting to be worthy of record. Each presented somewhat of a problem in diagnosis and a number of interesting questions for solution. The question of localization was also somewhat puzzling. In both cases the subject of aphasia came up, which seemed rather

out of harmony with the clinical pictures. One might perhaps try to illustrate certain facts in connection with them, but it seems better to let the reports adorn their own tale and point their own moral.

CASE I.—F. W., male, aged fifty-seven, married, born in Russia, cutter by occupation, first came under observation on December 11, 1918. His only complaints were heaviness on top of the head and inability to read or write though he could see and understand perfectly well. The first thought that came up on hearing the complaints was visual aphasia or psychic blindness, for which he was referred to me. A more detailed inquiry into the history only tended to confirm the suspicion.

One morning in August, 1917, the patient awakened with the feeling that he was not quite well and he decided to consult a physician. He first had his breakfast and read his papers when all of a sudden he felt "something pass over his eyes" and he could no longer see what he was reading though he could see perfectly well otherwise. He was not unconscious, did not feel dizzy, did not vomit and had no headache. He did, indeed, suffer vertical headaches by day for a few days preceding onset of the present condition, but they were not of much account. Simultaneously with his loss of ability to recognize print he became unable to write figures or letters and forgot how to sign his name. He also could not recall the names of people he knew well though he always recognized them when they were repeated to him. At that time he found that his right side became weak. He never dropped things and had no loss of sensation though he did complain of numbness in the right side of the body and face. Although he feels that he has improved a little his condition seems to have remained stationary. He forgets things and at times mislays them. He does not gorge his food, is clean about his person, has no delusion or hallucinations but says that he has vague fears and at times feels like crying. Owing to his inability to follow the lines with his knife in cutting materials he was compelled to give up his work.

The man is a moderate tea and coffee drinker, has not smoked or partaken of alcoholic drinks since onset of illness, though he was quite a bibber in his more happy days. His sleep is poor, appetite good and bowels regular. He urinates four times by day and three times at night. He never sustained a severe injury, was never operated upon, had no motor disturbances, sees "well," hears well, has no dizziness, no visceral disturbances and denies syphilis or any other diseases. His wife went through four pregnancies, the first of which resulted in a stillbirth, the second a living child, third a living child which died at six weeks, and fourth another living child. No miscarriages. No history of epilepsy, insanity, alcoholism or apoplexy either in ascendants or collaterals.

Physical examination: The voluntary motor system showed no abnormality in gait. Coordination, both equilibratory and nonequilibratory, was normal. Skilled acts were normal and speech showed no disturbances on the motor side. There was no aphasia or paraphasia, though on some occa-

sions it seemed that for a few moments the patient was unable to get the right word for the thought he wanted to utter. Handwriting showed slight paraphagia, that is, occasional elision or inversion of a letter in spontaneous writing. He copied well and wrote better Yiddish, which is his mother tongue, than English which he acquired late in life. There were no abnormal involuntary movements.

The deep reflexes were very difficult to elicit but one got the impression that they were all there. The superficial reflexes were doubtful if not absent on both sides, but there was no Babinski or any of its confirmatory pathological reflexes. Muscle strength was normal all over, there was no atrophy, no change in tone or muscular irritability. No abnormal involuntary movements. General sensory examination showed no defect in the perception of touch, pain, temperature, vibratory, muscle tendon or stereognostic sense despite the fact that the patient claimed to have a feeling of numbness in the right side of the body.

Cranial nerves. Olfactory normal. Optic: Vision O. D. 20/40, O. S. 20/70. Fields: Right homonymous hemianopsia. Fundi: Albuminuric retinitis (Doctor Schoenberg), "yellowish spots in macular region and elsewhere, representing hemorrhages in a state of fatty generation" (Doctor Holden). The pupils had each a diameter of about four mm., were normal in shape and contour, reacted equally sluggishly to light, convergence and consensually. There was no diplopia, strabismus, limitation of ocular movements nor nystagmus. The Wernicke pupillary phenomenon could not be obtained. Parenthetically it may be stated that most eye men are of the opinion that while this phenomenon may be a theoretical neurological refinement of diagnosis, practically it is a fraud and nobody ever saw it anyhow; which may be very blasphemous of them, but nevertheless is very true.

Air and bone conduction were normal. The motor and sensory fifth were normal, conjunctival reflex was present, the mouth showed caries and pyorrhea. The seventh, ninth, tenth, eleventh and twelfth were normal. Mental status was normal. General systemic examination proved negative except that the blood pressure was 104 systolic, 58 diastolic, possibly pointing to a myocardial weakening. Blood Wassermann was negative on two occasions. The urine showed 1.3 per cent. sugar, a trace of albumin and few hyaline casts, the first disappearing after a brief period on a mildly restricted diet.

Although the patient's vision was fairly good, he could not read small or even large print and he often confused letters. All reading tests were made with Yiddish print and the patient insisted that he could not see the letters. It will be recalled, however, that he had right homonymous hemianopsia and that Yiddish is read from right to left. The reason why he could not see is that every letter first presented itself to the blind right half of each retina. As central vision was preserved we improved his sight with glasses to 20/20 and then we found that he could read much better. After repeated testing it was concluded that he had possibly

slight alexia, but mainly pure homonymous hemianopsia.

The salient features, then, in the case were an unreliable history of weakness on the right side of the body, very mild, if not doubtful aphasia, possibly some paraphagia and absolute right homonymous hemianopsia. Obviously the latter must have been the result of a lesion behind the optic chiasm. Could we positively have determined the presence or absence of pupillary reflexes to light from the blind half of the eye we should have been able to localize the lesion either in the tract, that is before the visual relay centres, or behind them. That the seat of damage was not in the optic radiation we may also safely conclude, as it is unlikely that the adjacent sensory fibers in the hind part of the internal capsules would have escaped completely. We may equally exclude a lesion in the psychic visual centre in the angular gyrus, as there was no real alexia. Obviously, then, we deal with a lesion in the left cuneus, near the calcarine fissure which compromised the light perception fibers supplying the left halves of each retina and gave right hemianopsia. As central vision was preserved the probability is that the fibers going to the maculopapillary bundle have been preserved. To account for the mild paraphagia and the very dubious alexia it may safely be assumed that the lesion in the cuneus has extended sufficiently inward to include a few of the association fibers going to the hand centre for writing and some going to the angular gyrus. All the other symptoms can be explained by the often invoked, if little understood, phenomenon known as von Monakow diaschisis.

As to the kind of a lesion, the probability is that it was a small thrombus. The fact that the man is diabetic, that he showed albuminuric retinitis (possibly also a myocarditis evidenced by low blood pressure), that there was no loss of consciousness, etc., all seem to point to a thrombotic process and against an embolus or hemorrhage. The prognosis for the return of vision, obviously is bad. Treatment cannot of course remedy the damage already done, but it may be directed toward the prevention or postponement of future cerebral insults.

CASE II.—A. W., male, aged fifty-one, married, born in Hungary, furrier by occupation, came to the clinic on January 2, 1919, complaining that he could not see well with the left eye. The condition had come on suddenly on July 7, 1918. Without apparent warning he became semiconscious, had no convulsion, no incontinence, but lost his power of speech. The right side of his body became paralyzed and the face was drawn to the left side. He had difficulty in swallowing and liquids at times dribbled from his mouth. On the day following the onset his face improved a great deal and one day later he began to speak a little. At all times he recognized people and understood everything that was spoken to him. Soon after the attack he noticed that he could not see print though he could make out large type in a blurred way. The left eye particularly bothered him. Short, monosyllabic words he could make out better than long words. Though he had mastered the English language, he seems to have forgotten it, but German (his mother tongue)

he has retained much better. At first he could not name objects on seeing them though he knew what they were and could make use of them. On seeing people he recognized them but could not recall their names. Occasionally he had spells of crying. In general his condition has gradually improved, but he complains of occasional pains in the right arm.

His habits are fair, that is, he smokes and drinks moderately, sleep is fair, appetite poor, bowels tend to be constipated. Urinary apparatus is normal. He sustained no injuries, never saw double, hears well, had no vertigo or headaches. He has had gonorrhea and pneumonia but denies syphilis. His wife never miscarried. The family history is negative.

Physical examination.—The voluntary motor system shows no abnormal attitudes or deformities, the gait is normal, coordination, both equilibratory and nonequilibratory, shows no abnormality except perhaps a questionable adiadochokinesis in the right hand. Skilled acts are normal, the handwriting shows a slight tremulousness, speech is slow, halting and scanning (?) and he has difficulty in finding the right word. There possibly is a paraphasia; at times, for some mysterious reason, he addressed the examiner as "madam." Of real aphasia there is no question. Of abnormal involuntary movements he shows a rapid rhythmic tremor of both hands.

All the deep reflexes are somewhat more lively on the right than on the left, while the superficiales, abdominals and cremasterics, are more sluggish on the right. There is no Babinski or Chaddock, Oppenheim, etc. The muscle strength seems to be normal except for distinct weakness of the lower part of the right side of the face. There is no atrophy, no hypertonus or hyperirritability and no abnormal associated movement. General sensory examination shows normal perception of touch, pain, temperature, vibration, position, and stereognosis.

Cranial nerves.—Olfactory normal. Optic: Vision O. D. 20/40, O. S. 10/200. Fields: Right normal, left shows a central scotoma near nasal field including point of fixation. The pupils are equal, five mm. each, normal in shape and position, react sluggishly to light and convergence. There is no strabismus, no limitation of ocular movements, no nystagmus and the palpebral fissures are normal. Hearing is normal. The motor fifth is normal, conjunctival reflexes present and the teeth are normal. The right facial shows weakness of the lower two thirds, a supranuclear paresis. The ninth, tenth, eleventh, and twelfth are normal.

General systemic examination revealed no abnormalities. The heart is normal, blood pressure 130 systolic, sixty-four diastolic. Blood Wassermann negative on two occasions. Röntgenogram of the sinuses of the skull to determine a possible inflammatory focus as the cause of a retrobulbar neuritis and central scotoma, showed the frontal ethmoidal and sphenoidal to be clear while the right maxillary antrum was not illuminated and the right nares was obstructed.

The main features of the cases, then, are a sud-

denly oncoming right hemiplegia and right supranuclear facial paralysis, some aphasia and a sudden impoverishment of vision in the left eye. The first three symptoms constitute the simple picture so frequently observed in apoplexies. Evidently one lesion on the left side of the brain can account for it. But the sudden scotoma is not so easy of explanation. The first thought, of course was that there was an incidental retrobulbar neuritis complicating the picture, but the clear sinuses and lack of improvement following treatment by the rhinologist make that not quite certain. If we were not dealing with a central scotoma, probably involving the maculopapillary bundle, we should be able to account for the whole clinical picture with one lesion. The posterior communicating artery supplies the optic tract and upper part of the cerebral peduncle (above where the motor oculi passes out) and a lesion there might well catch the pyramidal fibres, the aberrants going to the facial and the optic tract which winds around the peduncle. Provided that only a few of the fibres of the tract are damaged (all of them would give a homonymous hemianopsia) a scotoma could follow, but in that case it would not be central, the maculopapillary bundle would be spared and vision not much reduced. Unfortunately for the "pretty" localization the facts do not seem to warrant it. We must therefore fall back either on a coincidental undetected retrobulbar neuritis or two lesions which synchronously attacked two distinct points.

The question of localization has, or rather should have had at the time of the apoplexy, more than theoretical importance. If the scotoma followed an intracranial lesion then little could be done; if however it was due to a retrobulbar neuritis consequent upon a local inflammatory condition the man's vision might have been saved. It makes, of course, all the difference in the world whether the seat of inflammation is treated before all the nerve fibres are injured or whether one lets six months elapse and then tries to relieve a condition which has already caused damage beyond repair.

1291 MADISON AVENUE.

BIRTH INJURIES.*

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Much has been done by modern obstetrics toward bringing the pregnant woman to term in a healthy condition, with the result that the maternal mortality and maternal morbidity have been materially diminished. The fetal mortality has likewise been somewhat lowered by reason of the campaign in the baby's behalf resulting in more careful study and better treatment during the antenatal and postnatal periods. Little has been said, however, and less has been done with regard to the injuries to the child in transit, to which practically every part of its anatomy is subject at times, with the result

*Presented at a meeting of the North Branch of the Philadelphia County Medical Society, with manikin demonstrations.

that irreparable maladies go with them from the cradle to the grave.

We speak of the rights of the unborn child. What of the rights of the deformed child, i. e., the baby girl born with a fractured clavicle unrecognized until four or five days after delivery, after partial union has taken place the bones overlapping and causing a deformity; or the male child with an infected gangrenous scrotum, the result of attempts to perforate it in the belief that it was the bag of waters. Or the irreparably injured anus, from attempts to dilate it for the mistaken cervix in the breech presentation. Such injuries as these, and those of the mouth and eyes, the result of manipulations with the unrecognized face presentations, are rare, compared with intracranial traumatism and traumatism of the upper and lower extremities.

Exclusive of unavoidable traumatism, birth injuries may be divided into two distinct classes; viz.: Those resulting from "delayed labor," the so-called sins of omission, especially during the second stage, and those due to "faulty manipulation," the sins of commission. In the first class there result from long continued compression, hypercarbonization, asphyxia, intracranial hemorrhage with subsequent paralysis, degeneration and idiocy, and I am quite sure that more harm is done to the cerebrum of the newborn by delay, than by the proper use of forceps to expedite delivery.

Peripheral paralysis is the most frequent complication from the average forceps delivery, with normal application and while no paralysis should be regarded as trivial, this is usually of short duration. Delay, on the other hand, is capable of causing intracranial hemorrhage, from long continued compression, with subsequent paralysis or degeneration and idiocy and possibly epilepsy.

With forcible delivery, without definite knowledge of the position of the presenting part of the fetus, the degree of disproportion, the correlation of the diameters, axes and angles of the fetal head and the pelvis, all sorts of injuries to the fetal head are liable to occur, including fractures of the skull, depressed bones, intracranial hemorrhage, meningeal manifestations, which in turn are followed by paralysis of central origin or brachial palsy, imbecility, or epilepsy. Forceps properly applied and deliberately manipulated are not harmful; they are a relief agent, unless there has been a mistake in judgment as to the degree of disproportion, when with propriety, Cæsarean section should have been the operation of choice.

The following brief history represents a type of injury from delay:

Mrs. M., aged twenty-eight, primipara, was admitted to the Samaritan Hospital, November 10, 1917, with a negative family and personal history. She was at term and had been in labor thirty-six hours before admission, with membranes ruptured. Labor was active, but no progress; pelvic measurements were normal, except the external conjugate, which was 19.5 c. m. The fetus was in the L. O. A. position, with fetal heart rate 128 a minute. There was full dilatation and she was promptly delivered with forceps under ether anesthesia.

At birth the child had a slight forceps bruise over the right cheek, eye, and forehead; also a slight bruise in left occipital region. On the third day she became restless, cried considerably and refused to nurse. Temperature 104.6°. There was marked tendency to keep her head turned toward the left and slight ptosis of left eyelid was noticed. No twitching or meningeal symptoms. Mild stomatitis present which yielded readily to boric acid and glycerine. The baby was also jaundiced, but this condition cleared up under treatment with soda and rhubarb mixture. Temperature remained high, reaching maximum on eighth day (107.4°). Colonic irrigations were used to reduce the temperature. Murphy drip of sodium bicarbonate (two per cent.) four ounces every twelve hours also used. Colonic and Murphy drips always quieted her and reduced the temperature.

At the time of her discharge she had a tendency to keep the head turned toward the left, but to a lesser degree than at first. The ptosis was also less. Baby nursed well and slept well; seldom cried. About the third day there was a dilatation of one of the pupils, which returned to normal the following day, when the other pupil dilated; it also returned to normal in twenty-four hours.

Diagnosis.—Encephalitis from long continued compression during the second stage, plus the superficial traumatism from forceps.

PREDISPOSING CAUSES.

Of the second class, viz.: unavoidable injuries and those due to faulty manipulation—the predisposing causes are:

1. Disproportion: the contracted or deformed pelvis with the fetus of normal dimensions, or a normal pelvis with the fetus oversized, or both; 2, faulty position and presentation, and 3, faulty attitude of the presenting part—arm, leg, or head.

ACTUAL CAUSES.

1. Improper application of forceps and delivery by brute force. Forceps were not made simply to pull babies through with, but for a fourfold purpose, viz.: Slight compression, traction, leverage, and correlation of the diameters and axes of the fetal head with the pelvis; 2, too great traction on the head with lateral flexion; one of the causes of brachial palsy; 3, too great compression on the aftercoming fetal head in the breech delivery, and 4, faulty manipulation of the arms or legs when in an abnormal position—also undue traction in the axilla, or groin with fingers or blunt hook, resulting in luxation, fracture, or paralysis.

I have been informed by x ray men that they are frequently called upon to radiograph infants and young children with brachial palsy who give a history of traction in the axilla with a finger or blunt hook at the time of birth, with no other assignable cause for the palsy.

The first and most important of the preventive measures is, accurate knowledge of the shape and dimensions of the pelvis before the beginning of labor. Next, and before the character of labor is decided upon or any manipulations begun, a careful study of the position, presentation and dimensions of the child, especially the head.

RELATIVE PELVIC CONTRACTION.

In the moderate degree contractions, i. e., the pelvis with a true conjugate, one or one and a half centimetres below normal or a fetal head slightly above normal; the degree of disproportion is easily recognized by the use of the pelvimeter, after the Stone method and ability to adjust the head in the pelvis after the Müller method. The most important diameter if any evidence of contraction exists is the conjugate. The warning note or time for immediate forceps delivery is upon the following symptoms on the part of the mother: exhaustion, edema, dilated cervix, membranes ruptured, persistent contractions, and no progress. As long as the membranes are intact the child does not suffer; when ruptured, the warning notes are: liquor amnii discolored by meconium, always a bad omen in cephalic presentations, slowing of the fetal heart sound to 120 or 130 beats a minute, from stimulation of the vagus, followed by the weak, rapid, and wobbling heart to 180 or more beats per minute, due to threatened or actual paralysis from compression.

In addition, if the contractions continue and are vigorous, imperfect oxygenation results and a condition of hypercarbonization of the child exists. In the first instance, with membranes unruptured, cerebral compression and interference with the return circulation, the result is intracranial trauma; in the second instance, with membranes ruptured, direct placental compression and unless promptly delivered, asphyxia results. To minimize the traumatism in the greater degree pelvic contractions, assuming that the child is of normal dimensions, or the pelvis is of normal dimensions, and the fetus oversized, there are four courses to pursue:

First.—By restricting the diet, to retard full or over development of the fetus, by the elimination of fats and carbohydrates as suggested by Prochownik. It is estimated that the weight of the child is from one to two pounds lighter under this diet and is none the worse by reason of it. The diet is limited to the last six weeks of pregnancy and according to Prochownik, no unfavorable influence is shown in the mother, nor upon lactation.

Second.—Labor may be induced ten or twelve days before term or before the fetal head is out of proportion to the pelvis as ascertained by comparative measurements and by manual engagement of the head in the pelvis from time to time.

Third.—When the fetal head is undersized as well as the pelvis the test of labor may be given and failing, instrumental delivery.

Fourth.—When in doubt, the test of labor at term, and emergency Cæsarean section without instrumental interference, if the head will not engage under the influence of the forces; and elective Cæsarean when no doubt exists as to the impossibility of delivery by the natural route.

The greatest number of cranial injuries, I am convinced, occur from the application of forceps to the head in a faulty position. The diagnosis of the exact position of the head in the pelvis with the overlapping of the parietal bones and partial closure of the fontanelles, is sometimes a difficult matter, nor can it be taken for granted that because the

body of the fetus occupies a definite position, that the head always conforms to it.

Very often incomplete rotation will be found, as well as excessive rotation and the transverse position of the head, the result of faulty mechanism. If any doubt exists as to the exact position of the head, it is far better to cautiously introduce the gloved hand to ascertain the outline and position of the presenting part and manually rotate it if possible before the application is made.

If the forceps are applied laterally and the head is incompletely rotated, the result is traumatism of the face on one side, and the back of the head and neck on the opposite side. Whether blades lock with difficulty in this position or with the head in the transverse position they should be removed and an investigation made before traction or reapplication is made. Another warning is in regard to the slipping of the forceps, which nine times out of ten is due to the occipitoposterior position or a hydrocephalic head. It is needless to add that the treatment for this condition is manual rotation by the Porter method, and application of the forceps if the natural forces fail.

The preventive measures in the face presentation, if seen early, are an attempt at manual correction; failing in this and in the absence of disproportion, podalic version is required; when disproportion exists Cæsarean section is indicated. If seen late and the head is engaged with cervical dilatation, anterior rotation of the face and forceps delivery will minimize the traumatism and give the best results.

Too great a compression on the aftercoming head and too much traction on the body in breech delivery, with the finger in the mouth, will create greater traumatism than will the application of the forceps with the body lifted over the pubes and the blades applied in relation to the occipitomentral diameter of the head, besides the child will be less liable to asphyxia and to the development of inspiration pneumonia.

Duchenne's or Erb's paralysis, in which certain definite groups of muscles are affected, namely the deltoid, infraspinatus and flexors of the forearms, is the result of injury to the fifth and sixth cervical nerves and can best be averted by the avoidance of traction downward and laterally, with shoulder retention. When traction is necessary, it should be in a direct line with the axes of the outlet.

The previously conceived idea that the Prague manipulations were responsible for this type of paralysis, by pressure from the hand grip, in bringing down the arm, was erroneous, and the most that does occur is fracture or dislocation, and the same is true of the leg in breech presentation, when the thighs are flexed on the abdomen, unless care is exercised in bringing them down by the rotary process over the ventral surface of the body, and not over the back. The more I study the subject, the more I am convinced that protracted labor does greater harm to the child in transit than forceps rationally applied and that the greatest element of danger is in failure to recognize the varying degrees of disproportion and the faulty application of forceps in an abnormal position.

ARTIFICIAL PNEUMOTHORAX IN PULMONARY TUBERCULOSIS.

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(Continued from page 594.)

SELECTION OF CASES.

There is no one treatment in tuberculosis that requires more care in the selection of cases than does artificial pneumothorax. It is the selection of cases that spells success or failure, and depending upon the physician's judgment in such selection will be his attitude toward this method as a curative agent. There are many men who condemn compression blindly. These men have seen unsuccessful cases and have formed their opinion from this observation rather than from personal experience. They will have none of it. Then there are others who have gone at it in a "hit or miss" fashion, having had their enthusiasm fired by the early reports of wonderful symptomatic results, and believing the long looked for cure for tuberculosis had at last been given to a waiting people. These same men compressed lungs that should never have been even considered for such treatment. They produced a pneumothorax without rhyme or reason. It was the old adage over again, "Fools rush in where angels fear to tread." The results were disastrous in the extreme. Not only were the majority of their patients not benefited but many were positively harmed. Patients who should have had the treatment were deterred from taking it through fear of the consequences. Whole communities talked of the terrible effects of gas, and wagging tongues added unthinkable horrors to this new innovation. The physicians, themselves, who had cried hardest for the method, after such experiences, were the first to condemn it. They were only too prone to forget that the failure lay not in the method but in the judgment of the operator himself.

Artificial pneumothorax, like everything else in medicine, is productive of good only when backed up by a physician of common sense and a semblance of sanity. It is unfortunate for the public, and equally unfortunate for the profession as a whole, that many of our brothers are woefully lacking in the all essential factor to a successful practice—common sense. The attitude of distrust assumed by the public toward the profession today is the fault of the physicians themselves. This is gradually being dispelled by our frankness and by the universal education of the laity along medical lines. Some day let us hope that the physician who tries to hide his ignorance behind a curtain of mystery will be a thing of the past. Along with him, and in the same deep grave, let us bury the enthusiast in medicine, for the one is as great a menace to the health of the individual as the other. Not until this shall have been accomplished will the practice of medicine be placed upon a sane footing and the public health be guarded as the public have a right to demand.

Having disposed of the two classes of men who cannot but retard scientific progress, no matter along

what line of endeavor, we now come to the man who acts wisely and tempers that wisdom with good judgment. These individuals comprise the majority of pneumothorax workers and to those we owe the placing of this rational method upon a sane and scientific basis.

True, there is some difference of opinion as to the class of cases in which compression is indicated, but that is due to the fact that the treatment is still too young and, in many cases, the experience of the operator is far too recent for him to draw conclusions from his work. All of us at first are struck by the wonderful symptomatic results seen in almost any case chosen for treatment. This very fact, as has been noted, led to a very indiscriminate choice



FIG. 6.—Scattered lesions through opposite lung, with very poor compression in gas lung. Dotted line shows area of compression.

of cases and to many pitiful failures. But as time goes on and the work of many of us drags on over years, great opportunity presents itself for the study of discharged cases and the conviction becomes more firmly rooted that excellent end results are obtained. As these studies progress infinitely more knowledge will be added to the vast experience already gained. The selection of the cases will be so apparent that the work will be undertaken by the great majority of physicians and no longer be confined to the few.

First of all we must consider what effect, if any, there will be on the opposite side, if we compress the badly diseased lung. Forlanini has shown that with a properly proportioned pneumothorax there is no injury to the noncompressed lung. If this non-compressed lung is healthy it is capable, alone, of carrying on the respiratory functions and doing the work of both lungs. If it is diseased, and this diseased area is not so extensive as to allow compensatory respiration for the compressed lung, he asserts that the lesions may heal, or at least become arrested, through a mechanism not easily explained, but which is exactly opposite to that by which a

cure is effected in the compressed lung, namely, by increased respiration and increased blood and lymphatic circulation. From these factors the nutrition is bettered and this in turn protects the portion of the lung not yet affected. The site and

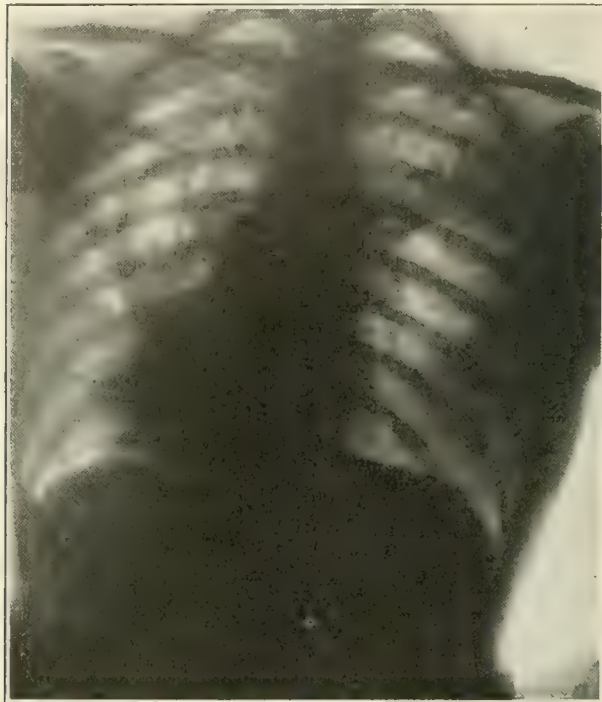


FIG. 7.—Extensive infiltration in opposite lung. Partial compression in gas lung.

nature of the lesion in the noncompressed lung is of more importance than its extent. Lesions situated in the central portion are far more dangerous than apical lesions. Old fibroid areas, arrested probably for years, give no trouble while a more recent infection of a highly active nature may be a source of great annoyance. This may be greatly aggravated by a compression, and it may be necessary in such cases to discontinue the treatment.

As yet little has been done in the compression of the early type cases. A few advocate the tying up of incipient lesions, but the majority of observers are treating the far advanced or unfavorably progressing tuberculous lesions.

Here are given indications and contraindications of a number of American and foreign authorities, which will show that in the main most of them are agreed of the type of case that should receive treatment.

Sternberg divides his patients into two groups. In one he places those with advanced unilateral tuberculosis, and in the other, those with small but rapidly advancing lesions with brisk and frequent hemorrhages. He does not believe that advanced bilateral and incipient cases are suitable for the procedure.

King and Mills have confined their work to the hopeless consumptive, or rather to those who have failed to improve under the usual routine conservative methods.

Lillingston chooses cases of extensive and acute disease of one lung in which there is only slight in-

volvement, or a complete absence of symptoms in the other; those cases failing to respond to ordinary methods even with rather extensive disease in the opposite side.

Rhodes advocates cases with the lesion limited almost, if not entirely, to one side; recurrent hemorrhage; cases with continued high fever, cough and extension of disease on one side, while the other lung is healing or only slightly affected.

Klemperer believes that the compression should be established in every case with continued fever and great expectoration, providing the condition is not too desperate, but he also states that the unilateral cases are the most favorable. Further, he does not advocate the procedure in early or otherwise favorable tuberculosis.

Robinson and Floyd choose the patient with unilateral disease, but also advise compression in slight or inactive lesion of the opposite side. These men believe that institutional or home treatment is better for the early case, and do not consider pneumothorax indicated merely because it can be readily established in such types. Lately Floyd advocates its use in early cases that have failed to respond to sanatorium treatment.

Brauer and Spengler report 102 cases with many of the good results occurring in bilateral cases.

Balboni believes the treatment ought only to be resorted to after having given a fair trial to other well known forms of treatment. This seems sound judgment providing one does not delay the compression for too long a period. Many excellent cases

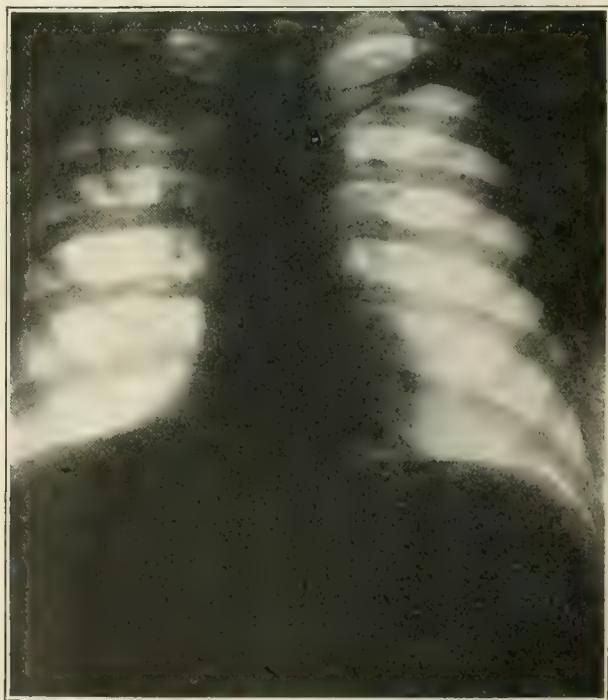


FIG. 8.—Fairly good compression, except in upper portion.

are ruined by waiting, and the patient who offered hopes of cure by earlier operation may have passed the stage when interference by compression could render him anything but a relief temporarily from distressing symptoms.

Balboni also gives as contraindications acute bilateral forms, grave cardiac or renal lesions and empyema.

Lapham says if all else has failed, if symptomatic and tuberculin treatment cannot arrest the process,

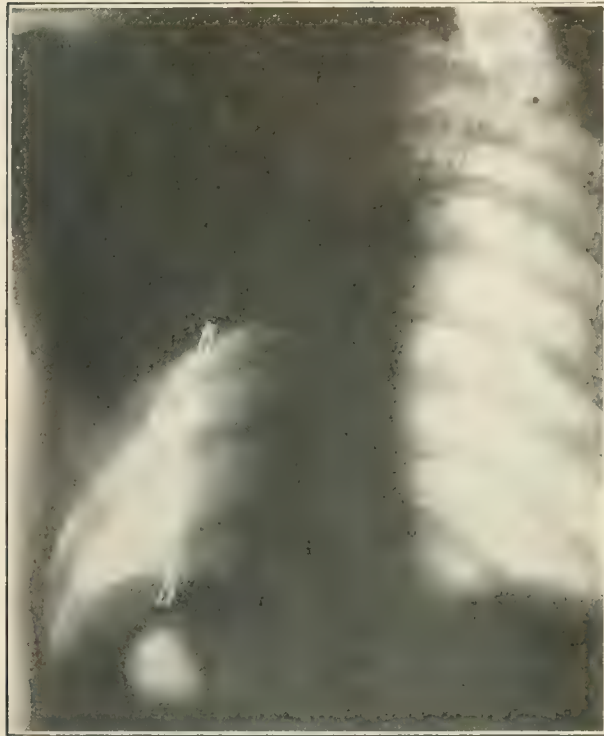


FIG. 9.—Peculiar pocket of fluid. Compressed lung shows along dotted line AB.

then the attempt to save the patient by compressing the lung would seem justified.

Just why Lapham should consider the use of tuberculin in these far advanced types as of possible benefit, I do not know. Surely I would never wait to see what possible benefit, if any, could occur to an advanced consumptive by giving him tuberculin before advising a pneumothorax.

Billon claims that the age of the patient is a point for consideration. He states that past the age of thirty-five or forty years pneumothorax is not well borne, while the most suitable period is between the age of fifteen and thirty years. Children do especially well. This age period does not seem to agree with the majority of observers. Personally, I have compressed lungs successfully in patients over those ages and do not believe his contentions are well founded.

Murphy and Lemke report 100 cases of advanced bilateral tuberculosis in which they compressed the side most affected and later the opposite. They found this method gave favorable results, and, like many others, that the lung not compressed, though involved, showed improvement by reason of compression of the opposite side. Scheppelmann claims this is due to a rest of the mediastinum which does away with the injurious mediastinal fluttering, so that the normal lung can breathe more freely and quietly.

Gray is really the most ardent advocate in

America, of the treatment of early cases. However, he is what might be termed a little enthusiastic, and, as time goes on, he may feel that this type should be given an opportunity to get well by nature's methods. His comment on results in far advanced tuberculosis is worthy of quoting. Most of us agree with his query, "Is it well to wait until the outlook is so desolate?" Is lung collapse such a desperate operation as to be used only as a last resort?"

A marked fibrosis of long standing is considered a difficult lung to compress and this can be construed as an argument for early compression, since the tendency of a far advanced tuberculosis is toward this fibroid formation. It is a very common occurrence to attempt a compression in a dense fibrosis and find that one cannot tie a lung beyond this point. True, much good may result from this partial compression inasmuch as the more recent and more active areas are put at rest, thus eliminating the absorption of toxin and giving the patient a chance to build up physically.

A fairly safe guide in all doubtful cases is to attempt the compression and if successful try the patient out for awhile to see what kind of symptomatic results one can obtain. One will be surprised at the outcome many more times than he will be disappointed.

Murphy and Kreuscher also are of the opinion that one should treat the early type case by this means. They say, "When a patient comes for the treatment of an initial hemorrhage or with an initial cough, treat him exactly as you would a tuberculosis of the spine or of any other joint—put the part at



FIG. 10.—Anterior-posterior compression.

rest. It is exactly the appendix proposition over again—namely, that the physician and surgeon are waiting for the disease to 'ripen,' to have it rich and juicy before instituting sufficient measures for its cure. Years ago in medicine this procrastina-

tion was considered an evidence of genius and conservatism. It is really a stigma of ignorance, timidity, and incompetency."

This, of course, is the surgeons' viewpoint, but is quoted to show the attitude of those who believe in

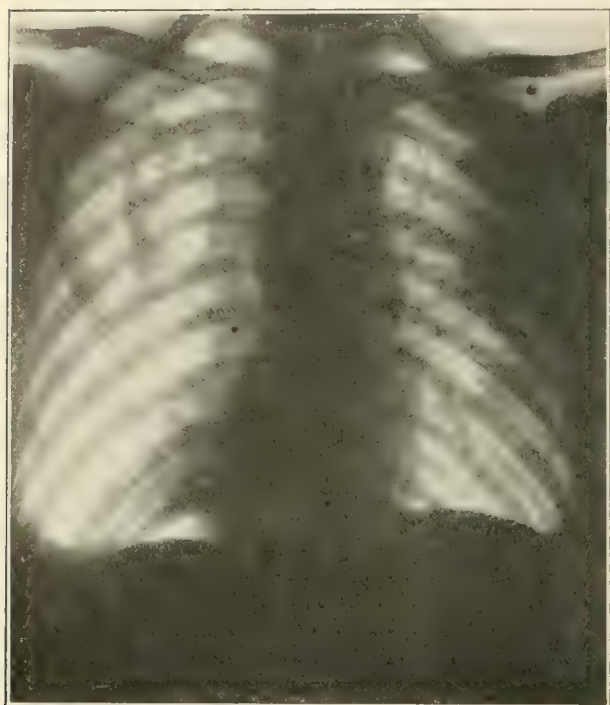


FIG. 11.—Chest before compression. Left lung showed numerous râles scattered over anterior portion.

the early treatment of pulmonary tuberculosis. And possibly the majority of men dealing with tuberculosis will some day find that this is the better and far safer time to operate. At present I do not feel that we are justified in choosing the early case, since far too many of them get well under any condition and in any climate, and as yet the serious complications are too frequent among all operators to risk the favorable type case. In the far advanced or unfavorable type, we are giving him a way out of his dilemma. In the early type, are we not possibly reversing the order of things?

At first we were told that laryngeal tuberculosis and tuberculosis of the intestinal tract were absolutely contraindications for treatment. In the early years of my work this type case was never compressed, but gradually becoming more and more familiar with the method, and having this same familiarity increase my boldness, attempts were made at various times. These attempts proved successful. And today more of us concede that the factors mentioned are not a contraindication. As a matter of fact, these throats are at times wonderfully improved, and many supposed cases of tuberculous intestines have been cured. When such a cure has occurred, however, we must assume that the diarrhea was a toxic one and after eliminating the toxemia of the patient, by the compression, the intestinal disease cured itself.

In the next chapter I shall discuss the selection of cases, going more into detail and showing by x ray photographs the types that have in many in-

stances given excellent results when the condition, from the radiograph, seemed hopeless.

CLASSIFICATION OF CASES.

From the foregoing one can readily see that the majority are agreed as to the type of case one must select. This agreement has been reached through the large experience of the profession since the reintroduction of pneumothorax work in this country. Two years ago I outlined in a paper on results, read before the National Tuberculosis Association, the general classification followed in my work, and I have had no occasion to depart from that classification.

Briefly stated, it is as follows: 1, The typical gas case, and for that reason the most favorable, is the unilateral; 2, bilateral cases with not too much trouble on the opposite side; 3, extensive trouble on both sides with hopeless outlook, and in which the lesser offender is partially compressed to relieve symptoms and, 4, compression for hemorrhage.

To make the indication more general one might say that all cases are suitable for attempted compression, that have been under observation for some time and show no impairment or progression under the usual routine. This last statement, however, presupposes that the opposite lung offers reasonable chances of doing the increased work. Otherwise the case would not come under general gas considerations.

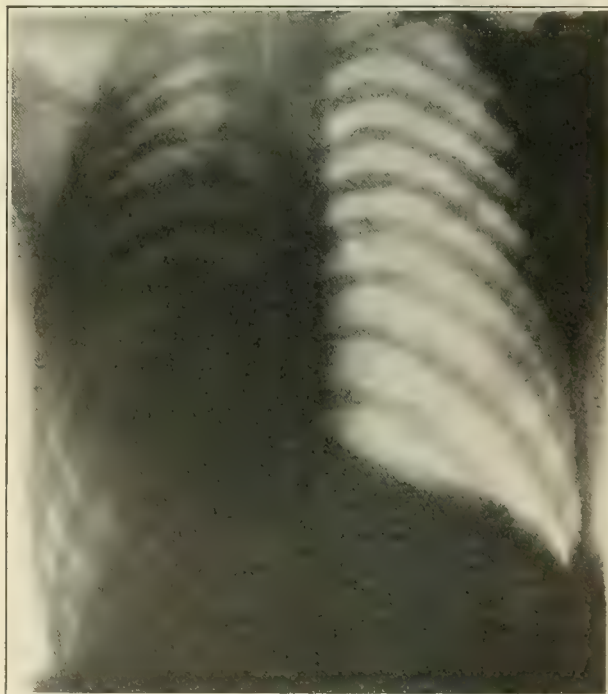


FIG. 12.—Compression held by fluid. Note beginning absorption in base, with greatest density in centre. This may account for peculiar pocketing seen in Fig. 9. Both of these chests showed fluid formation at one time extending to the base.

Now let us consider these types more in detail.

If one were to confine the pneumothorax work to unilateral cases, the field of compression would be extremely limited, unless, of course, one favors the compression of early tuberculosis. This I do not consider justifiable with our present knowledge

of the treatment and its results, and for that reason condemn its use. As stated previously my experience in incipient cases is confined to one patient, and this man was compressed because of his financial condition. Probably, where it is necessary for a given individual to be put upon a sound footing for earning his livelihood, one might be excused for tying up an incipient lesion. From personal experience, however, this argument could not even be advanced. The same patient might have handled his tuberculosis and work without the pneumothorax as well as he might had the lung been compressed. Time may teach us much of the things that we ought to know, but until such knowledge is gained, it is far more wise to play a conservative game than to be carried away by our enthusiasm, and in so doing work harm to the individual and throw the pendulum of pneumothorax backward rather than increase its power for good.

In checking up the selection of cases by means of radiographs, one is even more surprised at the number of apparently normal opposite lungs that show more or less scarification or areas of fibrosis. These areas are so scattered and the number of normal alveoli so numerous that little, if any, change, is noted in physical examination. Of course this has little bearing on the compression, for we are all agreed that small areas of fibrosis in the noncompressed lung are of little consequence. The fact is cited merely to call one's attention to the relatively few unilateral cases.

On the other hand, many times one is surprised to find rapid disappearance of what was taken for a fairly well developed lesion of the opposite lung. This is well illustrated in detail under the head of general considerations. Here a patient was kept under observation seven months before pneumothorax was attempted, simply because of persistent râles over the better lung. X ray examination, after he was moved to my institution, showed a perfectly normal lung on the opposite side, and subsequent compression of the diseased lung proved this. The râles disappeared after a few fillings, showing that they were merely transmitted. This patient is still under treatment and there has been no recurrence of the findings in the noncompressed side.

The bilateral cases are the most common, and here enters the necessity for the exercise of great care and discrimination. If we are to benefit any given individual we must be sure that the selection is a wise one. The early attempts were discouraging due to the promiscuous choice of just this type case. On the other hand, it is surprising how many apparently hopeless cases have been turned into those with every reason to expect a happy outcome. It may be well here to cite a few cases in which the prognosis was apparently hopeless, and show the result obtained by a compression.

A physician who had been under observation for nine months, with daily maximum temperature of 102°, rapid pulse, marked emaciation, weight 125, night sweats, slight blood spitting, and all the symptoms of general toxemia. The right lung showed a dense consolidation of the upper lobe, with active infiltration of the middle and lower lobe; left lung

active infiltration apex to sixth rib, anterior, and ninth dorsal vertebra, posterior. He was told that the prognosis was very unfavorable and he, himself, suggested pneumothorax. This was reluctantly attempted. A free pleural space was found, and gradually a most excellent compression was obtained. For awhile there was little change in the fever curve, but the activity in the opposite side began to diminish rapidly. After six weeks' treatment the temperature was normal and the patient was soon able to be about. At the end of three months he was acting as my assistant. The improvement continued until fluid developed when the temperature ran high, again reaching 103°. After a month he was called home and returned to the Middle West, before the temperature had become normal, or the fluid had been absorbed. However, this did not seem to hinder his improvement. His reports were very gratifying, and at the end of a year he was perfectly well, weighing 180 pounds and working every day. This patient was first operated upon three years ago, and at this time is still well and able to follow his vocation.

A nurse, who is still continuing the treatment, was first seen two and a half years ago. She was placed under observation for a few months to no effect. The temperature still continued high and the patient was rapidly losing out. The right lung showed dense fibrosis, upper lobe with cavity formation, numerous moist râles over entire area and an infiltration of middle lobe which was very active; left upper to third rib, anterior, and to the hilus, posterior, showed a moderate amount of activity. Pneumothorax was advised, and a good compression obtained. The temperature became normal after three months and remained so until the formation of fluid, at the end of a year. The temperature, as a result of fluid, did not run high and in a short time was normal again. This same patient has had recurrent attacks with fluid formation, with slight rise of fever, but never enough to be an inconvenience long at a time. She has been doing private nursing for over a year, and the noncompressed lung, although not entirely well, is much better. In this case I feel that the compression should be kept up indefinitely, inasmuch as the fillings are a month apart. And further, I know she can work under the present conditions, while I am not sure what might happen if we let the compression go.

As a matter of fact, in far advanced cases with apparently a hopeless prognosis before compression was attempted, it seems the better part of wisdom to continue the gas. These patients, with but few exceptions, can report once a month for fillings and then go the even tenor of their way. No doubt many of these same lungs could be permanently healed and might remain so even without the compression, but why take chances? A few that have been under observation after discontinuance of treatment have relapsed. We know that by keeping up the gas indefinitely these relapses probably will not occur. The occasional filling is a small price to pay for freedom from an extensive tuberculosis. And if it meant gas for the remainder of a lifetime, is it not worth while?

The following history reads like a fairy tale and might well adorn a patent medicine advertisement: This patient had been in the sanatorium for six months with a rapidly progressive lesion, but only a small scar on the opposite lung. During the course of routine treatment, typhoid fever developed and ran the natural course. At the end of this came a natural pneumothorax, valvular in nature, which apparently healed. Following this healing pleurisy with effusion developed. This man was a large individual and in two sittings on alternate days seven quarts were removed. This effusion was serous and was removed because of pressure symptoms. The fluid was replaced by air and the lung compression thus maintained. The natural pneumothorax must have healed, since at no time in his subsequent history did pus develop. The artificial pneumothorax was continued for eighteen months when the patient was discharged. That was four years ago and today he is in excellent health. For the past three years he has been driving a taxi and is exposed to all kinds of weather conditions and late hours. He has been seen at intervals during this time and his lung is in good condition. There is plenty of evidence of fibrosis, yet a fair amount of breathable tissue. (See Fig. 18.)

A glance at the radiographs will also give one some idea of the extensive trouble one meets in the opposite lung, and also the condition in the lung to be compressed. Here, too, one can obtain an idea of the fair degree of compression, even in lungs showing considerable fibrosis. In Fig. 6, the compression kept the patient's temperature down to 99.5° for months and no doubt would ultimately have given us a fair result had he not died of hemorrhage from the opposite lung.

In Fig. 7 the active trouble as evidenced by râles throughout the upper lobe in the right side has subsided and the patient, although still under treatment, is doing exceedingly well. Her temperature runs normal and she is able to nurse an invalid sister.

In Fig. 8 the compression was established before coming to Albuquerque, and we have no record of the lung before the pneumothorax. The plate is shown merely to call attention to the large amount of trouble in the noncompressed lung; and yet the patient's life was prolonged for months, giving him a marked relief from symptoms. The progress, of course, is hopeless, but his last days are made much easier by virtue of the compression.

In a former reference partial compression was condemned, since that referred to partial compression for relief of symptoms and with the expectation of cure. As stated there, if such a method were logical then the entire framework upon which pneumothorax is based falls to the ground—that of complete immobilization. But still there is no reason why a partial compression for relief of distressing cough, fever, and excessive secretions, is not justifiable in patients with extensive trouble in both sides and with a hopeless outlook. In many cases great relief has been experienced by the patient, and the comfort thus obtained is wonderful. One must, of course, let it be understood that the end sought is merely the relief from these symptoms, and not the

attempt at cure or arrest. Otherwise the ultimate death of the patient will only add fuel to the fire and give the opponents of pneumothorax a new impetus with which to attack the method. And Heaven forbid that we add to the list of knockers! Only recently a patient, for whom gas was advised, said, "Doctor, I would take it at once if you could show me some one who has made an arrest under the treatment." Her idea was that any one on whom a compression had been attempted had been absolute failures. She had only heard of the unsuccessful cases—but her friends had failed to mention those more fortunate.

Hemorrhage cases offer a fertile field for pneumothorax work. There is no one complication in tuberculosis that gives one greater cause for worry than the persistent bleeder. One cannot understand the medical mind that believes a hemorrhage case offers better opportunities for cure than one not subject to such bleeding. The only time a hemorrhage can be considered at all a favorable symptom, is the so called initial hemorrhage, which puts fear into the early consumptive and sends him to a doctor. Here again we have the personal equation. If he be a capable physician, that patient is given the opportunity to get well, but if he be one who believes the hemorrhage comes from any conceivable nook of that person's anatomy but his lungs, then God help the unfortunate patient, and we might justly add—damn the doctor.

As a rule, however, it is not this initial hemorrhage with which we have to deal. The patient for whom compression is considered has usually been under our observation for sometime. If this be the case, we have already had ample opportunity to know the opposite lung. Ordinarily we are not justified in using compression for hemorrhage unless the bleeding is severe at the time the hemorrhage occurs. It is much better to wait until the interval between. Then the compression can be established as in any other case—slowly. If done while the patient is bleeding it must be done rapidly and many times to the detriment of the patient. Let me cite a case that had been under the care of a physician in the East for three years. During all this time the man could never attempt anything without marked blood spitting. He had been advised concerning gas, but the doctor told him that his bleeding was not severe enough to warrant a compression. Later he referred him to me, thinking the change of climate might prove beneficial. He was watched for a month and during this time kept up a continual blood spitting with a series of rather profuse hemorrhages. This led me to advise pneumothorax, and a compression was done. The lung was rapidly tied up and the bleeding stopped. However, an area as large as the palm of the hand, around the hilus could not be squeezed tight, and at the end of seven days a hemorrhage occurred from this area. The result was a bronchopneumonia on the good side which ended in the death of the patient. This case is cited to show the possibilities of failure if a complete compression cannot be established; and not only failure from the standpoint of prevention of bleeding but fatal results from the aspiration of blood into the other

lung with consequent pneumonia or suffocation from lack of air space. I have compressed a number of patients during hemorrhage but far better end results can be obtained if this compression is done during the interval. There are very few patients with history of bleeding that do not show recurrences, and in such cases it is far better to advise pneumothorax than to keep putting it off, hoping the present series will be the last. Nothing can be gained by such procrastination, and in many instances one sees a large hemorrhage which rapidly proves fatal.

In only four instances have patients, compressed for hemorrhage, died later from such a complication. In two of these cases the bleeding came from the opposite lung and in two death was due to a bronchopneumonia following aspiration of blood. In those bleeding from the opposite side, the direct cause of death is suffocation. The main bronchi are rapidly filled with blood and it is impossible for air to enter the healthy lung. Death comes too quickly for them to die from loss of blood, but the end result is the same.

The following case shows how much good can be accomplished by a satisfactory compression. The radiograph, Fig. 9, shows the degree of compression obtained and also a peculiar pocket of fluid. This patient had been in New Mexico a year and had then gone to Denver, for another twelve months. During this time he had attempted the practice of law, but without success from a health standpoint. One hemorrhage would follow another at short intervals. At last he decided to try the rest cure. He came to Albuquerque and was placed in a sanatorium where he was kept under observation for seven months. For the greater part of the time he was in bed because of hemorrhages. I hesitated about compressing the bleeding lung because of the extensive trouble on the opposite side. However, it came to the point where either success must be attained by means of pneumothorax or failure by routine methods. A compression was advised and successfully performed. That was three and a half years ago and for the past year the patient has been working. The active process in the noncompressed lung subsided leaving, as can be seen from the radiograph, a large amount of fibrosis. During this period he had an attack of typhoid fever, running a temperature as high as 105° F. It was six weeks before the curve came to normal, but never at any time did his pulmonary condition light up. This man still continues his pneumothorax and I have advised that it be kept up indefinitely. There seems to be no real reason for taking chances with such a patient as his history shows him to have been.

There never could be the least doubt in the mind of any physician who had treated hemorrhages by the usual routine and then by the pneumothorax method as to which was the more efficacious. Compression results speak for themselves—there is no guesswork, while the countless numbers of other sure remedies advocated for pulmonary hemorrhage cry aloud to the world that, as yet, there is no specific, and unless artificial pneumothorax is given its just place in the management of such cases, pulmonary hemorrhage will continue to take its toll of lives.

(To be continued.)

CIRCULATORY COMPLICATIONS IN INFLUENZA.

Notes on the Present Epidemic in the United States Marine Hospital, Stapleton, N. Y.

By Z. I. SABSHIN, M. D.,

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The influenza epidemic, or its recrudescence, is still a daily puzzle to the medical profession. We not only do not know the etiology of this clinical syndrome, but there are already appearing signs of despondency in regard to its early discovery. This impression is partly obtained from the late statements by some of our professional authorities that the present spectacular and treacherous disease is caused probably by a "filterable virus." To me this is a negative description. Heretical as it may sound, I think it is simply a nicer way of telling that we do not know, or that with our present means and ways of investigation we cannot find it, the difference being that the above named negative description may have an evil effect in a way of slowing up the research spirit of the profession. None of the group of diseases, now accepted to be caused by a filterable virus, is coming in such gigantic pandemics, and none of them have such a low grade of immunization, with repeated attacks in the same individual within four to twelve weeks after the primary one, as it is the case with the present epidemic.

Whatever the etiology, whether a mixed infection, a specific plaguelike microorganism, or an ultra-microscopical toxin, and with the noted variation in the intensity of the individual attack from a very mild to a fearfully malignant disease; close bedside study shows one general feature, namely, that the circulatory system is the primary seat of complications, in some form or other. This we find, first, during the acute stages, second, in the course of convalescence, and finally, patients now come to the wards with a chief complaint and findings of some circulatory disturbance and with a history of recent influenza. It is these circulatory involvements, complications, and sequelæ that we intend to report here from the purely clinical point of view, with the hope that further studies will be continued until the problem of the present epidemic will be solved to a practical end.

THE GREATER CIRCULATION.

Observations show that the greatest mortality of this epidemic, and mostly in a direct way, is due to acute cardiac or general circulatory complications. We are usually too busy with the local pulmonary findings to note that the nervous control of the entire circulatory apparatus is paralyzed very early in the acute stage of the disease, with a simultaneous toxic weakening of the cardiac musculature. We first make a diagnosis of some form of pneumonitis, and then have a fear, in an unconscious manner, of cardiac failure, while in reality it is chiefly the circulatory disturbance that is the primary cause of death, the other phenomena being secondary. This, we base upon a group of signs and symptoms, wholly or partially present during the attack, and some of which remain for an indefinite period. During the acute stage these are: slow pulse, compara-

tively low blood pressure, arrhythmias, murmurs, diffuse apex beat, feeble cardiac sounds, pain over the precordium, associated with cold extremities, cyanosis, sweating and dilated pupils. During convalescence and frequently long thereafter we find feeble cardiac sounds, diffuse apex beat, irregular variations in the pulse rate, stenocardia, shortness of breath with ordinary exertion, and general signs of neurocirculatory asthenia. The dilated and sluggishly reacting pupils, the low blood pressure, the frequent arrhythmias, the stenocardia, and the resulting cardiac neurosis in cases recovering, all point markedly to a vasomotor paralysis. On the other hand, the feeble cardiac sounds, the diffuse apex beat of a vibrating nature, all speak against a normal condition of the cardiac muscle after recovery from the acute stage.

The influenza heart suffers more than the physical signs may possibly show. Case after case demonstrates feeble cardiac action and variations in the quality and rate of the pulse. The slow pulse is remarkable in proportion to the fever during the acute stage. A temperature of 40° C., with pulse rate of 90 is very common. To me it points out a vasomotor depression, as well as a toxic influence upon the heart muscle itself. Failure on the part of the adaptability of the circulatory mechanism is also seen in the rapid and surprising change of the pulse rate in convalescing patients. Just walking through the ward, to and fro, is enough to convert a bradycardial pulse of 50 to 100 or higher, lasting for a short while. I have tried in a number of these patients hypodermic injections of atropine, counting the pulse before and every ten to fifteen minutes for an hour or longer after the injection. Atropine is supposed to paralyze the vagal nerve endings of the heart, thus removing the inhibitory influence and producing an acceleration of the pulse rate every time a bradycardia is due to a vagal inhibition. In these cases, however, I have not recorded a single increase in the pulse rate, and conclude that the slow pulse in the influenza convalescence is probably due to changes in the cardiac muscle itself. Indeed, it is surprising to see patients, healthy and robust individuals previous to the influenza, almost crippled as far as exertion is concerned. Some of them give no definite subjective complaints. Others have returned from a leave of absence, to recuperate, for three to four weeks, with palpitation, shortness of breath and are easily tired on ordinary exertion. Some patients display a flush in their face with ordinary exercise. At one time I had two war risk patients; both were discharged from the army for physical disability; both gave definite signs of cardiac disease, and one of them had this trouble follow diphtheria, while the other had the same complaint follow influenza. All these clinical observations point very distinctly to the fact that the circulatory apparatus is deranged or damaged, and that the degree of this disturbance varies directly with the intensity of the acute course of the influenza.

THE LESSER CIRCULATION.

Notably the present epidemic was characterized by a toxic hemorrhagic pulmonary edema, first localized and then growing more extensive. With

evidence of circulatory failure during the acute stage of influenza, we always found some physical signs of local pulmonary disturbance. These findings varied from a mild bronchitis to lobar or lobular pneumonia, and pulmonary edema in the fatal cases. The findings, however, were not clear cut; the pneumonias, with some exception, are not classical; bubbling and crackling râles were demonstrated on the second day of the onset of the disease, and pulmonary edema developed so rapidly, that we were again inclined to think of a vasomotor paralysis to be the mediate cause of the fatal termination. As a matter of reason, the improvement of the pulse and the general condition of the patient occurring so wonderfully with the crisis in pneumonias, was by no means due to a sudden local change in the anatomy of the lungs, but rather to some change in the nervous control of the circulatory mechanism—so we similarly believe that the rapid fatal cases of influenza are not due to the local anatomical findings, pathological as they may be, but to primary circulatory failure, to which the pulmonary changes are but secondary. Under normal circumstances the vasomotor system regulates the size of the vascular bed, so that the distribution of the blood is proportional to the need of each of the organs. This system also controls the necessary arterial blood pressure in the various parts of our body. Now, bedside study of the influenza suggests a failure of this system. What is the usual picture? A lowered blood pressure, nonproportional adjustment of the blood supply, accumulation of blood in the pulmonary and other capillaries, transudate formations, a general congestion with epistaxis, hemoptosis, hematemesis, melena, menorrhagia, metrorrhagia, hematuria, cold sweats, cyanosis, and death.

If the nervous equipment of the heart, in fair shape at that time, can speed up the circulation, fatal termination is either delayed or avoided. In such cases the toxin of the original infection, whatever it may be, paves the way for various other infections, resulting in some or other form of pneumonia. Occasionally there is an irregularly protracted acute course, and frequently a prolonged afebrile course of slow convalescence, after an ordinary acute stage. The patient survives, but complete recovery from such a course is a special privilege, the lesser circulation remaining damaged as well as the greater. The striking clinical feature is congestion. This congestion we consider to be of an active rather than passive nature. Its early appearance in all mucous linings, and in the form of bubbling and crackling râles in the lungs, which last long after the acute stage is over, with no swellings or edemas anywhere else in the body, is in favor of its active origin, more probable than a result of, or part of a myocardial inefficiency, even if such be present to some degree. Only one of our patients displayed subjective and objective signs of a cardionephritis, with a high percentage of albuminuria and a beginning general edema. No one can state definitely whether the heart or kidneys were damaged first in this patient, who came in with a fever and course of an ordinary influenza, and the cardionephritic symptoms developed in a slow

course of convalescence of over three months. The pulmonary congestion may be aggravated passively later, but primarily it is an active phenomenon, a result of a general cardiovascular and vasomotor paralysis, partial if not total.

The observations show that this congestion is becoming a chronic factor in many cases, a cause of suffering to the patient and a diagnostic puzzle to the doctor. On one hand we have a record of definite pulmonary tuberculosis revived with the attack of influenza. On the other hand we now have a group of cases coming in complaining of a cough, expectoration and general weakness. Physical examination shows slight dullness, bronchovesicular breathing, diminished intensity of the normal breath sounds, sibilant and sonorous râles; fremitus is about normal; an expectoration of greenish, tenacious and occasionally purulent nature; the quantity of the sputum varies, one of our patients expectorated a pint and over every twenty-four hours. I confess that there is some difficulty in making a diagnosis in these cases. Are they tuberculous? The history obtained is negative, except for the important fact that the patient had influenza recently. The physical findings are very suggestive of tuberculosis, but the bacteriological examination of the sputum is negative for the tubercle bacillus. The x rays of these cases are also indefinite. A remarkable feature frequently shown by the x ray is the presence of pleuritic adhesions, in some cases together with pericardial. This was demonstrated on the postmortem table by a number of the protracted and fatal cases, some to a very marked degree, with the pleura, pericardium and bronchi representing one mass, and in the toxic cases this mass floating in free blood. The rationale and the order of events taking place, to my mind, is as follows: A vasomotor paralysis, local or central, an active congestion; a toxic hemorrhagic edema; a rapid process of destruction with probable threatening of perforation of the viscus, in which case nature, as usual, tries to protect itself by fibrinous exudates, thereby forming adhesions. This results in protracting recovery; in the delay of clearing up of the lungs; the cough, expectoration, pus formation, and simulation of and predisposing to tuberculosis. We may call it chronic influenza, for the reason that the original toxin may still take part in this process of a chronic diffuse bronchitis.

THE RENAL CIRCULATION.

The quantity of urinary secretion during the acute stage of influenza is notably decreased. Here and there a patient himself or the nurse would call my attention to the fact of the patient not voiding since admission or for any other abnormal period during the course of the disease, with no findings of a full bladder. All these patients were given water to drink freely, some had taken large quantities, with no increase in the urinary output. Here again I explain it by the circulatory disturbance occurring in the kidneys, of a direct or reflex origin. With the fall or reduction in the general arterial blood pressure, resulting from the widespread vasomotor depression, there is, consequently, a diminished renal circulation, the quantity of blood flowing through the kidneys is diminished,

and therefore the urinary output is reduced. Albuminuria is noted to be very common in the influenza cases, varying from a faint trace to definite quantities. I find the postmortem reports in regard to the kidneys doubtful for nephritis; congestion is the usual finding. In only one patient, whose urine gave six per cent. of albumin per litre, I found the kidneys to weigh 450 grams, and a microscopical report resting between a marked congestion and an acute hemorrhagic nephritis. This congestion of the kidneys interferes with the functions of the various renal cells, resulting in the albuminurias. In the toxic cases where the circulatory disturbance is very marked, the renal cells are becoming degenerated; the albuminuria high, and occasionally a hematuria. I think of the local renal changes as of a toxic congestion, rather than a real nephritis.

Before concluding this paper I wish to say a few words in regard to treatment in connection with the present epidemic. The most essential feature I want to bring out is the fact that I know how to treat a case of influenza only for the first twenty-four to forty-eight hours, that is, I think I know, and after that period I confess to find myself in a realm of doubt, hesitation, or the empirical use of drugs. The following few points I did learn to be of some benefit. Atropine hypodermically in doses of 1/100 grain to one seventy-fifth grain every three to four hours surely postpones, if it does not prevent a pulmonary edema in many cases. Strychnine seemed to keep up the blood pressure in some patients. We have used this drug together with digitalin; but have not enough data to make definite statements. Morphine and codeine, though avoided by many practitioners, both give comfort and general satisfaction. The cough is relieved, excitability lessened, pain diminished, the patient can breathe deeper and circulation improves. As to the question of heat or cold, I found that hot applications very frequently gave more satisfaction, than cold ones; even in some cases of abdominal pain, where the icebag is the usual remedy, a hot water bottle gave more relief.

SUMMARY.

With the caution in mind that we are dealing with a rather limited class of patients, males of all ages above eighteen, most of them sailors, we are greatly inclined toward the following conclusions:

1. Influenza is a toxemia of various degrees, with special localization in the circulatory mechanism.
2. In the malignant cases there is a primary paralysis of the vasomotor system, resulting in congestion and hemorrhages internally and externally through all parts of the body.
3. Complete recovery from the toxic and protracted febrile course is doubtful, as the congestion favors secondary infections, adhesions and chronic cardiocirculatory disturbance.
4. Influenza is to be added to the classical list of diseases affecting the heart.
5. The entire circulatory apparatus being deranged, the therapeutic indication is to improve the circulation by stimulants during the acute stage, support during convalescence, and careful resumption of usual occupation thereafter.

JOINT HYPOTONIA.

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It was my good fortune to have a case of joint hypotonia under my observation at the Hospital for Deformities and Joint Diseases, the second of its kind to be reported in the literature, the first being reported by Dr. H. Finkelstein (1). The reason the child was brought to the clinic was that when he stood, he did so in a markedly pronated position. No other abnormality was noticed by the mother and as the child had only just begun to walk, holding on to chairs for support, no particular peculiarity in gait was noticed.

CASE.—H. A., male, seventeen months old. *Family history.*—Mother and father, alive and well. The grandfather and uncle, on father's side, had trouble with their feet similar to patient's. On the mother's side the history is negative. There were no other children. No miscarriages. Exami-



FIG. 1.—Extreme flexion at wrists.



FIG. 2.—Hyperextension at wrists.

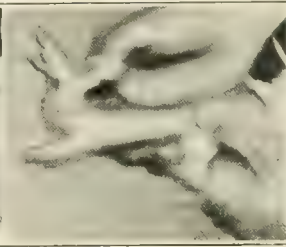


FIG. 3.—Hyperextension of fingers.

nation of the mother and father present no abnormalities.

Previous history.—Child was a full term baby, born naturally, and weighed seven and one half pounds at birth. Breast fed for sixteen months. First tooth appeared when child was four and one half months old. Patient was unable to hold up his head until eight months old. Sat up soon after and stood alone when fourteen months old. At present the child is able to walk only when holding on to a chair. It is not a true walk but a side shuffle and therefore no peculiarity was noticed in the gait. Child began talking when nine months old.



FIG. 4.—Marked dorsiflexion at ankle.

Physical examination.—Child well developed; weight twenty-seven pounds; skin, negative; eyes, pupils equal, react to light and accommodation; nose and throat, negative; teeth in good condition; no tumors or glands seen or palpable in the neck;

no pulsations seen; heart and lungs, negative; there is a slight rachitic rosary on the chest but other symptoms of rickets were not observed; liver and spleen, not palpable; upper extremities, shoulder joints normal; adduction and abduction of the elbows, with forearm extended on the arm, is possible with a range of motion of about 5° either way. Flexion and extension appear normal. The forearm may be pronated about 10° more than normal. Supination normal. The dorsum of the hand can be approximated to the dorsum of the forearm (Fig. 2) and the palm of the hand can be placed on the anterior surface of the forearm (Fig. 1). Pronation and supination of the wrist proper is possible in an arc of about 120° . In the fingers this unusual degree of flexion and extension is present (Fig. 3). Lower extremities, examination of the hips shows a double congenital dislocation which is confirmed by x ray (Fig. 9); flexion of the knees is normal. Hyperextension is very mild. Internal and external rotation are possible to an extent of 90° (Figs. 6 and 7); on dorsiflexion the entire foot including the toes can be placed on the crest of the tibia (Fig. 4). In plantar flexion the planes of the foot and leg are in one straight line (Fig. 6). Eversion and inversion are markedly increased (Figs. 5 and 7). The same degree of mobility was present in the metatarsophalangeal joints (Figs. 6 and 7). Rotation of the head upon the neck shows that the point of the chin reaches a point about 30° posterior to the shoulder. All normal reflexes were present. There was neither a quantitative nor a qualitative reaction of degeneration when the faradic and galvanic currents were applied. No pathological reflexes were elicited.



FIG. 5.—Marked eversion at ankles.



FIG. 6.—Internal rotation at knee and increased plantar flexion.

FIG. 7.—External rotation at knee and hyperextension of toes.

Summary.—This case agrees in practically all particulars with the one reported by Doctor Finkelstein, viz.; 1. It is both congenital and familial. In

my case it is familial on the father's side; in Doctor Finkelstein's on the mother's. Again in Doctor Finkelstein's case it was a girl and in mine a boy. Whether this condition is hereditary through the same sex remains to be seen, but from the two cases



FIG. 8. Marked increase of rotation of head.

reported this, seemed to be the case; 2, the muscle power seemed normal; 3, the reflexes were present; 4, there was no reaction of degeneration; 5, involve-

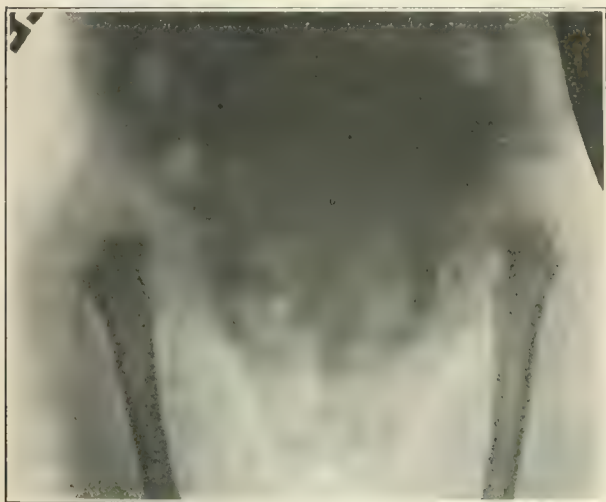


FIG. 9.—Double congenital dislocation of the hips.

ment of the bone was not present and 6, practically every joint of the body was involved.

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Technic of Operation for Intestinal Intussusception.—L. von Mieczkowski (*Zentralblatt für Chirurgie*, 1918, No. 19) says that in cases of carcinoma of the large intestine with complete invagination of the gut, he first places a circular ligature close to the neck of the invagination and then makes the incision. Through this incision he strangulates the inner tube of gut with a large silk thread. The invaginated portion undergoes gangrene and becomes spontaneously eliminated.

PERSONAL OBSERVATIONS OF MILITARY SURGERY AT THE BELGIAN FRONT.*

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In order to convey a clear understanding of most of the subject matter of this article, it will be necessary to explain somewhat the conditions under which my experiences in the war zone were gained. During the winter of 1917-18 it was my privilege to serve several months on the staff of the Ambulance de l'Océan at La Panne, situated in that very small portion of Belgium, held by the Allies. Every portion of this little triangle, ten miles on the North Sea and running back twenty-five miles to the Franco-Belgian border, was commanded by the German guns, which frequently shelled ten miles beyond this area into the town of Dunkirk in France.

This well equipped and modern Belgian military hospital of 1,000 beds was situated only five miles back of the trenches and served the surgical needs of a large sector of the Belgian front. It owed its being to the farseeing wisdom of the well known Dr. A. De Page, surgeon to the King of the Belgians, who lived in Brussels in peace times. He was the pioneer in establishing training schools for nurses in Belgium before the war. It was he who brought the lamented and unfortunate Edith Cavell to Brussels to establish a training school for nurses to care for the sick in Belgian hospitals. Some of the graduates of this school were serving in the ambulance at La Panne during my stay there.

Before the wounded were received at La Panne there had been merely an occlusive dressing applied by the regimental surgeon in the first aid station. No attempt was made at this point to sterilize the wound or to undertake any operation save the control of hemorrhage as facilities were lacking at the immediate front. Experience has shown the wisdom of this.

The different departments of the ambulance were housed in forty-six buildings. Doctor De Page had a few cardinal points in mind in its foundation. He planned, first, that it be large, having at least 1,000 beds, as this led to economy in administration; then, it should be a combination of base hospital and front line hospital which the stabilization of the Belgian front permitted; also, the different services should be clearly defined in their scope and directed solely by one person especially competent; it was also important that there should be as much as possible an absence of red tape, the great drawback to so many military hospitals, often making the treatment of the wounded a matter of secondary importance; finally, the hospital should also be located as near as possible to the firing line, as much of the success in treatment depends on the rapidity with which the wounded receive their first operative care. Another excellent feature of this institution was the holding of fre-

*Address delivered at the meeting of the Brooklyn Medical Association, January 8, 1919.

quent lectures by the surgical staff in which the surgical procedures deduced from the abundant experience of the operators were explained for the advantage of the Belgian and French Army surgeons in this sector.

The hospital was equipped by the Belgian Red



FIG. 1.—Gas gangrene. Showing incisions for the escape of gas and direct oxygenation of the infected tissues.

Cross and the entire administration was under the direction and control of the *Service de Santé* of the Belgian Army and all of the personnel were militarized. There were fifty surgeons on the staff and the cases were apportioned after the following plan: On the arrival of the patient at the hospital he was placed in the reception pavilion, containing fifty beds, where he was bathed, given tetanus antitoxin, examined radioscopically if necessary, and his wound redressed. If admitted at night and it was imperatively demanded, an immediate operation was performed in this pavilion which contained two operating rooms, one of which was arranged with a special table, permitting surgical procedures for the removal of foreign bodies under röntgen rays. Much attention was given in this ward to the destruction of vermin on the bodies and clothing of the wounded. The hair of the men was closely cut, and the uniform and body linen sent to the disinfection plant. There were several electrically heated beds in this ward for shock cases.

There were five surgical services. In the central pavilion, the old Hotel de l'Océan, officers were treated. The fracture cases were in another pavilion, head and spinal injuries in a third, injuries of the soft parts in a fourth, and joint injuries in a fifth. There were six operating rooms, completely and modernly equipped, lighted by electricity and each containing three to five operating tables. Each was also furnished with a large electric magnet for the determination and removal of foreign bodies.

Doctor De Page had a fixed day for the inspection of these various services, and all the gravely wounded patients came under his personal and immediate supervision. There were two laboratories, a clinical one in which were made the bacterial counts from smears of the wounds, according to the Carrel method, examination of pus, prepara-

tion of vaccine, examination of blood cultures, of spinal fluid, and all pathological exudates, and of urine, gastric juice and feces, and equipment for the Wassermann and Widal reactions. Nearly four thousand examinations and analyses were made in this laboratory monthly. In the other laboratory, the Marie De Page Laboratory, research work to an advanced degree was instituted and many surgical problems were worked out and an intensive study was made of the healing of wounds so as to suggest plans of treatment. Many valuable additions to pathology and the treatment of surgical conditions will undoubtedly result from the work of this laboratory.

Mention should be made of an advance surgical post, operated in conjunction with this hospital, for laparotomies and operations of extreme urgency. It was situated about five kilometres behind the Dixmude front. It was originally a tented hospital when first established in 1916, but at the time of my visit in 1917, these tents had been replaced in part by demountable buildings. It contained fourteen beds, was electrically lighted and heated, and included a room for röntgenology. Its personnel consisted of a chief surgeon, two assistants, two nurses, four orderlies, three mechanics, and a cook. A branch canal passing in the immediate vicinity of this post permitted ideal transportation by water from the front line trenches. The laparotomy cases, after a stay of four or five days, were transferred to the main hospital in a special ambulance furnished with a bed suspended on springs to eliminate jolting as far as possible. In this post the proportion of recoveries from abdominal wounds was fifty-seven per cent., a figure which, so far as the writer knows, has not been approached elsewhere.

In spite of the fact that exception may be taken to this statement, many of the advances in surgical technic acquired in this war will be of great value in the treatment of wounds in civil surgery, although the conditions under which these war

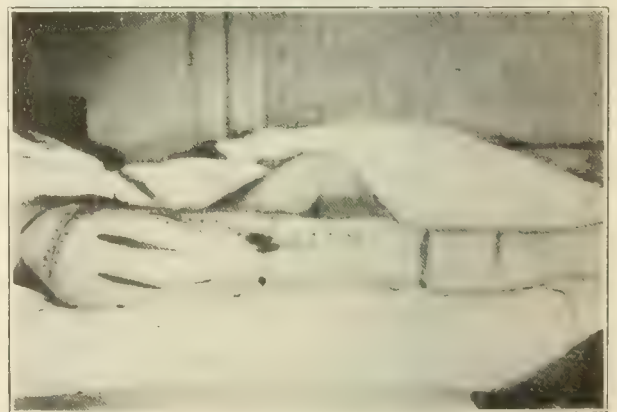


FIG. 2.—Gas gangrene. Showing the case in Fig. 1, after sutures have been placed.

wounds were received are only partially simulated in civil life. They may be listed as follows:

I. The imperative necessity in all contused wounds, especially those contaminated by the soil, of the use of the tetanus antitoxin and especially in subsequent secondary operations, as for instance

the suturing of a nerve or the removal of a sequestrum. It was discovered that a second injection of antitetanus serum in later procedures of a surgical nature was necessary because spores of the *Bacillus tetanus* might have been left in the wound even if



FIG. 3.—Hernia of brain.

cicatrized and in the necessary traumatism caused by secondary surgical intervention these spores, because of conditions favorable to their growth became full grown organisms, and symptoms of tetanus appeared. This knowledge was gained from experience with many cases of tetanus, developing some weeks after antitoxin had been given and in which secondary operation had been performed.

II. This war has taught the extreme importance of the thorough mechanical cleansing of wounds. I have no doubt that in many large wounds from now on, if the contused and devitalized tissues are thoroughly removed, immediate suture with primary healing can be expected.

III. We have also learned of the comparative safety with which treatment of injuries of the lung and the removal of foreign bodies can be accomplished by surgical methods. Major Pierre Duval, of the French army medical corps, who has been the pioneer in this work, has laid down some very important rules which experience has shown can be of great value in the surgery of civil life.

IV. Too much stress cannot be laid on the great importance of using Blake's method of treatment of fractures of the extremities by means of suspension and traction. Doctor Blake maintains, and it coincides with my experience, that by elevation of the limb there is produced a rapid diminution of inflammatory edema, there is much greater ease in subsequent dressings, the fracture is more easily controlled, and there is greater comfort to the patient. Infection is also under better control. There is much less tendency to ankylosis of neighboring joints, and union at the fracture area proceeds more rapidly. The great majority of the fractures seen in military surgery are compound and are accompanied by extensive destruction of the soft parts. Nerve injuries with subsequent paralysis may also be present. The position of the fragments, on account of this paralysis, is apt to be variable. Constant adjustment is required, and Blake's form of treatment is especially applicable as it allows proper alignment to be made with greater ease.

There is another point to be made regarding fractures. While the writer was at La Panne, the French surgeons at the military hospital at Zuydcoote, which he visited, had begun to find it possible to do primary suturing in compound fractures of the femur, the tibia and the fibula, converting them into simple fractures after thorough mechanical cleansing of the wound, according to the Carrel method, removing all contused and devitalized tissues, loose fragments of bone and foreign bodies, and placing the fragments in the most favorable position for repair. There is no reason why this method, in selected cases, should not be used in civil life, and thus lessen to a great degree prolonged invalidism in a hospital and delay in the process of repair.

V. In injuries of the brain the French school of surgery differs somewhat from the British. The French, and very properly I think, because I saw it successfully carried out at the hospital at La Panne, believe in the immediate extraction of projectiles without waiting for the presence of irritative symptoms. They consider every projectile in the brain a potential source of infection and immediately remove them no matter how small, if at all accessible. They were aided very much in this operation of removal by the electric magnet, and in the localization both by the röntgen rays and the Hirtz compass.

VI. Another form of treatment that has come in vogue in this war and that already has been successfully applied in civil life is the paraffine dressing for burns. There is no question that it has proven its value in the terrible burns received in the



FIG. 4.—Hernia of brain. Shows patient in Fig. 3 restored to normal.

trenches. Personally, I have successfully treated a number of cases of very severe powder burns by this method.

VII. Many useful surgical procedures owe their proper evaluation to this great war, notably the Carrel method of mechanically cleansing the wound by the removal of all devitalized tissue which could

form a nidus for subsequent microbic invasion. There can be no question as to the value of the Carrel method in military surgery, and at the Ambulance de l'Océan it was systematically applied to all war wounds. Doctor De Page and his associate Doctor Maloens varied the treatment in a

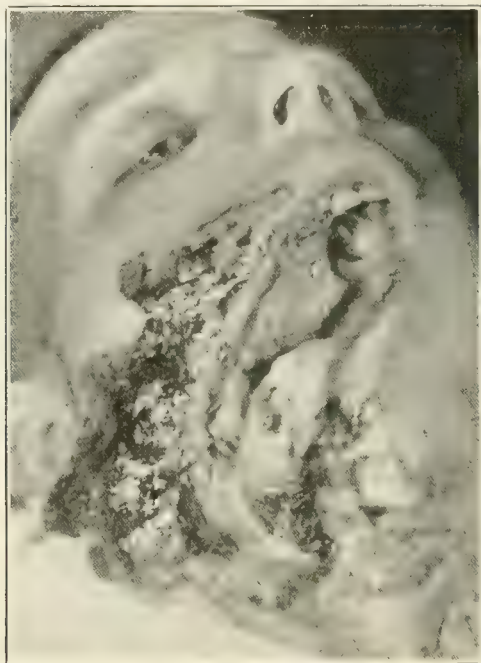


FIG. 5.—Shell wound of face.

selected number of cases in order that a comparison of values could be made. All contused tissues in wounds were carefully excised and all foreign bodies removed, but different antiseptic solutions were employed. After careful mechanical cleansing of the wound there is a natural tendency toward sterilization independent of the method of treatment. This experiment with different solutions was controlled by careful inspection of the wound and its secretions by microscopical examination of smears, by the temperature curve, and by the time secondary suture became possible. On the whole, however, they concluded that the Dakin solution, having the power of dissolving pus and sloughs, and favoring an outpouring of the secretions, converted the wound into a healthy granulating surface more rapidly than any of the other solutions.

Among the many useful instruments that owe their origin to this war is the electrovibrator, a large electromagnet. There is no question as to the value of this instrument as an aid in the removal of foreign bodies that can be magnetized. Any fragment of a projectile in which the main constituent is iron in any form, can be readily discovered and removed by means of this useful device.

Investigations of the blood of a series of gravely wounded patients suffering from acute anemia following wounds and the indications for treatment by immediate transfusion were made by Dr. Paul Govaerts, of the laboratory staff, and they elicited the following facts. There is a transitory polynuclear leucocytosis appearing within a few hours,

rising in some cases as high as 55,000 per c. c., and disappearing generally within eighteen hours. It must not be considered as a sign of infection but as a phenomenon of traumatic origin, and it bears a definite relation to the extent of the lesions present, being more marked in the severe cases. It is of great diagnostic value in abdominal cases in which no open wound exists, as it indicates some injury to the viscera and the necessity for surgical intervention. Govaerts also noticed that in a moderate hemorrhage the red cell count is but slightly altered, but following a marked loss of blood there is within a few hours a marked lowering of the red cells per c. c. If the count is below 4,000,000 this sign is of grave prognostic import and there is imminent danger of death supervening. Transfusion by saline solutions is of no value, as although there is a transient improvement in the volume of the pulse, there is an immediate loss of fluid from the vessels owing largely to the absence of viscosity. Transfusion of blood from a suitable donor, care being taken to exclude syphilis and to select one from the proper blood group to eliminate the danger of hemolysis, offers the only prospect for recovery. Govaerts in several transfusions that I saw him perform, followed a very simple technic in which the danger from clotting was minimized so that citrated blood was not necessary and was not used. His method of transfusion followed closely the Lindeman method and consisted in the introduction of a cannula in the donor's vein at the bend of the elbow and another in a similar vein in the recipient; six to eight syringes of twenty c. c. capacity, non-paraffined but washed after each using in a warm saline solution, were employed. By working rapidly a half litre of blood could be transfused in ten to fifteen minutes. Two operators were used; one



FIG. 6.—Shell wound of face. Patient shown in Fig. 5, after wounds have healed.

withdrew the blood from the donor, the other immediately injected it within the vein of the recipient. The blood remained but a few seconds in the syringe so that the danger from clotting was eliminated.

As the German artillery was the most efficient branch of their service eighty per cent. of the wounds coming under the writer's observation were caused by shells, high explosive and shrapnel, illustrating very clearly the predominance of artillery fire in this war as contrasted with former ones. Most of the remaining twenty per cent. of injuries were due to machine gun and rifle bullets with a few caused by hand grenades and bombs dropped from aeroplanes. The *arm blanche*, so called by the French, such as the lance, saber, and bayonet, played a very unimportant rôle in this war. Only one bayonet wound was seen by the writer during his term of service. Injuries of the soft parts formed the greater part of the war wounds seen in this hospital, and the lower limbs were more frequently involved.

Rifle wounds gave us very little trouble but the massive destruction caused by shell fragments, especially in the muscular masses of the hip, thigh and calf of the leg, were apt to be followed by that very grave and fatal infection known as gas gangrene. This infection, rarely seen at the onset of the war, became more frequent when the trench warfare began with its consequent contamination of the skin and clothes by the soil. The invading organism, an anaerobe known variously as the *Bacillus aerogenes capsulatus*, Welch's bacillus, and to the French and Belgian surgeons as the *Bacillus perfringens*, is found in the highly manured soil of the Flanders fields and is probably of fecal origin from the intestines of the lower animals and perhaps of man. Other anaerobes have been identified but the perfringens is the predominant organism. Figures 1 and 2, from a gas gangrene case, show the site of the original injury on the outer side of the thigh, and the subsidiary incisions through the fascia in the hip and leg to combat the infection and to allow exit of gas and secretions and thus lower tension of the muscles and give relief from strangulation and necrosis. The second cut shows the case some weeks later, after the Carrel technic had been rigorously followed and secondary suture of the large wounds had been performed.

The writer saw six cases of gas gangrene, two of which were fatal. Of the four who recovered, two did so at the expense of a limb, amputation being the only means of saving life. Undoubtedly more cases of this alarming and often fatal infection would have occurred had not the highly trained and efficient surgical staff followed the Carrel technic very closely more especially devoting much care to the thorough mechanical cleansing of all wounds. The best cure of gas gangrene is its prevention. Little success had followed the use in this hospital of vaccines and serums for the cure of this infection and their use had been abandoned.

A method of treatment of wounds of the large joints was successfully used in this hospital and is worthy of mention. It was originated by Willems, a well known Belgian military surgeon, and was at wide variance with the accepted methods in vogue elsewhere. We all know the classical dictum that any joint which is traumatized should be at once immobilized to prevent irritation and further infection of the lesions. Willems in civil practice had

noticed the disability following joint injuries due to ankylosis and muscular atrophy and largely caused in his opinion by the prolonged use of retentive apparatus. In traumatisms, such as hemarthrosis of the knee, he was in the habit of at once puncturing the joint, allowing the effused blood to escape, and then permitting and urging the patient to walk about at once without using any restraining splint.

He carried this experience into the war and went still further as his experience grew with success in this method, allowing patients to walk about and actively move infected joints following war wounds, more particularly of the knee and ankle.

The writer saw this technic followed in several joint cases while at La Panne in the service of Doctor Delrez. In one case of contusion of the knee with marked swelling, due to effused blood, pain and disability, immediate relief followed aspiration of the joint and the patient walked with greatest ease. Seen some days later this patient had recovered perfectly with the functions of the joint restored, although he had been permitted to move freely about the ward. Other cases of joint injuries associated with fracture were treated successfully by this method of active mobilization. It certainly seemed strange and opposed to all preconceived ideas to see men walking about without pain whose joints were constantly draining pus. If the lines of fracture were such as to cause much displacement and weight bearing in walking would materially increase this, locomotion was not advised but active movements of the joint in bed were urged upon the patient. It certainly shortened the duration of the treatment and the function of the joint was more rapidly restored, as claimed by Willems, in the cases coming under my observation.

The accompanying photographs (Figs. 3 and 4) illustrate the result obtained in case of hernia cerebri following infection in an injury to the cranial vault with an accompanying large loss of bone. Unsuccessful attempts were made to reduce the hernia, the size of an orange, by lumbar puncture, by compression and by cauterization. Finally after some months of this treatment, resection of the mass to the level of the scalp was successfully performed. The writer did not see this case before the resection, but saw the successful cranioplastic operations by Doctor Janssen with grafts from the tibia which closed the bony gap in the cranial vault, with excellent cosmetic result.

Something should be said regarding the excellent cosmetic results obtained in facial wounds even when accompanied by great destruction of the soft parts and by fracture. These facial injuries owing to the great vascularity of the structures involved, and therefore greater resistance to infection were, after preliminary mechanical cleansing, but more conservatively than wounds elsewhere, immediately sutured, and if fracture existed, interdental splints applied and the facial contour at once approximately restored. This immediate reconstruction prevented vicious consolidation of the fracture as well as great retraction of the soft parts with the production of large cicatricial masses thus rendering possible a better restoration of the features if a subsequent plastic operation was required.

Figures 5 and 6 show the results obtained in a very severe shell wound of the face. Immediate suture cannot be too highly recommended in these distressing cases. In cases seen elsewhere much deformity could have been avoided had attention been given to immediate repair.

Firing on enemy aeroplanes was a matter of daily occurrence, but the effect of this, except in one instance, was merely to make the aviator fly higher. I saw only one brought down by shelling from the ground and that was a large Gotha that had been engaged in a marauding expedition over Dunkirk, and a lucky chance shot had carried away one of the propellers and compelled the pilot to land within the Belgian lines. Among the crew of four, there was a German in civilian clothes who made an ineffectual attempt to escape, but was caught and subsequently suffered the usual fate of a spy.

Reference should be made to the difficulties of campaigning in this section of the line. The well known Flanders mud was everywhere and this impaired military operations very materially. It is not to be wondered at, that there were long periods of inactivity in this section. Extensive military operations at times were out of the question. The roads were in a bad state of repair, were very frequently shelled and it was almost impossible to move guns and camions carrying provisions and ammunition to the front to any great extent unless the weather conditions were perfect. For this reason the Belgian front remained practically at a standstill for four years. The weather in Flanders in winter is abominable. Heavy wind storms lasting day and night for a week at a time were of frequent occurrence, interspersed with heavy rainfalls. It was not uncommon for soldiers to freeze to death in the trenches due to the bitter cold, the necessary restriction of movement, and the everpresent dampness. Even in the town of La Panne itself two sentries were frozen to death one night in the winter although they were only on duty for two hours at a time. It was marvelous that eighty per cent. of our wounded were returned to active duty in the face of the lowered resistance brought about by all these adverse conditions, in many instances accompanied by malnutrition from insufficient food, and suffering from the fatigue and nervous strain induced by the constant shelling.

In conclusion, I desire to acknowledge my great indebtedness to those distinguished Belgian surgeons, Doctor De Page and his associates, for their courtesy and extreme consideration to me during my service at La Panne.

51 EIGHTH AVENUE.

The Surgical Treatment of Empyema.—Alexis V. Moschcowitz (*Surgery, Gynecology, and Obstetrics*, April, 1919) in tabulating the results in 299 cases covering a period of ten years found the mortality to be twenty-eight per cent. The present paper is based on 140 cases which were observed at Camp Lee. The vast majority of these empyemata were due to an infection by hemolytic streptococci and followed bronchopneumonia. Most of the cases followed measles. The empyemata found in

civil practice are usually due to the pneumococcus. The streptococcus empyema is divided into three stages: 1, The formative, 2, the acute, and 3, the chronic stage. The formative is the most interesting phase in the problem. The striking feature is the rapid formation of the pleural exudate; cases of three or four days' duration being quite common. It has appeared that such a gross infection of the pleural cavity cannot be accounted for by the simple contact extension of the intrapulmonary lesion. The basis of the study was an analogy to the study of peritonitis. It is known that the diffuse forms of peritonitis are due to a rupture of an intraabdominal viscus. The observation has been made in cases of empyema which came to autopsy there was found a pinpoint perforation of a subpleural pulmonary abscess. The treatment in the formative stage is principally that of the underlying malady. Whenever there is a suspicion of an exudate into the pleura, its presence and character should be determined by an exploratory aspiration. In the early stages this fluid is varicolored and slightly turbid, partially due to the presence of pus cells, and more frequently to the presence of myriads of streptococci. It is strongly advocated not to operate upon these empyemata during this stage unless the fluid causes serious embarrassment to the respiration or circulation, then it may be removed by an aspiration. This treatment may be repeated daily if indicated. Exception may be made in cases of acute and progressive hydropneumothorax or pyopneumothorax, which result from the rupture of a large subpleural pulmonary abscess, communicating with a bronchus of considerable size. Since the adoption of delayed operation there has been a marked improvement in the mortality statistics. When the acute or second stage has been reached the general condition of the patient has improved to a marked degree. This is the most propitious time for operation. The lung is adherent at the periphery of the pus, so there is no danger of a further collapse of the lung. Prior to operation an x ray examination is made to determine the most favorable site for operation. The operations at this stage should be carried out under local anesthesia, the site of the incision is indicated by the x ray examination. The cutaneous incision should be of ample length.

Into the chronic stage are placed: 1, Cases which do not heal in a "reasonable" time; 2, cases of recurrence within the old empyema cavity; 3, cases, in which a second pus focus is discovered, at some distance from the original focus and cases of bronchocutaneous fistula. If the method prescribed for the treatment of the acute stage is followed chronic cases will seldom occur. Large cavities may result from faulty operation. The chronic empyema sinuses are divided into two stages: those that are sterile, and those that are infected. The sterile sinuses heal upon the discontinuation of treatment. In infected sinuses it is necessary to find the reasons for the infection. They may be due to foreign bodies, drains, or necrotic ribs or branch sinuses and irregular side pockets of the main sinus which can not be reached properly by the irrigation.

Our Readers' Monthly Prize Discussions

Twenty-five Dollars Is Awarded for the Most Satisfactory Paper

All persons, whether subscribers or not, are invited to compete for the prize of \$25 offered for the reply deemed best by the editors to the following questions:

CXCII.—What are the therapeutic uses of alcohol? (Answers due not later than May 15th.)

CXCV.—How do you treat burns? (Answers due not later than June 15th.)

CXCVI.—How do you treat infected wounds? (Answers due not later than July 16th.)

CXCVII.—How do you treat fracture of the femur? (Answers due not later than August 15th.)

The award will be based solely on the value of the information contained in the answer. No importance will be attached to literary style. Answers should preferably contain not more than six hundred words, and should be written on one side of the paper only. All papers submitted become the property of the JOURNAL, and should bear the full name and address of the author for publication. The prize will not be awarded to the same person more than once within a year.

OUR PRIZE ESSAYS RESUMED.

Eighteen years ago, we inaugurated the publication of a series of essays on topics of interest to the practising physician, offering a prize of twenty-five dollars each month for the best essay submitted on a topic selected by the editor of the JOURNAL. The monthly award of this prize of twenty-five dollars was continued until the United States entered into the world war, when it was discontinued in order to make room for the publication of matter relating to war medicine and surgery. One hundred and ninety-three different topics were discussed in this department and \$4,825 was awarded to prize winners by the publishers. Now that peace has come, we are again in a position to resume the publication of these prize essays, and in view of the great advances which have occurred in every phase of medicine since the essays were inaugurated, we shall not hesitate to repeat questions which were asked in the first series. The scope of the essays and the object which we hoped to accomplish by their publication was clearly set forth in an editorial article published in the NEW YORK MEDICAL JOURNAL for May 4, 1901, which is reproduced below:

Primarily, our object is to obtain a number of expressions of opinion, always on some subject of everyday interest to the general practitioner, from the "rank and file" of the profession, those who do the great bulk of the family practice. As a rule, such practitioners have very decided convictions founded on their own personal experience, convictions for which they are able to give very good reasons. They are apt, however, to be too modest and reserved in the matter of bringing their opinions to the attention of their fellow physicians. They are prone to say that they "know nothing of the art of writing." It is for this reason that, in the friendly competition which we expect to establish, we have decided that literary style shall have no weight in deciding the awards.

There might at the first glance seem to be no

good reason for our declining to award the prize to an individual more than once a year. There is, however, what we look upon as an excellent reason; it is to handicap those who, possessed of some literary facility and to some extent skilled in the art of "brushing up" in a subject by resorting to libraries, might otherwise have an undue advantage over the plain practical physicians, who, while lacking these facilities, are still likely to be more experienced and better able to interpret their own experience aright. It is for this same reason that we exclude persons engaged in work on medical journals.

The amount of the prize is purposely made moderate. Large prizes have their usefulness—and great it is—in drawing forth essays that can only be the fruit of prolonged and laborious investigation, a minute acquaintance with literature, and very careful thought; to call forth practical expressions from practical physicians—and that is the particular object we have in view in these discussions—we believe a small award, frequently repeated, will be more efficacious.

We desire again to accentuate the fact that the question of literary style is not to be taken into consideration in awarding the prizes. We wish to draw out essays based upon the experience of men engaged in the active practice of medicine, even though they are not accustomed to write for publication.

Below we give four questions in the new series and cordially invite all of our readers, whether subscribers or not, to take part in the competition:

CXCIV.—What are the Therapeutic Uses of Alcohol? (Answers due not later than May 15th.)

CXCV.—How Do You Treat Burns? (Answers due not later than June 15th.)

CXCVI.—How Do You Treat Infected Wounds? (Answers due not later than July 16th.)

CXCVII.—How Do You Treat Fracture of the Femur? (Answers due not later than August 15th.)

Editorial Notes and Comments

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NEW YORK, SATURDAY, APRIL 12, 1919

OUR PRIZE ESSAYS RESUMED.

Eighteen years ago we began the publication of a series of prize essays on topics of immediate interest to the practising physician. We offered a prize of \$25 every month for the best essay submitted on a topic suggested by the editor. This series of prize essays was continued until the pressure of war material necessitated their temporary abandonment. Altogether 193 problems were discussed from one to a dozen essays being printed on each, the whole constituting a very useful compendium of concise information for the use of the general practitioner. Now that the war is, happily, a thing of the past we shall resume the publication of these prize essays, for many of our subscribers have expressed a desire for the resumption of a feature of the JOURNAL which they had found most interesting and helpful. The topic for the first discussion will be The Therapeutic Use of Alcohol.

On page 645, of this issue, we give further details regarding the prize essays and what we hope to accomplish by the resumption of this department, and cordially invite all our readers, whether subscribers or not, to participate in the competition. Essays should not exceed 600 words in length and should bear the full name and address of the author for publication. The award will be based on the practical helpfulness of the essays without regard to literary merit or polish. We wish to elicit the views, based upon experience, of the doctor in active practice.

THE NATION'S PHYSICAL UNFITNESS.

In a chapter of some nineteen pages, the Second Report of the Provost Marshal General summarizes the data relating to the physical qualifications of the men examined for military service under the Selective Draft law. Inasmuch as the data pertain to 3,208,446 men physically examined it is evident that they furnish an unparalleled source of information regarding the physical condition of the nation's manhood. Of the 3,208,446 men physically examined, 521,608 were rejected as absolutely unfit for military service, while 2,259,027 were accepted as physically fit for active military service in any capacity. Expressed in percentages this figure represents, 16.25 per cent. absolutely unfit, 70.41 per cent. fit for all military service. But to the 16.25 per cent. absolutely physically unfit must be added the 2.76 per cent. with diseases or physical defects deemed to be remediable by proper treatment, and 10.48 per cent. who, while physically substandard, were deemed to be capable of limited service in the military establishment. Altogether, then, 29.34 per cent. were unfit for active military service.

A tabulation of some of the more important data regarding the physical disqualifications reveals some striking results. Thus, comparing the number of rejections between white and colored registrants, it is found that the colored yielded a higher proportion of physically qualified. Thus out of 2,749,608 white registrants examined—1,916,750, or 69.71 per cent., were found fully qualified. Out of 458,838 colored registrants examined—342,277, or 74.60 per cent., were found fully qualified. At first sight this would indicate a distinct superiority in physical fitness, on the part of the negro. Nevertheless, a further examination of the data shows that the rejections, as entirely unfit for military service, were greater among the colored, 17.32 per cent., than among the white registrants, 16.08 per cent. This apparent discrepancy is accounted for by the smaller proportion of colored registrants placed in the "deferred remediable" group and the "substandard" group accepted for limited service. In the colored these two groups together made up 8.08 per cent., while in the white they made up 14.21 per cent.

No matter which of the above figures we take as measuring the relative physical fitness of the white and colored registrants, they by no means

approach the degree of difference exhibited by the death rates of these groups. Thus, according to the United States Census, the death rate in 1916 among the whites was 13.5, and among the colored 20.5 a thousand.

A suggestion of one factor is furnished by a comparison made between registrants from urban and rural communities. This showed a considerable difference in favor of the rural registrants. The figures showing the class D rejections are as follows: Rejections among 100,000 from urban regions, 21,675, or 21.68 per cent.; rejections among 100,000 from rural regions, 16,894, or 16.89 per cent. Whatever the cause of the differences here disclosed, it must be admitted that a comparison of rural and urban death rates hardly prepares one for the very favorable showing here made by the rural registrants. Particular interest attaches to the summary of the varieties of defects disqualifying for military service. Although the analysis given in the report relates to only 467,694 rejections, the following percentages undoubtedly constitute a valuable index of the defects present not only among the registrants, but among our young adult population as a whole. The figures represent total rejections by local boards and camp surgeons:

	<i>Number</i>	<i>Per Cent</i>
Total rejections for all causes.....	467,694	100.00
Alcohol and drugs.....	2,007	.43
Bones and joints.....	54,744	12.35
Developmental defects (height, weight, chest measurements, muscles)....	39,166	8.37
Digestive system.....	2,746	.53
Ears.....	20,465	4.38
Eyes.....	49,801	10.65
Flatfoot (pathological).....	18,087	3.87
Genitourinary (venereal).....	6,235	1.33
Genitourinary (nonvenereal).....	6,309	1.35
Heart and blood vessels.....	61,142	13.07
Hernia.....	28,268	6.04
Mental deficiency.....	24,514	5.24
Nervous and mental disorders.....	23,728	5.07
Respiratory (tuberculosis).....	40,533	8.67
Respiratory (nontuberculosis).....	7,823	1.67
Skin.....	12,519	2.68
Teeth.....	14,793	3.16
Thyroid.....	8,215	1.76
Tuberculosis of parts other than respiratory.....	4,136	.88
All other defects.....	14,314	3.06
Cause not given.....	25,419	5.44

That the valuable basic data collected as the result of the selective draft examinations should be subjected to still further careful analysis is indicated by the paradoxical showing of physical fitness disclosed by the geographical analysis of the physical rejections by the local draft boards. A study of the striking maps printed in the report show that a number of States in which little or nothing has been done to conserve public health show the lowest rate of physical rejections. Conversely one finds high rejection rates

in States recognized for their admirable public health work.

Witness the following figures:

Arkansas	13.08 per cent. rejected as unfit
Massachusetts	18.64 per cent. rejected as unfit
Oklahoma	9.78 per cent. rejected as unfit
New York	19.31 per cent. rejected as unfit

It is probable that the difference in rejections between urban and rural registrants is one factor; nevertheless, it would not satisfactorily explain why Vermont should have 22.5 per cent. entirely unfit for military service while New Hampshire has only 13.5 per cent.; nor why Maine's rejection rate, 17.1 per cent., should be so near that of Massachusetts, 18.6 per cent.

The appalling amount of physical unfitness of the nation's young manhood as revealed by these examinations confirms the warnings repeatedly made by the medical profession. In the face of the demonstration that physically we are thirty per cent. below par, will these warnings now be heeded? The attitude of the people is not encouraging. The war is over and public inertia appears to be increasing steadily. In this crisis it behooves the medical profession, recognized guardians of the health of the people, to do all in its power to arouse and maintain effective public interest in the promotion of health and physical wellbeing.

SURGICAL PROGRESS IN THE WAR.

Surgeon General Braisted, of the United States Navy, promises a quarterly publication from the Bureau of Medicine and Surgery which will prove of inestimable value in disseminating the knowledge and experience gained during the war. It will also further the spirit of inquiry and progress founded upon mutual exchange of such knowledge and experience on the part of various branches of medical practice and among the Allied governments who have worked together at these problems. The wide extent of the program for report and information and interchange of opinion is foreshadowed in the special number of such a bulletin just issued by Lieutenant Commander William Seaman Bainbridge. This presents a full and detailed discussion, laying weight on certain guiding principles of inquiry, experiment, and progress which manifest the very broad and simple practical lines upon which these have proceeded throughout the war. The community of interest and spirit of cooperation which have marked this war on the part of the Allies have made for this openmindedness and plasticity on the part of surgeons and medical men. There has been, as the report

shows in its discussion of the suturing of wounds, a revival of former surgical methods which had been discarded, and these have been adapted to modern knowledge of asepsis and antisepsis. This revival pertains particularly to the early and complete suturing of wounds, which is very fully discussed, together with a clear outline of the Carrel-Dakin and other methods of treatment.

All forms of surgery receive the same illuminating attention, together with the various appliances and aids which have proved themselves of great value or have been and perhaps are still the objects of experiment and of varying usefulness on the part of different surgeons. Among the aids for the recovery of wounds may be mentioned the antiseptic and healing influence of direct sun's rays when applied to the affected part or to the whole body, the use of oxygen and ozone therapy, the variety of splints devised and used, and any other means which have been prepared, perfected, or utilized during the war. In each case the individual technic and judgment of the surgeon are important factors in the choice and employment of any methods that may be indicated. The difficulties and discouragements which surround brain surgery indicate that this field is still open to much improvement. What has been accomplished here and the methods of procedure pass under review, and the lines upon which such further progress may be made are indicated. Plastic surgery receives ample description and nowhere in the report are the profuse photographic illustrations which accompany every phase of it of more value than here. The remarkable results achieved in this branch of surgery are emphasized by these graphic pictures.

Medical problems have not been neglected, though these surgical matters have received chief attention. The compiler of the report has also mentioned the many auxiliaries to the important surgical and medical work which still occupies the world's attention. The simple and graphic nature of the whole report inspires one with the feeling and hope that the experiences of the war have opened out an unlimited field which will be effectively cultivated more and more thoroughly because of the practical simplicity and cooperativeness which distinguish the services here. One also sees in workers and in their patients the possibility of a more serious issue with the real things beneath the wounds and rents which will mean something new and lasting in the purpose of the race.

THE NARCOTIC PROBLEM.

The arraignment of six physicians and four druggists by the Federal authorities for infractions of the Harrison antinarcotic law, has brought to the public attention the facts regarding the growth in the use of narcotic drugs which were set forth in the editorial columns of the *NEW YORK MEDICAL JOURNAL* for March 22, 1919. In that note we told of the work of the State Narcotic Drug Control Commission and of the plan proposed by the commissioner for handling the problem. This plan had been laid before the Commissioner of Health of the City of New York and steps had already been taken to put it into operation before the crisis was precipitated by the arrests.

According to the Federal authorities, there are some thirty physicians in the city who make a business of writing prescriptions for addicts, charging fees which range from twenty-five cents to four dollars for such prescriptions, regardless of the condition of the patients. As pointed out by the narcotic drug commissioner, the physician is really under an obligation to treat the addict, but he must do so with a view to his betterment and must not merely write prescriptions, as these men are said to have done, to satisfy the cravings of the addicts without attempting to improve their condition. It is said that one physician maintained a card index of two hundred patients for whom he prescribed daily, and that one druggist's file showed that a hundred thousand narcotic prescriptions had been dispensed by him within a year.

The Bureau of Drug Addiction has opened a clinic at 139 Centre Street, where addicts will be treated by the physicians of the Health Department with a view to effecting cure by a gradual reduction of the amount of narcotic used. The Commissioner of Health wishes it understood that he does not desire to have every addict sent to this clinic, which is really only intended to minister to the needs of the eight hundred addicts who have depended for their supplies of drugs upon the physicians and pharmacists arrested. The Commissioner of Health criticises the State law, saying that it makes conditions easier for the illegal dispensers of drugs and for the purchasers. The State Commissioner of Narcotic Drugs, however, points out that the law is only in the first phase of its operation. That, under the operations of this law, it has become possible for the first time to get anything like an accurate knowledge of the true conditions as to drug addiction. The information gained by compliance with this act will enable the authorities to control

the situation in the future as it never has been controlled in the past. The first step toward this control has already been taken by the inauguration of the narcotic clinic by the Health Commissioner, as proposed some weeks ago by the narcotic commission. When these clinics are established throughout the city and State, the authorities will be in a position to enforce regulations which will insure the treatment of the addicts by gradual reduction of their supply of narcotics. This is the logical, humane, and safe method of handling the problem, and it is to be hoped that the Federal, State, and local authorities will all cooperate in the execution of this plan.

PHYSICIANS SHOULD OPPOSE COMPULSORY HEALTH INSURANCE.

We directed attention in our issue of April 5, 1919, to the fact that the bill providing for compulsory health insurance might be adopted by the Legislature of the State of New York through the influence of the women who have hitherto been affiliated with the Republican Party, but who have endorsed the social program advocated by Governor Whitman, including the minimum wage and the eight hour bills. The two latter measures have been adopted by the State Senate, the insurgent Republicans having sufficient strength to pass the measures with the aid of the Democratic members. It is reported that the compulsory health insurance measure may also be enacted through the combination of these two political factions. The bill, however, must also be adopted in the Assembly as well as in the Senate and even if it is favorably acted upon by the Senate, there is a possibility that it may be defeated in the lower house. We again urge our readers to oppose this measure regardless of party affiliations. Wherever compulsory health insurance has been adopted it has exerted the most untoward influence on the social and financial status of the practitioner of medicine, and has had a very bad effect upon the morale of the community. The physician, even if he is not a politician, can generally exercise considerable influence in things affecting his own calling by appeal to his representatives in the Assembly and in the Senate, and it is incumbent upon every physician in the State of New York to exercise this influence in opposition to the compulsory health insurance bill both for the good of the physician and of the community.

THE DEATH OF SIR WILLIAM CROOKES.

The death of Sir William Crookes in London at the age of eighty-seven brings to a close a long, busy, and useful life. He was a graduate of the Royal College of Chemistry and became an assistant to Professor A. W. von Hoffman in 1851. In 1854 he became superintendent of the meteorological department of the Radcliffe Observatory at Oxford. In 1859 he founded the *Chemical News*, and in 1864 also became editor of the *Quarterly Journal of*

Science. He was knighted in 1897 and received many honors from scientific societies and universities, both in Great Britain and on the continent. Among his most notable contributions to science were the perfecting of a mercury air pump, an invention which hastened the development of the incandescent lamps. He invented the Crookes's tube, which led to the discovery of the röntgen rays by the German investigator twenty years later, and was the father of the electronic theory of radiant matter. He was the author or editor of numerous books and articles on physics and chemistry and retained all his faculties and mental activities up to the end of his long and interesting life.

News Items.

British Honors for Medical Officers.—Forty-nine medical officers and fifteen enlisted men of the Medical Department of the United States Army have received decorations from the British Army for bravery and distinguished service in the war.

Dispensaries in France.—A new dispensary was recently opened by Dr. Margaret Farwell, head of the American Red Cross Children's Bureau of the locality at Essonnes, France, in the Department of Seine et Oise. This is the third in the Corbeil district founded by the American Red Cross within the last five months.

Army Hospital Activities.—A total of 38,214 patients from overseas were under treatment in army hospitals in the United States on March 31, 1919, according to announcement by the Surgeon General's Office. In addition to this there were 18,700 domestic cases. The general hospital at Fort McHenry had the largest number of patients—more than 2,000.

Philadelphia Medical Societies.—The following medical societies will meet in Philadelphia during the coming week:

MONDAY, April 14th.—Philadelphia County Medical Society (board of directors).

TUESDAY, April 15th.—Medical Examiners' Association: West Branch of the County Medical Society.

WEDNESDAY, April 16th.—Philadelphia County Medical Society (business meeting); Section in Otology and Laryngology of the College of Physicians.

THURSDAY, April 17th.—Mount Sinai Hospital Clinical Association; Southeast and Northeast Branches of the County Medical Society; Section in Ophthalmology, College of Physicians.

Volunteer Medical Corps Board Dissolved.—The central governing board of the Volunteer Medical Service Corps held its final meeting recently in Washington, D. C., and the board was dissolved on April 1st. Nearly 70,000 applications were received from physicians for membership in the corps, of which 56,540 were received and coded prior to the signing of the armistice. The qualifications of these civilian doctors, classified and coded on cards, will be turned over to the Surgeon General's Library, where they will be accessible to all government departments. With the approximately 40,000 medical officers additional who are in the army, the navy, and the Public Health Service, practically all the doctors of the country will be listed, available for the nation's needs.

Harvey Society Lectures.—The seventh lecture in the course will be delivered Saturday evening, April 12th, at the New York Academy of Medicine, by Dr. Stewart Paton, of Princeton, N. J., on Human Behavior in War and Peace.

Clinical Society of the Lenox Hill Hospital.—A meeting of the society was held Friday evening, April 11th. Dr. Seymour Basch exhibited a specimen of primary sarcoma of the pylorus, and Dr. A. M. Hellman exhibited a specimen of monstrosity meningoencephalocele. Dr. A. S. Blumgarten presented a report on pleural effusions, and a preliminary report on sugar tolerance in cancer was presented by Dr. G. L. Rohdenburg, Doctor Bernhard, and Doctor Krehbiel.

Doctor Da Costa Ordered to France.—Lieutenant Commander J. Chalmers Da Costa, U. S. N. R. F., Gross professor of surgery at the Jefferson Medical College, Philadelphia, has been ordered to sail for France on the steamer *George Washington*. It is understood that the departure of the steamer, which is to be used by President Wilson to return from France, has been accelerated, and speculation is rife as to the significance of the order issued to Commander Da Costa.

Personal.—Lieutenant Colonel E. G. Zabriskie, Medical Corps, U. S. Army, of New York, has been designated senior consultant in neuropsychiatry for the American Expeditionary Forces, succeeding Colonel Thomas W. Salmon, Medical Corps, U. S. Army, who has returned to the United States for duty in the Surgeon General's Office, Washington, D. C. Lieutenant Colonel Zabriskie went to France as divisional neuropsychiatrist of the Fourth Division; subsequently he was consultant in neuropsychiatry to the Third and Fifth Corps and to the First Army. After the armistice he served as consulting neuropsychiatrist to the Savenay Hospital Centre.

Concentration of Patients in Army Hospitals.—Orders have been issued to the commanding officers of Army hospitals to concentrate patients in as few wards as possible in order to make possible a reduction in the number of medical officers and nurses and to reduce overhead costs. Orders have also been issued to cut down the bed capacity of a number of base hospitals. The capacity of the base hospital at Camp Gordon, Ga., will be reduced from 1,642 beds to 1,200; that at Camp Lewis, Wash., from 1,200 to 1,000; that at Camp Meade, Md., from 1,784 to 1,300; and that at Fort Riley, Kan., from 2,000 to 1,500.

American Pediatric Society.—The thirty-first annual meeting of this society will be held at the Chalfonte Hotel, Atlantic City, N. J., June 16th, 17th, and 18th, under the presidency of Dr. Edwin E. Graham, of Philadelphia. Other officers of the society are: Dr. Henry Heiman, of New York, vice-president; Dr. Howard Childs Carpenter, of Philadelphia, secretary; Dr. Charles H. Dunn, of Boston, treasurer; Dr. Oscar M. Schloss, of New York, recorder and editor. Thirty-four papers are listed on the preliminary program, and the meeting gives promise of being unusually interesting.

Meetings of Local Medical Societies.—The following medical societies will meet in New York during the coming week:

MONDAY, April 14th.—Society of Medical Jurisprudence; New York Ophthalmological Society; Yorkville Medical Society; Association of Alumni of St. Mary's Hospital, Brooklyn; Williamsburg Medical Society, Brooklyn.

TUESDAY, April 15th.—New York Academy of Medicine (Section in Medicine); Federation of Medical Economic Leagues of New York.

WEDNESDAY, April 16th.—New York Academy of Medicine (Section in Genitourinary Diseases); Geriatric Society; Medicolegal Society; Northwestern Medical and Surgical Society of New York; Woman's Medical Association of New York City; Alumni Association of the City Hospital.

THURSDAY, April 17th.—New York Academy of Medicine (stated meeting); New York Celtic Medical Society.

FRIDAY, April 18th.—New York Academy of Medicine (Section in Orthopedic Surgery); Clinical Society of the New York Postgraduate Medical School and Hospital; New York Microscopical Society; Brooklyn Medical Society.

The General Medical Board Demobilized.—The Secretary of War, who, as chairman of the Council of National Defense, appointed the members of the general medical board, has written a personal letter to each of the seventy-five physicians and surgeons composing the board expressing appreciation of their services and thanking them on behalf of the Government for the work which had been brought to a close by the termination of the war activities of the general medical board and of the medical section of the Council of National Defense which took place on April 1st. Dr. Franklin Martin, chairman of the board, has written a letter of thanks to the members of the State and county committees notifying them of the termination of the war activities of the board.

The Workmen's Compensation Law.—At a special meeting held on April 2d at 51 East 100th Street, New York, of the executive committee of the Physicians' Protective Association of New York, Dr. Edward L. Spitzer presiding, the following resolutions introduced by Dr. John P. Davin, were passed unanimously:

WHEREAS, The Governor of the State in a special message to the legislature has demanded immediate revision of the Workman's Compensation Law, to prevent direct settlement between injured employees and the insurance carriers, suggesting that the legislators read the report of Jeremiah F. Conner, showing that many injured persons have been defrauded by the insurance companies, in some instances being bilked of \$2,000 or more, and

WHEREAS, Governor Smith further says that with these facts before the legislature it should forthwith amend the law and abolish direct settlements or present some good reason for not doing so which thinking men and women will tolerate.

Resolved, That we respectfully call the attention of the Governor and the legislature to an exactly similar condition relating to the payment of physicians' fees by the insurance companies, which has resulted in the denial of the best medical service to the injured workmen and working women of the State. This is owing to the impotency of the medical provisions of the Workman's Compensation Law either to provide a proper fee for medical service or to compel the payment of the fee awarded by the commission against the insurance companies.

Resolved, That the Governor include in his proposed revision of the Workman's Compensation Law measure to remedy this form of injustice to the medical profession, to the end that the working men of this State will receive the services of the best men in the medical practice, as they did before the passage of the Workman's Compensation Law, and not be the victims as they are at present of the poorest and cheapest form of contract medical service sup-

Miscellany from Home and Foreign Journals

Electrical Stimulation in Ununited Fractures.

—A. E. Barclay (*Archives of Radiology and Electrotherapy*, December, 1918) calls attention to the value of physiological rest in the alleviation of pain. Movement is also essential if function is to be maintained. While it is generally known that muscles atrophy with disuse, the similar process which goes on in the other tissues, especially the bones, is not so fully realized. These atrophic bone changes are avoided when the limb is kept in function by massage and other means. Nature requires the alternate conditions of rest and activity. This is supplied in the interim between the treatment by massage. A splinted, immobilized fracture is at rest, but if it is possible to supply activity by the use of skillful massage, union of recent fractures takes place in a short time, and the function is little impaired. It is stated that a great deal of after-treatment and reeducation is avoided when fractures are treated in this way. The number of ununited fractures, or united by an unhealthy bridge of weakly formed callus is very great. Two hundred and forty-six cases were seen in the year of 1917 at the Central X Ray Department of the Second Western General Hospital (London). This is considered to be the end result of inflammatory changes; the formation of fibrous tissue, a structure of low vitality, which has no power of new bone formation and impedes the natural functions of those structures whose office it is to repair the union.

Another factor at work is the progressive atrophy of these structures from disuse, and the drain on the patient's vitality from the suppuration and enforced inactivity. When these various factors are considered it is remarkable that there are not more cases of faulty union. These conditions lead to the deterioration of function. The great need is for more skillful massage in order to avoid the deformities which are so often encountered. In many cases it is impossible to apply massage early on account of the sepsis which is present, and on account of the extensive nature of the comminuted fractures. However, there are a variety of electrical currents at the disposal of the physician which are capable of producing movement in the muscles. This may be done more efficiently than by the use of massage, and the personal element of the operator is eliminated. The principle of rest is not violated, for the fracture is not disturbed. The galvanic current can not be used for it produces a sharp contraction of muscles. The earlier it is applied the less is likely to be the disability, due to disuse, and the healing is hastened. With the use of this method some of the old ununited fractures have united quite satisfactorily, especially those in which there had been some recent operation, even a small one like the removal of a plate. Some of the sinus cases have ceased to discharge almost at once. The skin and muscles are restored to health, even when the limb has been immobilized for months.

Operative Treatment of Chorioepithelioma.—

Hiram N. Vineberg (*Surgery, Gynecology and Obstetrics*, February, 1919) states that chorioepithelioma is a physiological process which has overstepped its bounds, becoming highly malignant with rapid and extensive metastasis. While it is generally associated with gestation, it may occur when the possibilities of pregnancy are excluded, as in the very young or in the male. Occasionally it may occur in regions remotely situated from the original site of the ovular implantation. It has been stated that there were 700 cases on record up to 1910. With few exceptions pregnancy has preceded the development of the growth, therefore it is essentially a disease of fertile women. The ages vary between seventeen and fifty-five. In one series of seventy-eight cases four were under twenty years of age. The cases which were under twenty and over fifty undoubtedly have some bearing upon the fact that the hydatid mole which is most frequently the cause of the growth, is more often met with at the extremes of fertile life. The frequency of the disease run parallel with the degree of fertility. It is not always easy to define the period between the last pregnancy and the occurrence of the disease, the period of latency. The first symptom is hemorrhage, or the appearance of a characteristic tumor which appears upon the vulva or in the vagina. As far as it has been possible to ascertain the period of latency varies between a few weeks to the longest case recorded, which was twenty-one years. It is important to consider the type of pregnancy which precedes the disease. In a series of 178 cases seventy-three cases followed hydatid mole; fifty-nine cases followed abortion; forty-nine cases followed labor at or about term; twelve cases followed extrauterine gestation; six were doubtful. The most prominent and characteristic symptom is uterine hemorrhage. This is very profuse as a general rule. The bleeding may simulate that which accompanies ordinary placental or decidual residue.

As a rule the patient is subjected to curettage, but it is found that the bleeding soon recurs. Some cases are frequently curetted before the true condition is suspected. The bleeding soon leads to a profound anemia, with its train of symptoms. The tumor may during its course of growth perforate the uterus. This may be accompanied by a profuse intraperitoneal hemorrhage. In some cases bleeding has been absent. This is observed in the cases following hydatid mole. Colic like pains may be present due to the attempt at expulsion of the blood clots or debris of the growth. A dull pain is usually present in the later stages of the disease, when the broad ligament becomes involved. Hemoptysis is an important symptom. This is usually an indication of pulmonary metastases. A diagnosis of pulmonary phthisis may be made. Tumors in the vaginal walls may appear early in the disease. They are usually located in the anterior wall near the urethral meatus. Next to the lungs the vagina and the vulva are the most frequent site of metas-

tatic growths. The broad ligament is frequently found infiltrated by nodular masses. The growths may occur in the liver, kidneys and in the central nervous system. Here the most frequent site is the occipital lobe. These secondary growths do not usually have the hemorrhagic aspect of the visceral metastases. The prognosis varies greatly. If the diagnosis is made early and the uterus has not been subjected to much manipulation, as is occasioned by several curettages, the prognosis is fairly good. Cases are on record with metastases in the vagina and lungs which have recovered. The treatment is immediate panhysterectomy. Radium has been used in a few instances with but temporary benefit.

Ionization in Treatment of Facial Scars.—H. S. Carter and A. D. E. Shefford (*British Medical Journal*, February 22, 1919) present brief summaries of the results of ionization treatment of facial cicatrices in twenty-four cases of war injuries to show the very beneficial results of such treatment. The local circulation is greatly improved and largely reestablished through the scar tissue; there is reduction of the stiffness and adherence of the scars; and, secondarily to the softening of the scar tissue, there are reduction of the limitation of movement and a freeing of the muscles of mastication. It is often necessary to combine with it such measures as intraoral gagging and massage. The greatest field of usefulness of this form of treatment lies in the group of cases having the condition described as false trismus, due to fracture of the mandible, injuries to one or more of the muscles of mastication, and formation of abundant scar tissue in and about those muscles. The negative pole is used and sodium chloride, potassium iodide, or sodium salicylate are used to saturate the pad.

Prevention of Posterior Bowing in Compound Fracture of the Femur.—C. Beresford Alexander (*British Medical Journal*, February 15, 1919) has devised a simple modification of the Thomas bed knee splint by which posterior bowing of the femur in cases of compound fracture can be prevented completely. The splint is essentially a double Thomas knee splint. The outer section is the ordinary Thomas splint, while inside this is attached a slightly smaller, similar frame which is hinged to the outer at the junction of the ring and inner bar and at the corresponding level to the external bar. The inner section is bent at a point four inches from its lower end so as to raise it off the bed. The patient's leg is put up in the usual manner in the outer section of the splint, but all of the slings except one under the knee are applied to the inner section. These are made of perforated zinc and are padded with cotton. They are placed with reference to the wound and the site of the fracture and are so adjusted that when the leg, fixed in the outer section, is lowered to the bed it is completely supported in a way which effectually prevents all tendency to posterior bowing. Dressing of the wound is carried out simply by having the extremity elevated in the outer section of the splint, thus avoiding the need of repeated readjustment of the slings and shortening the time of dressing by half.

The Buried Sequestrum.—James Phillips (*Lancet*, February 22, 1919) says that the buried sequestrum is going to be a frequent and serious problem after the war, and one which will demand much surgical skill. The condition is especially likely to result in gunshot injuries on account of the multiplicity of comminution and laceration of the periosteum. The new bone which fills in the gaps is not unlikely to harbor one or more buried sequestra which will cause persistent suppuration, often with sinus formation. Little help in diagnosis is to be had from the x rays, or from a study of the course and direction of the sinus. The only method of locating the sequestrum is by chiselling away the overlying bone and exposing the dead fragments. The most satisfactory plan of operation includes making an incision down to and through the periosteum long enough to expose the entire damaged area, and clearing the bone of all the soft parts including the periosteum. Bony irregularities are then chiselled away, sinuses in the bone are followed up, and the sequestra ultimately disclosed and removed. All crevices in the bone are smoothed off with the chisel, the soft parts are stitched open, and the whole area is sterilized by the Carrel-Dakin method, the discharge being examined bacteriologically twice weekly until three or less organisms are present in each field. The wound is then closed by secondary suture after thorough curetting of the granulations and freeing of the soft parts from the bone to permit approximation. The skin is freely undercut to secure a nonadherent linear scar. Before suture the raw surface is swabbed with methylated spirit followed by bipp. The sutures are left *in situ* for three weeks, the dry dressing being removed after two weeks. The operation is often very severe and may have to be carried out in two stages prior to the stage of secondary suture.

The Blood Supply of Muscles.—J. Campbell and C. M. Pennefather (*Lancet*, February 22, 1919) investigated the distribution of the arterial supply of various muscles by injection with opaque mixtures and röntgenography. The arteries of muscles are essentially terminal, though in all cases very fine anastomoses are present, as in all other organs. The muscles can be divided into three groups, depending on the type of arterial supply. Group 1: Those whose blood supply comes from a number of different sources, and in which there are many potential anastomoses. This group includes such muscles as the deltoid, pectoralis major, gluteus medius, etc.; and all of the muscles of this group are relatively very slightly susceptible to gas gangrene. Group 2: Those in which the blood supply comes from only two or three different sources, and in which the potential anastomoses are few. Such muscles are the gluteus maximus, rectus femoris, the hamstrings, etc., and they are quite prone to the development of gas gangrene. Group 3: Those in which the blood supply comes from but a single source, and is represented by the crureus, gracilis, each head of the gastrocnemius, etc. Gas gangrene is especially likely to develop in the muscles of this group. Ischemia of muscles due to

damage of the blood supply, either by injury or in the course of operations, is the most important factor in the causation of gas gangrene and a good understanding of the nature and sources of blood supply of muscles is therefore of prime importance in operating upon war wounds. Every effort must be made to preserve the blood supply to the fullest possible extent. If a large artery to a muscle is damaged the damaged part of the muscle should be excised until freely bleeding surfaces are reached in every case in which gas infection is present. If the case is early and there is no clinical gas infection the wound may be excised locally and as much tissue as possible preserved, the wound being left open and all tension relieved. This permits the fullest restoration of circulation and is probably one of the reasons for the success of delayed primary suture. In the treatment of gas infected wounds every effort must be made to raise and keep raised the general blood pressure.

Fissure of the Anus.—Charles J. Drueck (*Medical Standard*, February, 1919) discusses the etiology, pathology, symptoms, and treatment of fissure of the anus. There is no such thing as an expectant or palliative treatment for this condition. Opiates and sedatives increase the constipation, injury, and pain. Enemas of starch water and opium, lead water and opium, and iodoform and oil are worse than useless. When the ulcer is due to syphilis, polypus, or papilloma, treatment is to be directed for these instead of the fissure; constipation or proctitis must be relieved also if a permanent result is to be obtained. The bowels should be kept open by a carefully controlled diet, or with enemas of olive oil or glycerine suppositories. Laxatives are contraindicated, or may be used guardedly in exceptional cases. Salines and the liquid stools they produce are very irritating as are also the resinous cathartics like gamboge, podophyllin, and aloes. In recent fissures, before the wound edges are thickened or undermined, or before pus burrowing has occurred, local dressings may obtain good results. The anus and, if possible, the ulcer are sprayed with four per cent. cocaine in a 1-1,000 adrenalin chloride solution, and allowed to rest for five minutes. A speculum is then introduced so as to bring the ulcer into view; the ulcer is sprayed with cocaine if it was not reached before, and then is painted with nitrate of silver solution, twenty grains to the ounce, or with pure ichthyol. Sometimes this occasions a spasm of the sphincter, which may be avoided by smearing the field with equal parts of stramonium and belladonna ointments. If a cure is not obtained in the course of from two to four weeks this treatment should be discontinued and the fissure treated surgically. Incision with drainage produces better results than divulsion of the sphincter, and, unless this muscle is particularly irritable, or the patient very nervous or hysterical, the operation can be performed under a local anesthetic. After being properly prepared the patient is placed in the Sims position, or in the lithotomy position if a general anesthetic is necessary. A speculum is introduced so as to bring the fissure into view. Sinuses burrowing under the mucous membrane are sought with a probe and when found should be widely opened.

The thickened and undermined edges are carefully trimmed flat and the fissure incised at its base down to the muscle wall, bringing the wound well out on the skin to facilitate drainage. The sentinel pile, if present, is included in the parts cut away, as well as any papilla or small polypoid growths at the upper end of the fissure. Exuberant granulations should be curetted away. The wound is packed with gauze in layers. The upper layers are removed in from twelve to twenty-four hours, but the lower ones are left until after the bowels have been evacuated to prevent infection of the field. The pain caused by the removal of the lower layers of gauze may be minimized by washing the wound while the gauze is in place with warm saline solution followed by peroxide of hydrogen. The wound is washed with a mild antiseptic solution each day after the bowels have been evacuated until it is completely healed, which requires about three weeks. During these dressings the edges must be carefully kept open until the surface, particularly the upper end of the wound, is thoroughly healed, that drainage may be free. It is advisable, though not necessary, that the patient keep his bed for a day or two after the operation. Some temporary incontinence at times follows this operation, but it disappears as the wound heals.

Tubal and Ovarian Hemorrhage.—J. Wesley Bovée (*Surgery, Gynecology and Obstetrics*, February, 1919) discusses the etiological relation of tubal and ovarian hemorrhage to pelvic hematocele and extrauterine pregnancy; the forms which are caused by tubal pregnancy and overwhelming trauma and hemophilia. It is stated that the condition does not occur infrequently. It is best demonstrated by a careful analysis of abdominal surgical work including microscopical study. Novak has reported forty cases and Jayle seventeen. Trauma plays a part in inducing these hemorrhages. The ingestion of various poisons are exciting causes. Many cases have been caused by the ingestion of oxytocics and emmenagogues to interrupt a supposed pregnancy, especially when it did not exist. Neoplasms and inflammatory changes are causative agents. It is possible that instability of ovarian tissues and the maladjustment of internal secretions at puberty are provocative. Vicarious menstruation may occur in the tube as in other parts of the body. Cases which have occurred in infancy have been reported. Exposure to cold, particularly during or near the menstruation period, has been regarded by many observers as the cause of the hemorrhage. The cause may be a neoplasm, especially of the carcinomatous variety. Tubal pregnancy is doubtless the predominating cause. The hemorrhage may be confined to the ovary or it may take place in the peritoneal cavity. The ovary is the most frequent seat of hemorrhage in the body. Stromal hemorrhage is often preceded by infection of the ovary. There are no definite diagnostic symptoms in a nongestational tubal hemorrhage. Usually there is a history of a sudden exertion followed by a severe degree of pelvic pain. General tenderness and rigidity of the abdomen are usually present, followed soon afterward by vomiting and collapse. Vaginoabdominal examination will reveal

great tenderness about the appendages. The shock, where there is no actual peritoneal hemorrhage is out of all proportion to the extent of the lesion found. The diagnosis is seldom correctly made prior to operation or autopsy. It must be distinguished from tubal pregnancy, ulcer of the intestine and the ingestion of poisons. In treating the milder forms rest and anodynes may be sufficient to meet all indications. In the more severe cases the treatment should be the same as for ectopic gestation.

The Clinical Aspects and Etiology of Winckel's Disease.—F. Weihe (*Zeitschrift für Kinderheilkunde*, xviii, Nos. 4 and 5, 1918) remarks that this affection is characterized by cyanosis, icterus, hemoglobinuria and bad circulation. It is met with in infants, occasionally occurring in small epidemics, and was at first regarded as a disease *sui generis*, but of late it has been looked upon as a kind of septicemia. The writer believes that it is an intoxication of chemical origin, due probably to petrolatum. He bases his hypothesis on the fact that one finds in the blood outside of or within the greatly deformed red blood corpuscles, certain corpuscles staining deeply with methylene blue, which are called Heinz's corpuscles and which up to the present time have never been found in toxemias of bacterial origin, but often in those of chemical origin, such for example as nitrobenzol, phenylhydrazin, potassium chloride, etc. The case reported by the writer was a baby who had been smeared over with petrolatum on account of a pemphigus. The petrolatum employed had a strong acid odor, recalling that of petroleum or formalin.

Hilus Tuberculosis in the Adult.—Clive Riviere (*Lancet*, February 8, 1919) contends that hilus tuberculosis in the adult is second only in frequency to the well recognized apical tuberculosis, but that it is seldom thought of and more rarely diagnosticated. In this connection he refers only to the active form of the disease, and not to the old lesions extending over from childhood and remaining inactive. The symptoms of active hilus tuberculosis are the same as those of apical tuberculosis, so far as those of toxic origin are concerned. Shortness of breath on exertion, however, is a common symptom which is fairly characteristic of hilus tuberculosis, and central pain in the chest is also not infrequent. On physical examination hilus tuberculosis shows equality of chest movement on both sides in the early stages, disappearing as the disease spreads more rapidly in one lung than in the other; percussion reveals reflex bands of impaired resonance across the back, above the spines of the scapulæ and across the zone of the scapular angles; the area of paravertebral dullness is also wider than normal on one or both sides; and there is a marked bilateral narrowing of Krönig's isthmus. Sometimes there is also some parasternal dullness. It is only late in the disease that the process comes to the surface and gives auditory signs in the form of râles, etc.; but when such a stage is reached these signs will usually be found on one or both sides of the chest in the axillæ, or at one or the other base. The radiogram will confirm the existence of tuberculous lesions about the hilus of the lungs.

The Proper Feeding of Infants.—Franz von Gröer (*Zeitschrift für Kinderheilkunde*, xviii, Nos. 4 and 5, 1918) says that in the Children's Garden, at Vienna, which can receive about one hundred children, varying in age from three to fourteen years, the food was distributed in four categories according to Von Pirquet's system. The exact estimate of the quantity of food necessary and its exact utilization resulted in reducing the expenses about 1.5 crowns a day and per capita, and this during the fourth year of the war. The children were given a varied diet and increased in weight on an average of 1,500 grams per week. This result was due to the proper regulation of the food as was made evident from the fact that while the directress was temporarily absent on one occasion the supervision of the feeding became less strict, the children's nutrition became arrested and they lost weight.

Nonpigmented Nævi in Children.—Konrad Bossard (*Jahrbuch für Kinderheilkunde*, lxxxviii, No. 3, 1918) states that in a great number of newly born infants he has found very small nævi on the forehead, neck, upper lip and other parts of the face. Out of a total of 330 infants examined, 193 showed nævi. The lesion was congenital and disappeared completely during the first two years of life or at least to such an extent that it could only be seen when the child cried. They are somewhat more common in the female sex and blond subjects are more prone to them, a fact which, perhaps, would indicate that there is a predisposition among Germans for these defects. From the point of view of the etiology, the writer reports his findings which are without any pathological value. These nævi are the result of defective circulation during embryonal life, due to the fact that vascular stasis occurs at the points of production of the facial folds, with the result that the stasis prevents involution of the primitive cutaneous vessels from taking place.

New Germ of Paratyphoid.—L. Hirschfeld (*Lancet*, February 22, 1919) describes a new type of paratyphoid bacillus which he has isolated in hemoculture from nineteen cases among Serbians, Greeks, and Bulgarians. The organism behaves in cultures exactly as do the common paratyphoid bacilli and has a similar morphology, but it is differentiated by entirely failing to be agglutinated by antiparatyphoid A or B sera, while it is readily agglutinated by its own antiserum even in high dilution. The cases from which it has been isolated have differed clinically in no way from typical cases of paratyphoid B infection. Infection has occurred by this new paratyphoid C in cases previously successfully vaccinated against typhoid and paratyphoids A and B. The introduction of paratyphoid C into the mixed prophylactic vaccine has practically stopped the development of cases due to infection by that type of organism. Mixed types of paratyphoid organisms have also been found, agglutinating with both B and C sera, and in some of these the property of agglutinating with one of the antisera has been lost after repeated culture, the other having been retained fully.

Route of Absorption of the Toxin of Tetanus.

—F. Albert (*Presse médicale*, January 2, 1919) reports experimental researches which have led him to the conclusion that too much stress is now being laid on the nervous route of absorption of tetanus toxin. Absorption by this route appears to be quite subsidiary and incapable of giving rise to generalized tetanus, being responsible only for the atypical, local forms of the disease. Grave, generalized tetanus is in reality the result of absorption of tetanus toxin by the circulatory route. By this pathway alone may the toxin reach the nerve centres, and in particular those of the medulla. Intoxication by the nervous route may, perhaps, spread by contagion from a nerve cell originally affected to one closely connected with it, but this mode of extension is extremely limited.

Treatment of Trench Fever.—J. E. Sweet and

H. B. Wilmer (*Lancet*, February 15, 1919) call attention to the fact that no treatment of any value has yet been developed for trench fever, either specific or symptomatic. However, Richter has reported that collargol has proved to be a specific in his hands. This form of colloidal silver was therefore tried in some thirty-five cases, and while the number was small, the results were so striking and definite as to make its further trial on a more extensive scale imperative. The authors do not regard it as in any way a specific, but its use has been followed by prompt and marked clinical improvement and recovery. The drug was given in the form of a one per cent. solution, of which ten mils were injected intravenously. The dose should be repeated at intervals of two or three days. The first dose generally produced more or less reaction, but this was not in any way detrimental to the patient and was often followed by immediate and permanent subsidence of the fever and all symptoms of the disease.

Transabdominal Auscultation.—R. Robine

(*Presse médicale*, December 9, 1918) found that in cases of slight, beginning peritoneal effusion, application of Pitres's coin sign—*signe du sou*—in the examination of the abdomen supplied evidence of the presence of fluid not obtainable from other diagnostic procedures. In intraperitoneal effusion and in fibrocaceous peritonitis, a special quality of sound, quite different from the silver bell tone typical of the Pitres sign, is elicited. The examiner auscults the abdomen of the patient—the latter in the standing posture—at a point about six centimetres above the pubes in the median line, while an assistant percusses with two coins the sacrococcygeal area, preferably at points on a level with the coccygeal angle and four centimetres above the sacrococcygeal joint. In the normal subject, percussion through the abdomen fails to transmit any sound, or yields only a confused noise. Where ascites or peritoneal condensation exists, however, the sign is positive, independently of the state of repletion or emptiness of the bladder. The sound heard appears as if produced close to the ear, and is dull and woody in the presence of fibrocaceous deposit, more resonant and slightly metallic in the case of ascites. These sounds are heard much more distinctly with the ear than through any form of stethoscope.

The Importance of Rammstedt's Operation.—

Johann von Böckay (*Jahrbuch für Kinderheilkunde*, lxxxviii, No. 1, 1918) states that the reason why there has been such hesitation in advising operation in pyloric stenosis in infants is because the interferences have been up to the present time of a very serious nature, such as plastics on the pylorus, gastroenterostomy, and divulsion, while the delay in operation caused the babies to become so weak that the operative results have been marred for this reason. The procedure devised by Rammstedt, in 1912, consists in incising the muscular structures of the stenosed pylorus down to the intact mucosa. No sutures are employed after the incision. The procedure is short and does not involve the mucosa of the digestive tract, so that feeding can be continued without interruption. The writer has resorted to this operation in four cases, all of which were successful.

Atypical Type II Pneumococci.—Ernest G.

Stillman (*Journal of Experimental Medicine*, March, 1919) studied a number of strains of atypical Type II pneumococci in order to determine their occurrence and frequency, and their relation to lobar pneumonia. Two hundred and four strains were isolated from such varied sources as cases of lobar pneumonia, postoperative pneumonia, meningitis, guineapig pneumonia, normal mouths, convalescent pneumonia, Types I, II, and III, and from dust. As a basis of classification, agglutination, and absorption tests were used, and the 204 strains were classified in twelve distinct groups. Only two strains showed cross agglutination in the immune sera of a heterologous group. The subgroups showed an incidence of eleven per cent. in lobar pneumonia, and eighteen per cent. in normal mouths. The mortality of pneumonia due to atypical Type II pneumococci is fairly high; in fifty-nine such cases the death rate was thirty-two per cent., so that some members of this group have a high pathogenicity and virulence.

Treatment of Filariasis with Salvarsan Substitutes.—J. G. McNaughton (*Journal of Tropical*

Medicine and Hygiene, January 1, 1919) refers to a case of elephantiasis of the leg seen by him in the Gilbert Islands. Filarial larvæ were abundant in the blood. Twenty centigrams of galyl was injected intramuscularly twice, at an interval of ten days. The patient was under observation for three months, had no attack of filarial fever, and at the close of this period showed no filariasis in the blood. Two months later he was seen again and had had no febrile attack. Similar results as regards filarial larvæ in the blood were observed in a Samoan with elephantiasis of the scrotum who received twenty centigrams of galyl on two occasions. In both these cases there was little or no possibility of reinfection. The author believes that, provided no reinfection occurs, arsphenamine or its substitutes will cure filariasis by killing the filarial larvæ. If, after treatment by galyl or allied substances, the cases of filariasis can be isolated, progress should be made in stamping out the disease. In localities such as the Ellice Islands, however, such isolation is impossible, as every native seems to be infected. Antimosquito work is also an important prophylactic measure against filariasis.

Proceedings of National and Local Societies

INTERNATIONAL CONFERENCE ON REHABILITATION OF THE DISABLED.

*Held in New York, March 18 to 21, 1919, under
the Auspices of the Red Cross Institute
for Crippled and Disabled Men and the
Red Cross Institute for the Blind.*

The Hon. CHARLES E. HUGHES in the Chair.

(Concluded from page 614.)

REHABILITATION OF THE TUBERCULOUS SOLDIER.

A section of peculiar and exceptional interest was that devoted to a consideration of the rehabilitation of the tuberculous, and of course the tuberculous soldier in particular. It was of especial concern because the readers of papers and the speakers discussed two points of great importance, viz., the comparative merits of occupational therapy and other forms of exercise in the treatment of tuberculosis and the value of rest as a remedial measure. The question of occupational therapy and of mechanotherapy was dealt with in the section in which functional restoration was considered and the views of different authorities were given. It was pointed out by Tait McKenzie, A. E. Bott and W. Gilman Thompson that there is no antagonism between the methods, but that occupational therapy should not be relied upon entirely for the purpose of restoring function. Rather the two methods should be intelligently coordinated. At the British military orthopedic hospitals it is the tendency to rely mainly on occupational therapy in the treatment of wounded soldiers, whereas in Canada and, perhaps to a lesser extent here, mechanotherapy is more largely employed. The same arguments apply to the physical means of treating tuberculous soldiers. The value of occupational therapy lies chiefly in its psychological effects—effects which are of more importance in the treatment of tuberculosis than of any disease and so long as the exercise taken is not excessive it seems that occupational therapy is excellently adapted to the treatment of tuberculosis. As for rest in tuberculosis there is no doubt that rest is essential to success of treatment and it is somewhat of a mooted point whether exercise of the tuberculous is not sometimes carried too far. There are those who contend that nowadays sufficient reliance is not placed upon rest as a remedial measure and that the beneficial properties of air and exercise, especially of exercise, are carried occasionally to the extreme.

Captain I. RODDICK BYERS, medical superintendent Laurentian Sanatorium, Ste.-Agathe des Monts, Quebec, Canada, read the first paper presented in this section. He discussed the rehabilitation of tuberculous Canadian soldiers. He said in part that the Ste.-Agathe Sanatorium was the first to take in tuberculous Canadian soldiers, but that as forty-eight per cent. refused to undergo the routine physical treatment prescribed by the institution it was found that something must be done to render such treatment interesting. Consequently

vocational therapy was introduced into Ste.-Agathe in 1916, the results of which have been remarkably good. Treatment by occupational therapy is done on the graduated exercise plan. The work at first is light and increases in amount and strenuousness in proportion to the improvement in condition and development of vigor in the patient. The treatment is begun while the patient is in bed; he is given knitting and light employment of a similar nature. The patient is to a large extent given his choice of occupation, influenced naturally by the advice of the medical attendant. Handicrafts, drawing, engraving, typewriting and in fact all trades, occupations, or any means of earning a livelihood suitable to a consumptive are taught. Before leaving the institution the patients are subjected to practical tests in order to judge whether they are in a fit condition physically to be discharged and to face the world.

Captain Byers stated that the patients are particularly enthusiastic with regard to this kind of work and that the results have been wonderfully good. Of 900 men who passed through the institution only twenty-four died. The address was well interpreted and the salient features thereof emphasized by pictures on the screen showing the manner in which occupational therapy is done at Ste.-Agathe.

Miss ETHEL WOOD, Secretary Local Pensions Committee, London, England, referred to the problems of the tuberculous soldier in England. She laid stress on the fact that since the beginning of the war the problem of tuberculosis has increased enormously in Great Britain and alluded to the hopeless condition of those who had reached the incurable stage of the disease, the stage when, for the safety of the community at large, its victims must be isolated. Miss Wood pointed out that tuberculosis exerts a curious effect upon the mentality of those afflicted. They are imbued with a bitter feeling and resent their condition as being the result of a hard and undeserved fate. Moreover, the tuberculous soldier is very impatient of restraint and in London, at any rate, dislikes intensely the open air treatment. She impressed upon her hearers the immensity of the problem regarded from the economic standpoint. She drew attention to a point which is being noticed continually, that when the tuberculous return home after treatment it is difficult, almost impossible, to induce them to be careful in their habits and mode of life. The speaker stated that the British War Pensions Committee have provided separate beds for certain cases and dwelt upon the point that bad cases must be isolated.

Colonel GEORGE E. BUSHNELL, Office of the Surgeon General, U. S. Army, described the surgeon general's program for the care of tuberculous soldiers. He said that tuberculosis has been practically eliminated from the American Army in France and that large hospitals for the treatment and care of tuberculous soldiers have been erected and equipped in different parts of this country. There are at the

present time a total of about 7,500 beds for American tuberculous soldiers. Accurate statistics as to tuberculosis in the American army are not available, but as far as he judged the conditions in this respect are favorable. Colonel Bushnell particularly noted that the tuberculous patient is at all times untrustworthy as to his state of health. He is generally unduly optimistic and his statements with regard to his feelings must be largely discounted. Colonel Banks, Chief Medical Advisor, Bureau of War Risk Insurance, had a paper read in his absence discussing the program of the Bureau of War Risk Insurance in the treatment of tuberculous soldiers after discharge. The manner in which the problem of tuberculous soldiers has been grappled with in America was pointed to as a matter for national pride. It was stated that the army retained tuberculous soldiers for treatment as long as possible in the interests of public health. The economical advantages of vocational training for tuberculous soldiers were commented upon.

Mr. DOUGLAS C. MCMURTRIE, Director of Red Cross Institute for Crippled and Disabled Men, spoke briefly on pensions for tuberculous soldiers. He said that there was a good deal of difficulty in assessing such pensions, which should be determined by medical examination alone as the physical condition improves or asserts itself pensions should be reduced, or vice versa. The man who has once had active tuberculosis is suffering from an invisible wound and is an invalid to all intents and purposes, and this consideration must be taken into account when assessing the pension.

VOCATIONAL WORK IN TUBERCULOSIS.

Dr. BAYARD CRANE, Rutland, Mass., read a paper on vocational work for the tuberculous. At the sanatorium at Rutland, Mass., vocational training was introduced some time before the war, indeed, it is an industrial sanatorium for tuberculosis. Doctor Crane insisted that there is a type of tuberculosis of a chronic semiactive fibroid kind, the sufferers from which are misfits, hygienically, economically and socially. They are not likely to die, but hang on, leading a more or less invalid's life, with occasional acute exacerbations of the disease. However, they are unable to do regular work in the same way as the healthy individual and are not adapted for the hurly burly of life. Moreover, these men or women are apt to spread infection. Yet for their own sakes and for the good of the community these persons ought to be given a chance. Life in the ordinary sanatorium is deadly monotonous and a sanatorium is the place in which individuals with the type of disease referred to should be. Therefore, an industrial sanatorium in which the indwellers can follow trades, handicrafts and especially agriculture, appears to be the rational and logical manner of solving the problem. Therapeutic and economical vocational work is carried on in an industrial sanatorium should act for the good of the entire community as well as to the physical and economic advantage of those most directly concerned. An industrial sanatorium like that at Rutland would take in patients suffering from tuberculosis in the incipient stage, those amenable to treatment, as well as those afflicted with the chronic

type of infection. Doctor Crane suggests that industrial sanatoriums and industrial colonies and agricultural industrial colonies in particular should be established for tuberculous soldiers and sailors.

MEDICAL SERVICE IN REHABILITATION.

Lieut. Col. F. McKELVEY BELL, Director of Medical Services, Department of Soldiers' Reestablishment, read a paper on medical services for discharged Canadian soldiers. Colonel Bell said that the figures for treatment of soldiers in Canada are very satisfactory. Sixty-four per cent. of them either recovered or improved in sanatoriums. Tuberculosis is the chief disease from which they suffer and he is of the opinion that colonies should be established for those who cannot do continuous labor. Industrial colonies should be introduced for feeble minded epileptics and *hoc omne genus*. Occupational therapy has been mainly responsible for keeping down disease among the returned Canadian soldiers. There are two kinds of disabilities to which the soldier is subject; one is caused directly by war, as by wounds incurred in action and the other form of disability is occasioned by disease the result of war or war conditions. Of course, many of the states of ill health from which the soldiers suffer are very indirectly caused by the war; but the Canadian Government permits of a considerable amount of latitude in the direction and practically all diseases and complaints with which the soldier is afflicted while serving under the British flag in the Canadian branch of the army is treated free of charge. In fact, if he is sick while in the army the disability is regarded as having been incurred in the service. Moreover, all exsoldiers for a year after discharge are given medical treatment, whether their disability is due to war or not. Colonel Bell has the highest opinion possible of occupational therapy from his experience of the effects of such treatment on returned soldiers.

Dr. G. W. GRAHAM, Vocational Medical Advisor for Ontario, Department of Soldiers' Civil Reestablishment, spoke on the sphere of the vocational medical advisor in Canada. The gist of his address was that in order to obtain the best results, or even satisfactory results, the vocational medical advisor must be possessed of both tact and sympathy. Also he must make use of great discretion in putting a man to training or retraining. That is, he must employ judgment in advising a man as to the description of work best suited to his capabilities. He must therefore have a knowledge of character and have more than a passing acquaintance with the various trades and handicrafts. The choosing of a trade or handicraft is a most serious matter for the patient; it must not only be suited to him from the physical but also from the mental point of view. Consequently, the future success of the disabled soldier about to undergo retraining depends very largely upon the vocational officer. The prewar occupation of the candidate should always be taken into consideration. Before a final decision as to the choice of trade and, in consequence, the kind of retraining is arrived at, the man is referred to a specialist vocational officer for examination, so that as little room for error is left as possible.

INDUSTRIAL RETRAINING IN CANADA.

Dr. DONALD A. KINGSTON, Vocational Medical Advisor for Montreal, Department of Soldiers Civil Reestablishment, discussed medical experience with respect to industrial retraining in Canada. Among other points he drew attention to the following point, that in order to make a correct diagnosis it is essential to find out hidden obscure disabilities from which a candidate for retraining may be suffering. Therefore the examination must be close and accurate. The vocational medical advisor must be sympathetic and very patient, because he must bear in mind that the mental attitude of men who have been fighting at the front have greatly changed from that they held when civilians. Men who have looked death in the face frequently regard many of the matters deemed of importance in civil life as of trivial concern. They are inclined to be indifferent and to hold negative views as to the importance of anything mundane. Their attitude often is, what is the use of bothering about the details of life, nothing really matters. Also, they have become accustomed to being so looked after by their officers when well and being cared for and even pampered by nurses and well meaning individuals when they are sick that they are, to a large extent, irresponsible. When in the army they lead a dependent existence. Civil life is altogether different and it will take them some time to adapt themselves to the changed circumstances, if ever they do entirely. Consequently the position of vocational medical advisor is a difficult and delicate one and if he does not keep in mind the altered mental attitude of the returned soldier and be correspondingly sympathetic and patient he will be a failure as a vocational officer and will do more harm than good.

REHABILITATION OF THE NERVOUS AND MENTALLY DISABLED.

Dr. C. B. FARRAR, Psychiatrist Medical Branch, Department of Soldiers' Civil Reestablishment devoted his remarks to a consideration of the rehabilitation of those having nervous and mental disabilities. Doctor Farrar pointed out that much confusion exists as to the differentiation between the various types of mental and nervous disabilities. In all such disabilities there is an underlying condition which is fundamentally constitutional. If, instead of regarding the superficial symptoms solely, we should analyze the conditions closely we should find that not more than fifty per cent. of these are of neurotic origin. The high grade defective is on the borderland and many of those on the borderland at the beginning of the war, when men were badly wanted, were carelessly examined and may be said to have drifted into the service. Such cases are characterized by emotional instability by psychopathic inferiority, but are not mentally defective. Dementia præcox, a constitutional condition, is more common among returned soldiers than all the other mental diseases put together. Dementia præcox and neurosis of primary origin supply four fifths of all types. Doctor Farrar thinks that the eligibility of these types for vocational training is not very large. Vocational training plays little part in mental cases. The whole question of mental invalidism has atten-

tion focussed on it as never before. Moreover, the treatment thereof is under criticism and will undergo revision.

REHABILITATION IN FRANCE.

Dr. ANDRÉ TREVES, Chief of Staff, Centre d'Appareillage et de reeducation Professionnelle, Rennes, France, dealt with the question of medical service in relation to rehabilitation in France. Doctor Treves said that the French Government provides all discharged soldiers with free medical treatment. Just as it has been decided to provide the disabled with prosthetic appliances for the duration of their life, so a sick or wounded veteran is entitled to demand from the State free hospital treatment when such treatment is necessitated by a wound or disease contracted in service. For example, a man has a fistula develop in his old wound, or a fractured bone with or without grafts breaks again in the old place as a result of some injury, or a man who contracted malaria or tuberculosis in the army and has been pensioned for it is overcome by the disease, all these cases are entitled to free treatment and hospitalization. In respect to whether a disease is attributable or not the pension law is very literal. It admits a presumption in favor of the man and his right to a pension for every illness contracted after sixty days' service, and, of course, by the very fact a man is entitled to free treatment for the sickness which occasioned his discharge, of course, this right can only be claimed for the wounds or disease which rendered the man unfit for service, and thereby caused his discharge. If a soldier disabled in the arm breaks a leg or becomes tuberculous the State is in no way responsible. With regard to the granting of pensions, the departmental committees send to the mayors of all the communes in the department questionnaires which the mayors are expected to fill out by giving the name, address and disability of all the discharged soldiers in the commune. They are also asked to state in each case whether the man is working and whether he has need of medical treatment or of trade training. Inspectors who are chosen from wounded officers and are attached to the departmental office go through the communes to verify the reports submitted by the mayors, get into touch with the discharged soldiers and look into their needs. They may organize lectures of propaganda for reeducation and give to those interested all useful information about admittance to a reeducational school. All discharged soldiers are entitled to attend a reeducational school without cost to themselves.

AMERICAN EMPLOYERS AND REHABILITATION.

Major J. E. MEAD, Chief Medical Department, Ford Motor Company, Detroit, Mich., read a paper on the interests of American employers in rehabilitation and gave some valuable information with regard to the methods of salvaging the human material at the Ford Motor Company. The chief interest of the paper lay in the description of how the crippled men or those suffering from some ailment or otherwise physically below par, numbering in the Ford factory 9,563 out of a total of 33,000 employees, are treated so that not only is good work obtained from them, but they are themselves satis-

fied with their conditions. For instance, Major Mead gave a list in which it is shown that 670 jobs can be performed by legless men, 2,637 by one legged men, two by armless men, 715 by one armed men and ten by blind men. From the study of the subject of human salvage two fundamental facts became prominent: First, there were 9,568 substandard men in the Ford plant who required more or less consideration in order to secure efficiency from their labor, and, second, throughout the plant there were over 14,000 jobs perfectly suited to the various types and conditions of these physically substandard men. The problem then became clear and the solution simple. It was the rational adjustment of the two factors, the man and the job, an instructive incident showing the results of proper assignment of work and illustrating the efficiency of a totally blind man. When this man was first tried it was intended to place him on the same work as that being done by other blind men, but on investigation it was found that stock for these men was getting low and other work must be provided. Three different jobs were soon found that he could do and he was finally assigned to the stock department, counting bolts, nuts, etc., for shipment to the branches. Two other able bodied men were already employed at the same work. Two days later a note from the foreman was sent to the transfer department, stating that he could release the two older employees, as the blind man was doing the work formerly done by both of them.

Criticism of the monotony and lack of opportunity resulting from the modern methods of manufacture is often heard. These objectionable features of modern labor have been realized by the Ford Motor Company and very recently a method devised whereby these contingencies may be met and their objections overcome. Four of the larger departments have been chosen for experiment, and if proven practical the entire factory will be placed under the same system. In these selected departments the work has been classified according to its desirability and the skill required in its performance. There are three different classes of work in each department—A, B and C—each class comprising from ten to thirty different operations. The men in class A are eligible for promotion to the next higher department as vacancies occur. When these promotions take place the vacancies made cause a general advancement all along the line, leaving the jobs in class C open to new men from an inferior department or from the employment office. Of course, an employee must show his fitness for advancement or he will be passed by those below him.

In connection with the subject of bedside and ward occupations, brief mention of a plan instituted in the Ford factory over a year ago may be of interest. The great majority of Ford employees compelled to lose time on account of accidents consist of those receiving injuries to the feet or legs, such as fractures, severe contusions, etc., necessitating their confinement to bed. As a rule, these men after the first few days are free from pain and in normal physical condition, except for their inability to walk about. It seemed a great economic

loss, both to the employee and to the company, to have men lying in bed at home or in the hospital, sometimes for two months or more, when, if work could be furnished them that could be done while in bed the saving to all concerned would be considerable. At the time this experiment was started there were three men in the Ford factory hospital with broken legs. These injuries were of about two weeks' duration, the pain had practically subsided and the patients were able to sit up in bed with head rests. Black oil cloth covers were provided to keep the bed clothes clean and the men were set to work screwing nuts on little one quarter by two inch bolts. The work has to be done by hand and kept fifteen men busy, showing that it is work that has to be done by some one and not a useless occupation created purposely by these men. From the first the patients took to it with enthusiasm and evinced their appreciation of the opportunity of doing something by increasing production on this particular work twenty per cent. The material was brought to the hospital in the morning and at noon and was handed to the men by the ward orderly as occasion demanded. The men were much more contented, slept better at night, ate better and in the opinion of Major Mead recovered more rapidly. They received their regular wages, the company got the product of their services and was not obliged to pay compensation or gratuities, which generally amount to at least \$20 per week in each case. The results of the system of salvaging men inaugurated by the Ford Motor Company over five years ago have been so satisfactory, and indeed profitable, that it has been adopted by all the Ford interests.

REHABILITATION OF THE BLIND.

Captain EDWIN A. BAKER, M. C., Croix de Guerre, Department of Soldiers' Civil Reestablishment, Canada, spoke on the after care of the blinded soldiers of the Canadian forces. Captain Baker, who was himself blinded, told of what had been and is being done in the way of vocational training for blinded Canadian soldiers. The majority of these victims of war were trained at St. Dunstan's House, the magnificent residence and grounds in St. Regent's Park, London, which was bought and endowed by Sir Arthur Pearson, the well known blind publisher. A few of the Canadian soldiers were returned blinded to Canada without having undergone training at St. Dunstan's House, and these are being trained on practically the same lines at the military school, Hart House, Toronto, Canada. Captain Baker described the various handicrafts, trades and vocations in which blinded soldiers have not only been trained but have shown themselves remarkably proficient. Massage is a form of occupation well adapted to the blind. Stenography is another in which a considerable amount of skill has been evidenced. In fact, under a careful course of training such as is given at St. Dunstan's House the blind are rendered fully capable of being self supporting or even of earning a good living in several branches of work.

Dr. MAURICE BOURRILLON, to whom reference has been made previously, presented an excellent paper. He said in part that following a decision of the

Council of Ministers in March, 1915, the Ministry of the Interior founded a school of vocational re-education in the Asiles Nationaux des Convalescents and the Institut Vacassy, at St. Maurice, near Paris. At the same time, the medical service of the army established, in the same asylums, a centre of restorative surgery and of physiotherapy, and later a centre of orthopedic treatment and prosthetic equipment. This institution has served as a model for all schools which have been created since by the French Government, under one form or another in other parts of the country. Functional restorative methods are employed and cripples supplied with the different appliances that may enable them to walk, to perform movements, and to work. The disabled who wish to learn a trade may while undergoing the surgical or physiotherapeutic treatment, or while waiting for an apparatus to be supplied, be initiated at the vocational school into practice of the trade that is suitable for them.

The question of vocational reeducation of the disabled began at an early date to agitate public opinion in France, as in all of the belligerent countries; during the years 1914 and 1915 about ten schools were founded; but their number grew rapidly, and toward the end of 1918 there were in France and Algeria 124 schools.

Dr. ANDRÉ TREVÉS, chief of staff, Centre d'Appareillage et de Rééducation Professionnelle, Rennes, France, read a paper on agricultural readaptation in France. He pointed out that in the great war, sixty to seventy per cent. of the French soldiers were farmers. When the fact is taken into consideration that the French dead number a million and a half and that the French disabled soldiers number more than 500,000 the importance of the problem in an essentially agricultural country may be easily understood. Thus the French authorities and surgeons have to bear in mind the many difficulties from mutilations which hamper the workers in the field, the manner in which they may be remedied, and the use by the war cripples of agricultural machines. Dr. Trevés described the improvement in apparatus and tools which have rendered men even when seriously disabled able to do good work on the land.

Attention is drawn to the fact that for men with arm amputations, the difficulties seemed at first unsurmountable and the greater number of these who were equipped with apparatus during the first year were lost to agriculture. Nowadays, with the improvements that have been made these men can adapt themselves to work in the fields more quickly even than those with disabled legs. The progress in this direction is due entirely to the improved apparatus and to the improvement in tools to be adjusted to the disabled limb. For instance, work with a scythe is particularly interesting to men with arm amputations. They can fasten their tool holder on to the small handle placed half way up the scythe and use the well hand for making a sweep. A general rule is to allow the crippled hand to remain passive while the able one makes the movements. For those with right arm amputation the left arm is the one to make the movement and exert the strength. With a tool holder a man even

with a disarticulated shoulder can work now nearly as well and as quickly as an able bodied man.

There are many serious hand deformities sometimes, a total loss of power, sometimes a vicious ankylosis of the wrist, which are worse than an amputation. These men are fitted with a leather sheath with metal supports to which can be attached the tool holders. The use of two fingers especially with a normal thumb makes possible a good deal of work as long as the exhibition of no special strength is called for, but the leather support should be used to hold the tools. The results of the efforts in France to rehabilitate and retrain the disabled soldier for agricultural work have been most encouraging and augur well for the future.

As said before the conference was a success from the standpoints of the number and quality of the papers presented and of attendance. The lessons taught thereby should prove of infinite value, and although the problem of rehabilitation in this country is small in comparison with the belligerent countries of Europe, there is yet here plenty of scope to put into practice the principles of physical therapy and occupational retraining. Our wounded and disabled in civil life are greater by far than in any country of the world.

Births, Marriages, and Deaths.

Died.

ALLEN.—In Providence, R. I., on Friday, March 28th, Dr. Edward S. Allen, aged sixty-four years.

BASSETT.—In Taunton, Mass., on Sunday, March 16th, Dr. Elton J. Bassett, aged seventy-four years.

BEIDLER.—In Akron, Ohio, on Friday, March 28th, Dr. William Beidler, aged fifty years.

DERNEHL.—In Milwaukee, Wis., on Friday, March 28th, Dr. Paul Herman Dernehl, aged forty-one years.

DUFFEY.—In New York, N. Y., on Monday, March 31st, Dr. Francis J. Duffey, Lieutenant Colonel, Medical Corps, U. S. Army, of Brooklyn, N. Y., aged forty-five years.

DUMONT.—In Little Falls, Minn., on Tuesday, March 25th, Dr. Noel L. Dumont, aged fifty-seven years.

CHAPMAN.—In Seattle, Wash., on Monday, March 24th, Dr. William Chapman, aged eighty-three years.

FAUST.—In Schenectady, N. Y., on Thursday, March 27th, Dr. William P. Faust, aged forty-six years.

GRIFFITH.—In Philadelphia, Pa., on Monday, March 31st, Dr. Lewis B. Griffith, aged sixty-one years.

HENDERSON.—In France, on Saturday, February 1st, Dr. George E. Henderson, Captain, Medical Corps, U. S. Army, of Brooklyn, N. Y., aged thirty-five years.

JOHNSON.—In Indianapolis, Ind., on Wednesday, March 26th, Dr. William H. Johnson, aged sixty-three years.

LEWIS.—In Alfred, N. Y., on Thursday, March 27th, Dr. Daniel Lewis, aged seventy-six years.

LUNDGREN.—In Ann Arbor, Mich., on Tuesday, March 25th, Dr. Harry G. Lundgren, of Ironwood, Mich., aged forty-three years.

MCDONALD.—In Clayton, Mich., on Saturday, March 8th, Dr. James F. McDonald, aged seventy-six years.

OLMSTEAD.—In Seattle, Wash., on Sunday, March 16th, Dr. William Edward Olmstead, aged sixty years.

ROTH.—In Miami, Fla., on Friday, March 21st, Dr. Edward Roth, of New Rochelle, N. Y., aged fifty-nine years.

STREET.—In Cohasset, Mass., on Wednesday, March 26th, Dr. Jerome Charles Street, aged ninety-one years.

TRACY.—In Brooklyn, N. Y., on Friday, March 28th, Dr. Paul Tracy, aged fifty-three years.

WETMORE.—In Hilo, Hawaii, on Sunday, March 16th, Dr. Francis Matilda Wetmore, aged sixty-four years.

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MODERN COMMENTARIES ON HIPPOCRATES.*

BY JONATHAN WRIGHT, M. D.,
Pleasantville, N. Y.

CLASSIFICATION OF DISEASE.

In commenting upon the first and third books of *The Epidemics*, Adams, who wrote before the pathological classification of disease had made any progress in the nineteenth century, remarks: "There is not in the collection a single case of the epidemical erysipelas which is described as having been the prevailing disease during the fourth Constitution. Indeed it must strike everybody, who reads them carefully, as a singular feature in these cases that the lineaments of a particular disease are seldom to be recognized, and this perhaps may be regarded as a proof of the faithfulness with which they have been copied from Nature. In short, we here recognize the features of disease in the concrete, and not in the abstract. And is not this what we should expect in all true copies from Nature? How often does the candid physician find himself forced honestly to admit that he is at a loss what name to give to the combination of morbid actions which he is called upon to treat! The common herd of mankind would seem to fancy, as in Nature there are certain types of all animal and vegetable substances, and the botanist has no difficulty in classing such a plant, for example, as the *contum maculatum*; and the natural historian can readily pronounce that such a bird is the *alcedo Ispida*; that the physician, in like manner, upon examining the characteristic features of any case, should have no difficulty in pronouncing that it is *pleuritis*, for example, or *pneumonia*, or the like." How strange this sounds to us! How vague! We involuntarily picture to ourselves the bewilderment we ourselves would be in if we could not make out in a given case if we have to do with an abscess of the liver or typhoid. I remember turning over the pages of the autopsy protocol of a once famous pathologist who also studied his cases in the wards and reading a side note which ran something like this along the page margin opposite a diagnosis of hepatic abscess as the cause of death, "Ha—ha, I thought it typhoid." For him also we may perhaps feel compassion as

being deprived of the advantages bacteriology have given in our conceptions of disease. Perhaps it was typhoid, a plate culture might have shown the bacilli in the abscess, we would say. All this was strange indeed to Hippocrates's way of thinking. Neither the bacteriology nor the morphology of the lesion would have been more than another factor added to his concept of a disease founded chiefly on vital, on biological phenomena. In another case we might have pointed out to him at a slightly earlier period in the nineteenth century medicine that really the urine misled him in diagnosis—"it is the kidney"—then a little later, "but back of the kidney it is the heart," and still a little later, "back of both it is the vascular lesion, arteriosclerosis, senescence, etc."

Some one, a biologist I believe, remarks that when any one talks of causation he hangs out a signal to the discerning that he has made an incomplete analysis. This philosophical criticism of thought finds no field so rich in examples as that of medicine. For more than a generation classification of disease has rested on a basis of causation. Nothing can be more evident to one who has had opportunities and an organ for reflection that this is an exceedingly shifting basis. It depends on the psychology of the crowd capable of visualizing only one link or one mesh in the tangled maze of the causation of any biological phenomenon. It is the anatomical lesion in 1870 and in 1890 it is the bacterium which caused it. In 1920 doubtless it will be the humoral index which controls the bacterium and we reach again a basis in the humoral theory that attracted primitive man and was elaborated by Alcmaeon and medical biologists for thousands of years after him.

So we traverse the almost infinite stretch of the paths which medical science has traveled—not in circles perhaps but in spirals, though it is not a cautious thing nor a modest thing to assume a supercilious attitude toward our late confrère, Doctor Adams, well within a half century of our own matriculation, nor one lacking in reverence for the Master. So reverent is the good Doctor Adams that he falls upon a contemporary in the way of criticism on his celebrated work on *Purgative Medicines*. "But how often does it happen, that the complaint in question is an aggregate of symptoms, produced by peculiarities of constitution, and incidental circumstances, which, taken together,

*The translation of Francis Adams's *Hippocrates, Greek Works*, v. 1 (New York: William Wood & Co.), and E. Littré's *Hippocrate, Œuvres complètes* (Paris: J. B. Baillière, 1839-1861), 10 v., have been chiefly used and compared with Littré's Greek text.

constitute an *ensemble* which does not well admit of being referred to any one of the general forms of disease described in our nosological systems? Now, I say the most wonderful feature in the cases related by Hippocrates, is that they are descriptive of the symptoms observed in certain diseased individuals, instead of being, what most modern cases are, symptoms drawn to correspond with certain ideal forms of disease. What, in my opinion, likewise adds very much to the value of these cases is, that (as Galen somewhere remarks in his Commentary) the author never aimed to make his Books of Epidemics a work on therapeutics, and hence, in noting morbid phenomena, his mind is not warped by any particular hypothesis, nor by any selfish interest, in order to place some favorite mode of practice, advocated by himself, in a favorable light. May I be permitted here to remark, that the reader will be much struck with our author's admirable talent for describing the phenomena of disease as they are actually presented to us, if he will compare the cases related by him in these two books with those of almost any modern authority whatever—for example, with those related by the late Dr. James Hamilton, in his celebrated work on *Purgative Medicines*. What indeed will he find?"

In all the seventeen cases related in the work referred to he complains that the characters of the gross appearance of the urine are not given in a single instance. Thus in the defense of Hippocrates we see how late uroscopy, so cultivated in the Middle Ages, lingered in the nineteenth century. Though we feel like smiling we refrain, thinking in the back of our thoughts of some of our own pet theories but our poet strikes the proper key when he sings:

And if I should live to be
The last leaf on the tree
In the Spring,
Let them smile as I do now,
At the old forsaken bough
Where I cling.

Why are we confronted with this constant shifting of the classification of disease, the most striking phenomenon in the history of medical thought which stretches from the misty past far back of Hippocrates to the bacteriological basis of today showing already indubitable evidence that in a short time it too is to become a mere link in the chain of causation, probably more or less insignificant, at least not a proper basis for classification? We have to look for the answer in the wider field of general biology though the phenomenon really presents its most striking exemplification in the field of medicine itself. I should be laying my flank open to attack did I not acknowledge that we can easily recognize it in the evolution of our knowledge of all cosmic phenomena.

In biology and in medicine, however, we have to do, every moment of our lives, with experiences which are directly associated with a mystery which baffles us still and has baffled the endeavors of countless generations of our predecessors—life. The definition itself eludes us and the conception of it, as we watch the struggles of the mechanist to grasp it, wavers. We refuse to accept his exposition of it as commensurate with other materialistic

phenomena simply because it is associated with them. Not that mystery does not lie at the basis of the structure the physicist himself is erecting. He too builds on sand. Now many of the physicists who dwell in the basement, as it were—who are in constant contact with the foundation of things—are neovitalists or at least overwhelmed with the mystery of it all. Lodge and Crookes are names among the English which rise in our minds, but the vast majority of the physicists live in the upper stories and know nothing, or something only by hearsay, of the condition of things in the subcellar. We physicians live in a one story structure in constant contact with the foundation of things, but I fear we have not much of a subcellar.

Metaphor aside, we strive constantly to define the things we encounter. To do it we have to forget multifarious variations of life itself. We form artificial categories and we try to be oblivious to exceptions. We call a sickness typhoid fever because we are able to find in the patient or his discharges a certain microorganism. Around it we group certain vital phenomena—fever, inanition, degeneration of muscle fibre, foci of suppuration, etc. That is what make up the totality of the conception of typhoid fever, but it is not typhoid fever for us unless we find the bacillus and yet we find the bacillus of typhoid, of cholera or influenza in thousands of people who are not sick and perhaps never have been afflicted with the phenomena which we admit forms a necessary part of our conception of these and other diseases. The human mind would cease to be what it is if it remains long in the future satisfied with any classification which presents such inconsistencies. Now this is exactly the course of events associated with the immediately preceding classification of disease which rested on the pathological lesion, which so interested us a generation or so ago. Tubercle in the tissues was revealed by the microscope, but it finally became clear that all people who had tubercle did not necessarily have tuberculosis, just as now it is clear that all people who have the tubercle bacillus in them (as all grown people have had) do not necessarily have tuberculosis. The factor that "pulls the trigger," as we like to say colloquially, as these things dawn on us, eludes us—one more link to the chain we fondly hope, will show us the "true cause." The mystery baffles the physician just as it does the physicist who dwells in the subcellar. We have no top stories but we know very well indeed when the foundation cracks and has to be shored up.

I suppose there are very few thoughtful men in medicine who do not realize this instability, but one has the greatest difficulty in imagining what would happen to the mental processes of the conventional medical man—"researcher" or practitioner—who should suddenly be wrenched away from that system of classification to which the profession has been wedded only during the last thirty years of the all but 3,000 years we know something of in the history of medicine.

We entered upon the system of causation as a basis for the classification of disease with the naive idea that we had or would soon have the true thing. We selected a shifting basis which can never be

fixed for the classification of the phenomena of life and death. They defy fixation. Hippocrates had no such idea. He tried to describe disease without any fixed basis of classification by the simple narration of the course of events in the progress of disease. Before we were attracted by the revelations of the microscope and selected a static basis for the classification of shifting phenomena, we tried to classify fevers according to the effect of therapy, and largely out of this effort emerged a substantial support of the differentiation which separates typhoid from malarial fevers. Hippocrates had no quinine; he doubtless knew of the demons of disease, but he laughed at the kind primitive man believed in and no set of compound lenses revealed to him the kind we believe in, nor the ravages they set up in the tissues. So he based his classification of disease, not on lesions nor the cause of them, not on quinine and its effects, but on objective description alone.

One of the confusing things in the description of disease by all medical writers who lived before the early years of the nineteenth century is their account of fevers, before they had the heritage of knowledge at their service which resulted from the therapeutical experiences with quinine. It is difficult for the modern practitioner to enter into the attitude of his earlier confrère because he is absolutely without experience in the course of those malarial affections which run their full career without the specific medication which so gradually entered the therapy of disease after the introduction into Europe of the Peruvian bark. The modern reader finds a distortion of the clinical facts as he has arranged them in his mind when he meets them in the writings of Hippocrates. This is due to the confusion of the intermittent with the continuous fevers and perhaps with the exanthemata. The modern observer in his knowledge of etiology and of the therapeutic and diagnostic value of quinine considers the symptoms of secondary importance in comparison with certain objective phenomena with which the laboratory and the present state of knowledge have supplied him. For Hippocrates they were everything. Classification was of small value even in connection with them, and such as he made bore little or no relation to the etiology of the lesion. In the advent of the great development which science underwent in the first half of the last century, the writings of Hippocrates began to lose that intelligibility to the professional reader which hitherto they had for the most part retained throughout the twenty-four hundred years which had intervened since they were written. That loss of intelligibility, however, was no fault of the modern observer except in so far as he has become unheeding that a mind, doubtless superior to his own, had with assiduity and persistency studied the same phenomena he is interested in, or becomes oblivious to the advantages to be derived from observing how the clinical picture impressed that master mind of long ago.

Malarial and typhoid fevers.—In an analysis of the forty-two cases of which Hippocrates speaks in *The Epidemics* Littré has noted how frequently he mentions indications of some involvement of the

hypochondral region, some of them specifically referable to an acute enlargement of the spleen. When this is combined with certain other of the clinical symptoms in given cases one is able to make pretty clearly a picture of the pernicious malarial fever, occasionally seen in New York in subjects which come off ships arriving from the tropics of the Western Hemisphere. These cases seem unmistakable and we know enough now of malaria to realize that where such cases occur at all, as they evidently did frequently in the regions which furnished clinical material for the authors of the Hippocratic collection, cases of less severity of malarial disease must have also been extremely common. In the time of Littré typhoid fever was in the process of differentiation from malarial fever. In the analysis this differentiation by means of symptoms had the support of the therapeutic use of quinine and we have every reason to suppose in the citations he makes from his own experience very many of the cases were in reality typhoid fever, but in the text of Hippocrates the clinical picture is never so clear as that of those manifestly malarial. In Littré's day the border line between typhoid and malaria had scarcely begun to be illuminated by modern enlightenment and his comments usually help us but little. Pain and tenderness in the right hypochondrium and tympanitis may of course accompany the other signs of malignant malarial disease, but they belong more regularly in the category of typhoid fever. As for the bilious remittent fevers, so called, the confusion the intrusion of that term has caused in the nosology of American febrile disease will never be disentangled, because the era in which the nomenclature prevailed in medicine was one in which, in the Mississippi Valley, climatic, sanitary, and social conditions prevailed which served not only to swell the list of endemic and epidemic fevers, but it was an era which from a sociological point of view has passed into history and with the change in social condition, likely never to be repeated, has also passed away the prevalence of the severe malarial forms of disease and much of the typhoid in that territory, but they have not passed away from the environs of Salonica and many of the districts of modern Greece.

Littré and all other commentators have recognized the fact that "ancient Greece and modern Greece are, at an interval of twenty-two centuries afflicted with the same fevers." This is beyond argument but it is curious to see that Littré is moved to add that this is a proof that the climate has not changed essentially. From our point of view it proves that the plasmodium and the mosquito have been a race more persistent in the swamps than the race of men on dry land. The germ of Laveran and the *Anopheles* flourish in their pristine vigor, but the Homeric and Hippocratic Greeks have been dead all but two thousand years.

It is curious to see how the diagnosis between typhoid and some of the severe forms of malaria was made seventy years before the discovery of Laveran. It was long apparent to the clinician that intermittent fever was a disease entity by itself but since antiquity the continued fevers had be-

longed in the same confused and heterogeneous category. I do not know that M. Maillot whom Littré quotes was the first one to point out the method of differentiation but in the few sentences I quote at second hand the means by which the distinctions were made between the severe quotidian, continuous pernicious forms of malaria and the newly identified disease of typhoid is unmistakable. Singular to say the bilious remittent fevers had to wait in this country for a generation or two. Not only are the words of Maillot of interest but the comments of Littré on them are scarcely less so. In the allotment of the Algerian coast of Africa to France in the reign of Louis Phillipe many physicians and men of science accompanied the troops and the few colonists who went thither. The physicians in the Italian campaign and at Rome were accustomed to ask when confronted by a case, "Is it or is it not a genuine fever?"

I translate from Littré's work beginning with the remarks of M. Maillot when he had not been long in Africa, but long enough to see plenty of malaria. "One seeks in vain to find in the special aspects of these cases what one observes in the cases of gastro-cephalitis in France (meaning by this term, cases of typhoid). In these latter cases the algid stage is never seen, which here comes so quickly to cause death. Such phenomena are almost unknown outside of hot and swampy countries. Since, on the other hand, these queer states are very frequently observed and end almost always fatally if one from the beginning employs only antiphlogistic treatment (meaning thereby copious bleeding and leeches); since, on the other hand, they are often prevented and eradicated by suitable treatment in intermittent cases, is it not legitimate to consider them of the same nature, despite the analogies they present to continuous fevers?" Then Littré points out that "when the doctors are suddenly transported from the climate of France to that of Algeria, they no longer recognize the pathological phenomena with which they are familiar and are beyond everything struck by the extreme lack of resemblance between the fevers of the two countries. "If this is so," he continues, "one need not be surprised if the physicians, who practice in our cities and teach in our schools, coming to study *The Epidemics* of Hippocrates find themselves completely exiled . . . for to go suddenly from France to take up practice in a hot country or to read the observations of Hippocrates is all one; the impression is the same and the change of scene quite as great."

In the light of what I have said in regard to the difficulty the twentieth century reader of Hippocrates has in understanding the drift of his mind, this is an added reason for confusion in those without tropical experience, but one which quite possibly the introduction of the study of tropical diseases in the postgraduate courses of the regular medical schools of temperate climates will overcome. One familiar with the aspects of tropical disease and particularly those whose military duties have recently taken them to ancient Thrace should find less difficulty in following the Hippocratic text. Notwithstanding we are even without this able to identify malaria in the accounts of Hippocrates,

we must not forget that in the annals of medical history there are a number of epidemic diseases, such as the pest at Athens described by Thucydides and the sweating disease of the old English physicians, for which we seek in vain the counterparts in modern nosology.

Littré reminds us of this and we can scarcely be unmindful of the extreme probability that there were also other disease types familiar to Hippocrates which, unknown to us, add to the difficulties we find in tracing his allusions to clinical experience. We may well ponder over the absence of detailed reference to treatment in these cases of malignant malaria. Asclepiades's commentary on the medicine of Hippocrates that it was the contemplation of death was justly made, but contrary to the animus of the critic, it tells rather for his sagacity than for his lack of initiative, where initiative is impotent. What indeed could be the drug treatment for malaria before the discovery of quinine? Arsenic? Hardly. To recognize the futility of the means at his command distinguishes rather than incriminates Hippocrates. If physicians oftener acknowledged their impotence instead of weakly giving away to a meddling therapy in which they have no confidence, simply to impress the patient and his friends that they are doing something, it would perhaps cause them more often to miss the coincidence of activity in Nature's defense, but in the long run the ethical standing of medicine before mankind would be the better for their frankness. If, as some of the commentators surmise, the appendix to *The Regimen of Acute Disease* is meant to describe Hippocrates's management of malarial disease, with its purgings and emetics and bleedings and starvings and meticulous but vacillating directions as to drink and food, so much the worse for his claim to that supreme attribute of the wise physician—common sense. That at least must have taught him that attendance on a case of malignant malaria in his day was indeed "the contemplation of death."

It may be well to recapitulate by saying that the course of intermittent fever even of the milder types which the physicians of temperate climates meet constantly is practically unknown to them in the way it was known to Hippocrates. Such a thing as malarial fever pursuing its course to a termination without being influenced profoundly, to say the least, by the administration of quinine, is practically unknown to us. Nothing else was known to Hippocrates. In this sense then there was a disease in the time of the ancients, before the utilization of the Peruvian bark, which we no longer know. It is then not difficult to understand why we are especially helpless to understand much of the Hippocratic discourse on fevers. It is not so much because Hippocrates knew nothing of the plasmodium but because we know nothing of malarial fever in its undisturbed course.

Neosalvarsan in Malaria.—Dreesen (*Therapie der Gegenwart*, May, 1918) states that the tertian type of malaria can be cured by neosalvarsan alone. In twenty-five per cent. of the cases the plasmodium will be found to resist the action of the drug.

OPERATIVE TECHNIC OF THERAPEUTIC ABORTION.

BY WILLIAM E. PARKE, M. D., F. A. C. S.,
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The conditions for which a therapeutic abortion may be justified will arise at any time after the first month following conception, to the date of normal delivery, and the method of accomplishing it will be vastly different in the early and late periods. Broadly speaking the procedure of dilatation and curettement is applicable to pregnancies of four months and less, while beyond this period, owing to the great liability to hemorrhage, the process of inducing labor should generally be resorted to.

The use of drugs of the oxytocic class is not worth while. They are too unreliable to depend upon. The use of tents, or indeed of any slow method is attended with so great a risk of infection as to preclude their adoption.

The method of choice in the early cases is that of the ordinary dilatation and curettement, bearing in mind at the same time that the operation should be performed with more delicacy than is necessary in dealing with the unimpregnated uterus, for the organ is both thinner walled and softer than is the normal uterus. Hence there is great liability to perforation. The patient should be anesthetized and the cleansing process conducted with as much scrupulous care as for a major operation. With the patient in the lithotomy position, the cervix, exposed by a selfretaining speculum, is seized and drawn down by a volsellum forceps; dilators (preferably the Goodell type) are introduced beyond the internal os and gentle pressure on the handles employed, the muscle sense guiding one as to how much pressure to make, until the canal is sufficiently open to admit a large sized curette and the curette forceps. This instrument I find indispensable, but it must be used with great skill, for it is easily capable of doing mischief. With it I seize the broken up fragments of the product of conception and extract them through the relatively narrow canal. Experience teaches one to recognize with considerable certainty the presence or absence of secundines. It is to be used in conjunction with the curette, but in my judgment is a far more reliable instrument for doing a complete job than is the curette which readily slides over membranes and even considerable masses of placenta without loosening them. In using the curette, one can safely make more pressure on the instrument if the fingers of the other hand are used to make counter pressure over the area being scraped. If the pregnancy is well advanced toward the fourth month, the cervix is easily dilated enough to admit the index finger, which is the most intelligent curette of all. With half the hand in the vagina the index finger is introduced into the uterus and the outside hand from above pushes the fundus down upon the finger so that every part of the cavity may be explored and the fragments of placenta loosened from their base. When the cavity is fairly clean the organ contracts and reduces the bleeding. The operation may be completed by

washing out the uterus through a two way catheter, with hot sterile water or various solutions, or the cavity may be swabbed out with a bit of gauze saturated with iodine. Rarely need any gauze be left in. If the organ does not contract and bleeding is too free it may mean that considerable placenta remains attached, and if circumstances admit, further efforts for its removal should be made. If while bleeding is too free it is thought best to terminate the procedure, then the cavity should be packed with iodoform gauze and ergot given.

After the fourth month of pregnancy, the above detailed method becomes less applicable, on account of the free bleeding which attends the procedure, and some method of starting labor pains is preferred. Such method will be the introduction of some foreign body into the lower uterine segment. If the cervix is long and uneffaced metallic dilators may be gently used to prepare the way for the introduction of a rubber bougie or catheter and for the packing of the canal with gauze. I like to put the patient in the knee chest posture (the Sims posture does very well), expose the cervix and vault of the vagina by the use of a Sims speculum to draw the perineum well back. Then seize the anterior and posterior lips of the cervix with a sponge or ring forceps. This gives an excellent view and control of the parts with which we have to deal. Iodine on a swab is applied to the cervix and canal and the adjacent parts protected by sterile or wet bichloride gauze. Now it is generally an easy matter to introduce a catheter or bougie freely anointed with sterile glycerine, into the cervical canal, by using forceps, without ever touching any other part of the operation or patient. I think this technic is to be much preferred over that of having the patient on her back, introducing two fingers into the vagina, and passing the bougie along the fingers and the vaginal wall into the cervix. Organisms which may give rise to infection are always to be found in the vagina, and even in the cervical canal, hence the less contact with these parts the better. Having introduced one or two bougies their full length, barring an inch or two, a strip of gauze may be pressed along side of them into the cervix, and more loosely packed into the vagina to prevent the instruments from being forced out too soon. Following this the patient usually remains in bed, but there is no reason why she may not sit up if she can do so without discomfort. Labor pains sometimes set in promptly and may be promoted by the hypodermic use of pituitrin, which, however, will not start them. Generally the pains begin within twenty-four hours and continue in a natural way until delivery is accomplished. Rarely this procedure fails to start a pain. Then further efforts must be made to bring about a delivery for having put one's hand to the plough one cannot turn back. The next step is the introduction of a dilating bag of the pear shaped type and appropriate size, to which a weight is attached. When this is expelled, if labor is not actively proceeding, some artificial method of delivery is in order, either the application of instruments or version and extraction. If the child is viable and not too near term, that is during the

seventh and eighth months, vaginal Cæsarean section affords a quick, if not easy way of accomplishing delivery. I would scarcely elect this method in a primipara, but in a multipara with a well dilated birth canal it is not a difficult operation, although a bloody one.

The greatest risk in all these procedures is that of infection; and in a general way it may be stated that the longer drawn out the undertaking, the greater the risk, or to speak more concretely, a prolonged tubing or bagging case is more apt to be followed by fever than is the more speedy curettement case. The latter I undertake without much concern, but the former I approach with profound respect.

1739 NORTH SEVENTEENTH STREET.

HUMAN SERUM IN THE TREATMENT OF INFLUENZA BRONCHOPNEUMONIA.

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Since last September we have treated under the jurisdiction of the United States Naval Hospital at New York 842 cases of pneumonia. Three hundred and twenty have come under our immediate supervision at the Naval Hospital. The others have been sent to the civilian hospitals that have so kindly assisted us in caring for the great number of sick and wounded who have been brought to this port. The mortality rate among the 320 cases treated at the Naval Hospital has been 26.16 per cent., but in reference to this rate it is necessary to take into consideration the fact that during this whole season, on account of our limited accommodations, we have sent all cases diagnosed as influenza to civilian hospitals, although a large number of these patients undoubtedly had pneumonia at the time, or it developed subsequently. We received at the Naval Hospital only those cases already diagnosed as pneumonia, and therefore many of the patients were in an advanced stage of the disease or even in a moribund condition upon arrival.

Statistics in regard to mortality in pneumonia are very misleading as shown by the variation at this hospital during the past year. Last spring during the months of February, March, and April, our mortality was a little over twenty-one per cent. In May and June we had a series of eighty-five cases without a death, although practically the same lines of treatment were pursued. At the beginning of the influenza epidemic in September when we received the pneumonia cases only, our mortality rate was over fifty per cent. Toward the end of the epidemic it dropped to about ten per cent. This was about the time we began the use of human serum, but we know that the same low rate was found to exist in many hospitals during this later period. Recently we have had a much higher mortality rate due, we believe, to a different infecting organism. Thus we see that from month to month the kind and virulence of the infecting organism, and perhaps the immunity of the individual varies greatly.

Our success in treating the early cases of influenza pneumonia in September was so discouraging that we most gladly welcomed the method which was proposed at that time by Lieutenant William R. Redden, U. S. Navy, of the United States Naval Hospital, Chelsea, Mass. He urged that the blood of these patients convalescing from the type of pneumonia prevailing at that time probably contained specific antibodies which if injected into the blood of those recently infected would be able to materially assist them in withstanding that infection. We then had a series of thirty cases of so-called influenza pneumonia treated by the use of human serum from convalescing patients with a loss of only two cases. The low mortality was perhaps not so striking as the death rate had already begun to drop; but we felt that the immediate and remarkable response in many of these cases could be attributed only to some specific antibody that was injected. The rapid and complete subsidence of symptoms unusual in most cases of influenza pneumonia gave us great hope that a specific line of treatment had been found.

Our diagnosis of the influenza type of pneumonia was made upon the clinical picture of the case, together with the sputum findings and the leucocyte count. A case of bronchopneumonia showing the symptoms of headache, prostration, and early cyanosis with a mucopurulent or bloody sputum which would not type and giving a low leucocyte count was considered a probable case of influenza pneumonia. In many but not all of these cases the influenza bacillus was demonstrated. We felt warranted at that time in concluding that we could materially if not completely modify the course of the disease in most of these cases by the use of the human serum.

During the recent severe epidemic, we have experienced the same difficulties that have evidently been met with elsewhere. Many of our cases have presented clinical pictures simulating influenza pneumonia very closely; showing the characteristic early depression and cyanosis and a leucopenia, but giving no response to repeated injections of human serum. Many of these cases have later been shown to be cases of infection with the *Streptococcus hemolyticus*, and on account of the severe general toxemia, the frequent development of pleurisy and empyema and the unusually severe pulmonary hemorrhages which have often occurred, we believe that the *Streptococcus hemolyticus* played a more important rôle than we were always able to demonstrate. We did not feel justified in puncturing the lung for purposes of diagnosis only. Inasmuch as this differential diagnosis could not always be made in the early stages of the disease and we felt that the treatment should be begun at the earliest possible moment, the mortality rate in our cases recently treated with human serum has been very unsatisfactory. We have included in this list all those who have received even a single dose of human serum, and our mortality rate among all those so treated during the last two months has been twenty-six per cent.

During this last epidemic we at first endeavored to select our cases and use human serum in those

cases only that were very probably influenza, using Type I, and sometimes polyvalent serum in those that could be typed. We soon found, however, that our bacteriological results were not very reliable and that even those cases that had a leucocytosis and a sputum that would type showed upon postmortem examinations a lobular consolidation with that peculiar serous bloody exudate, so frequently spoken of as a hemorrhagic pneumonitis. And it seemed likely that the influenza bacillus, as well as the streptococcus organism was a frequent offending agent with the pneumococcus. During this whole season we have had not more than two or three cases examined postmortem that showed the characteristic red or gray hepatization of the ordinary pneumococcus infection. We have, therefore, been using recently as donors many of these cases of pneumonia, which had previously had a leucocytosis and even some of those whose sputum had been typed; and have noted that excellent results were apparently obtained with the blood of some donors who had shown a moderate leucocytosis during their previous attack. It is quite possible that we may thus be using a serum from a case of mixed infection including the influenza bacillus and Streptococcus hemolyticus and that the serum contains valuable immune bodies for homologous strains. It has been shown by Hamilton and Havens at Camp Wadsworth that the serum from rabbits immunized against certain strains of Streptococcus hemolyticus will protect mice infected with an homologous strain, but will not protect those infected with a strain serologically different.

In using the human serum we have not employed the pooling method; but have endeavored to match the donors and recipients as far as possible. We have no reliable way of measuring the potency of any particular serum, but have repeatedly been struck with the remarkable results obtained from the use of certain donors. Others, however, show no apparent results; but by using individual sera we are able to try a second donor if the first failed.

We have not been able to confirm the contention of Lieutenant Redden that the amount of lung involvement in the donor is necessarily a reliable criterion in determining the value of his serum, although in general we believe that it is of some importance. As a result of our work, we have been impressed with the belief that the human serum from convalescent pneumonias, undoubtedly contains valuable antibodies and that its use in cases infected with homologous strains will give satisfactory results; but with our present limited ability to definitely isolate the infecting organism of the donor and the recipient, the method can not yet be placed upon a practical basis where definite results can be reasonably expected.

Furthermore, this method can not be used except in large, well equipped hospitals where access can be had to many willing donors. One of our greatest difficulties was to get sufficient suitable donors at the time that the recent epidemic was at its height. Many apparently desirable donors were eliminated on account of previous diseases which made them ineligible. In the Naval Hospital we have seldom had difficulty in persuading them to become willing

donors; but in private practice or in civilian hospitals this factor would become an important one.

We have had no bad results from the withdrawal of 400 c. c. to 500 c. c. of blood from the donors at each of two sittings at intervals of two to three days. We, of course, do not use them as donors until the temperature has been normal for several days and the patient is convalescent, but we do not wait for the lung to become fully resolved. Only occasionally they may feel a little faint for a few hours after the bleeding, but the most prominent after symptom is an excellent appetite. In no case have we seen any untoward effect from the injection of the serum. Since we use the human serum only there is no danger of an anaphylactic reaction, nor is there any need of a test for hemolytic compatibility.

During the recent increased incidence of pneumonia we have been impressed with the fact that we are dealing with cases which vary greatly in their clinical aspects and are found to be due apparently to various organisms. The epidemic character of the disease is much less prominent than last fall, cases of secondary infection in the wards are seldom seen and no nurses or corpsmen have acquired the disease for months. It would seem that the exciting cause has changed somewhat in character since last fall so that only a small number of the cases now appearing can be reasonably attributed to the same inciting factor which existed at that time. The selection of donors, as well as the interpretation of results would become a much more difficult task if we attempt to treat by the use of human serum only those cases which are believed to be so-called influenza bronchopneumonia.

DIAGNOSIS AND TREATMENT OF CHRONIC GONORRHEA IN THE MALE.*

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Before taking up the discussion of the subject, I think it would not be amiss to define what we mean by chronic gonorrhea. A case of gonorrhea may be called chronic when it has lasted more than ten or twelve weeks. The term is arbitrary and by no means definite, for a case of chronic gonorrhea may be interrupted by several relapses of acute attacks without ceasing to be chronic. Clinically and pathologically we should consider a case of urethritis chronic when the gonococci have remained in the tissues, glands and adnexa for several months in spite of treatment. The classification of all lesions involving the urethra and adnexa whether gonorrheal or postgonorrheal, under the single term chronic gonorrhea is misleading, indefinite and unscientific. We would endeavor to determine by physical examination which part of the tract is involved instead of concealing all pathological processes under the term of chronic gonorrhea.

Read before the Society of Medical Officers, U. S. Navy, April 1, 1913.

Let us take a case of acute urethritis as an example, and see what course it may take. After a varying period of incubation of two to seven days, a tickling sensation is felt at the meatus; a slight sting is felt on urination. The lips of the meatus become swollen, red and everted and a sticky discharge is seen between them. For the first thirty-eight hours the gonococci remain on the surface of the urethra, according to Finger, Gohl and Schlagenhauer. They then rapidly pass between the epithelial cells and are found in the submucous connective tissue. They multiply in great numbers in the interepithelial spaces and upper layers of the submucous connective tissue. The discharge increases in amount and becomes thicker and more purulent. The mucous membrane becomes swollen, red, edematous and covered with pus and in localized areas eroded and ulcerated due to the desquamation. The glands and crypts are involved in the general process, inflamed and distended with pus. The gland orifices become obstructed by the edema and swelling of the mucous membrane and the glands act as incubating places for the gonococci after the inflammation has subsided on the surface of the mucous membrane. The inflammatory process in acute urethritis usually begins with the involvement of the mucous membrane of the urethra between the meatus and the bulbomembranous junction, but in a large proportion of cases by the extension of the inflammation, the posterior urethra, trigone, prostate, seminal vesicles and one or both epididymes may become involved. The appearance of the discharge, dysuria and pollakiuria causes the patient to seek relief. Appropriate treatment is then instituted. A case of moderate virulency and without complications, usually clears up within six to eight weeks under the routine treatment of irrigations, injections and the patient is discharged as cured.

If, on the other hand, the treatment has been inefficient and has not checked the progress of the disease, or if the patient has postponed beginning his treatment for several weeks after the onset of his symptoms, the discharge continues, the urine still shows evidence of urethral inflammation and the case becomes chronic. In our treatment of gonorrhea, our aim should be to assist nature in her process of repair and restitution. Certain conditions tend to make a case of specific urethritis chronic. They are:

- 1, Lack of cooperation by the patient; 2, injections too strong or too frequently used; 3, alcohol used in any form; 4, sexual excitement and intercourse; 5, abnormally small meatus; 6, phimosis associated with balanoposthitis, or, finally, 7, patients properly treated, but having lowered vitality due to tuberculosis, gout or rheumatism.

If for one of the reasons enumerated above the urine has not cleared up the picture is entirely different from the one first described. The patient notices a drop at the meatus, in the morning before the first urination of the day; the so-called "morning drop" which may be either purulent, semipurulent or sticky and mucoid, or the drop may be present before each urination. The urine may be cloudy, hazy or clear with floating shreds

in it. The course of the condition may be interrupted from time to time by an acute exacerbation either as a result of a relapse due to the use of alcohol, usually associated with promiscuous sexual intercourse or to a recently acquired gonorrheal infection. Relapses are as a rule less severe in their course and do not continue as long as the original infection. They may be caused by a patient being unwilling to obey the instructions set down by the physician at the time treatment is started. They may also be caused by inadequate, insufficient and inefficient treatment. The treatment may have been sufficient to clear up the discharge and destroy the gonococci lodged on the surface of the mucous membrane, but it has not destroyed the gonococci buried in the submucous connective tissues; in the occluded glands and crypts. After the treatment is suspended, the gonococci concealed in the crypts and follicles, multiply in great numbers, reinfect the healthy mucous membrane and give all the symptoms of an acute infection. At times a patient will seek relief from his symptoms or he may neglect himself entirely, having heard from his comrades that chronic gonorrhea is incurable. Chronic urethritis and its associated lesions is one of the most obstinate and difficult conditions to cure unless the location and character of the lesions in the urethra and adnexa in the given case are thoroughly understood. Then, if definite measures and lines of treatment are directed against definite and localized pathological conditions, favorable results will follow. The haphazard and indefinite use of routine methods in treating chronic gonorrhea do not give good results but on the other hand are most discouraging.

If we classify chronic gonorrhea from the standpoint of its anatomical involvement, we have: 1, Chronic anterior urethritis; 2, chronic posterior urethritis; 3, chronic prostatitis; 4, chronic seminal vesiculitis; 5, chronic trigonitis, and, 6, chronic epididymitis (relapsing). These conditions may be further classified as: a, Gonorrheal or specific (when the gonococci can be demonstrated); b, nongonorrheal or nonspecific (when the milder saprophytic organisms can be demonstrated), and c, postgonorrheal or postinflammatory (when organisms cannot be demonstrated either morphologically or culturally). Chronic gonorrhea may be also classified according to the pathological conditions present.

Chronic anterior urethritis.—A. The soft infiltration is characterized histologically by an infiltration of the submucosa with small cells, the entire process being accompanied by vascular dilatation. 1, Erosions and granulations; 2, glandular lesions involving Morgagni's crypts and Littre's glands, and 3, papillomata may often accompany soft infiltrations—most often seen in the bulbous urethra or near the verumontanum. B. Hard infiltration characterized histologically by the invasion of the submucosa by small connective cells which gradually take the place of embryonic cells of soft infiltration and eventually transform the submucosa into fibrous tissue. 1, True stricture—most common sites are the midpenile region, the penoscrotal junction particularly, and the membranous region; 2, glandu-

lar lesions—two types: a, excretory duct remains patent; b, excretory duct becomes occluded—the secretion products are then retained and accumulate in the follicle thus transforming it into a little cyst.

Chronic posterior urethritis.—A. The soft infiltration is the most frequent lesion encountered in post-urethritis involving also the verumontanum which is dark in color, swollen, and increased in size. The mucosa is hyperemic, congested and bleeds easily on the slightest contact. 1, Inflamed and dilated prostatic utricle; 2, inflamed and dilated prostatic and ejaculatory ducts and 3, congestion and hyperplasia of the colliculus. B. In the hard infiltration type the membranous region takes on a grayish red, slightly yellowish color, its brilliant lustre disappears and gives place to a dry and dull appearance. The mucous folds disappear almost completely under the influence of hard infiltration. 1, Vegetations and polypi (granulomata) arising from the floor and lateral walls of the posterior urethra; 2, occlusion of the orifice of the prostatic utricle and the ejaculatory ducts and 3, various lesions of the colliculus as: a, atrophy or hypertrophy; b, vegetations and polypi, and c, cysts (retention) usually arising from the occlusion of the utricle.

Chronic prostatitis.—A. Catarrhal prostatitis, the inflamed ducts are dilated, filled with pus and debris. The acini are not markedly involved. The stroma is slightly infiltrated; B. follicular prostatitis acini are distended with pus, stroma, and are infiltrated; and C. parenchymatous prostatitis—The follicles and interstitial tissue are both involved. Abscess of the prostate results. If small foci of pus are present they may resolve without rupture or coalesce to form a large abscess.

Chronic seminal vesiculitis.—A. Inflammatory vesiculitis, in which the walls are thickened and indurated as the result of the chronic inflammation. As a rule, one part of the genital tract is not alone involved in the pathological process—the greater part of the tract may be involved. The pathological process may predominate more in one part of the tract than in another. Before we can institute any intelligent treatment in a case of chronic gonorrhea we should endeavor by a carefully taken history and thorough physical examination to determine the pathological lesions present. In that way alone can the patient be benefited, the course of the disease shortened and results obtained.

History of the patient.—In examining a case of chronic urethritis it is best to proceed in a systematic manner so that important points may not be overlooked. A carefully taken history may at times bring out several facts which may help in making the ultimate diagnosis. The main symptom which usually brings the patient for treatment is the so-called "morning drop" which may be the only subjective symptom or it may be associated with other symptoms. 1, The morning drop may be greater or lesser in quantity—purulent, semipurulent or sticky and mucoidal. Urethral discharge is a symptom of anterior urethritis. Many a case of chronic prostatitis comes for relief for this "morning drop" due to the fact that chronic prostatitis is usually accompanied by anterior and posterior

urethritis as well; 2, disturbances in character of stream (distortion in stream with dribbling, difficulty in starting stream of urine) may be due to chronic prostatitis, contracture of the neck of the bladder or to stricture in anterior urethra; 3, frequent and urgent urination denotes an inflammation most often of the posterior urethra, occasionally of the prostate—for on account of the chronic inflammation the posterior urethra is always in a hypersensitive state; 4, dysuria denotes inflammation of the canal or the passing of hyperacid urine over an eroded surface; 5, reflex pains and abnormal sensations—pain in back, perineum above the pubes, along the urethra in the groin or testes, usually associated with lesions in the posterior urethra or prostate; 6, disturbances of the sexual function—premature and painful ejaculation, incomplete or painful erections, nocturnal emissions usually due to pathological changes in the verumontanum, ejaculatory ducts or prostate.

After the principal complaints have been cited by the patient we should next inquire into the number, duration, and attendant complications of former attacks of gonorrhea. The physician next inquires about the present attack, ascertaining how long it has continued, what treatment has been used and other data. In going carefully into the history of these cases we find that the majority of the patients date their symptoms from one to twelve years back and some even still longer. A number of the cases give a history simulating an acute attack of gonorrhea, every few months, even without exposure. From the number of cases seen in private and dispensary work with a similar history, it seems reasonable to suppose that in these cases the inflammation was latent for a while and that we are dealing with an acute exacerbation of a subacute or chronic condition and not with an acute infection. The treatment had not been thorough enough to rid the tissues of all gonococci and the process therefore lights up under any slight provocation.

Physical examination of the patient.—A complete exposure of the genital organs is necessary for a proper and thorough physical examination. Secondly, the patient should not have voided urine for four to six hours before examination.

The presence or absence of urethral discharge should be first determined. The urethra should be stripped starting at the perineum and ending at the meatus. If any discharge is obtained, it should be transferred to a glass slide and examined, after, having been stained with Gram's stain. The examination of the slide should determine the presence of intracellular or extracellular diplococci, the presence or absence of other bacteria and pus cells. A diagnosis of gonorrhea is made on the presence of intracellular diplococci decolorized by Gram's stain. The meatus is then inspected to determine its size, or the presence or absence of hypospadias. If the meatus is too small to admit at least a number twenty-six French sound, a meatotomy should be performed before the examination of the canal can be completed. The scrotum and contents are next examined for variocoele, hydrocele, epididymitis, and orchitis.

The patient is then instructed to urinate into two

glasses. The contents of the glasses are observed and a note made of their appearance, whether turbid, hazy or clear and containing shreds and particles. The two glass test does not impart to us the origin of the pus, shreds or particles. It is commonly taught and believed that the contents of the first glass denotes the condition of the anterior urethra and the second glass that of the posterior urethra.

This is misleading in theory and in practice. The first glass contains the washings of the anterior and posterior urethra during the act of urination plus whatever discharge has entered the bladder from the posterior urethra between urination. The second contains only what has flowed back into the bladder from the posterior urethra between urinations (supposing the bladder and kidneys are normal).

A test which is simple in execution and which furnishes considerable data in determining what part of the tract is involved, is the multiple glass test of Wolbarst. It is performed as follows: The patient does not urinate for three hours. Glass 1, Using a Janet-Frank syringe and a rubber irrigating tip gently irrigate the anterior urethra. The washing of the anterior urethra is found in the first glass. Glass 2, the second glass is the control glass and contains the clear washings from the anterior urethra. Glass 3, next pass a sterile rubber catheter into the bladder and draw off a few ounces of urine. The urine will indicate the condition of the bladder (supposing the kidneys are normal). If cloudy, it may mean involvement of kidney, bladder or posturethra. If clear it aids in locating the seat of trouble. Glass 4, the patient then urinates into a glass—not emptying his bladder. The urine will indicate the condition of the posturethra. Glass 5, after massage of the prostate and vesicles, the patient empties his bladder. The washing and shreds are examined macroscopically and microscopically, for they indicate the condition of the prostate and vesicles. This test has its limitations and we are especially handicapped in the presence of a cloudy third glass—but for ordinary intents and purposes it helps to localize the seat of the trouble. The seven glass test of Dr. V. C. Pedersen is done similarly to the five glass test, but in this test we endeavor to separate the strippings of each vesicle.

The multiple glass test aids us in locating the site of the lesions present without differentiating the type of lesion or pathology present. Shreds in urine mean a chronic localized inflammation of the urethra. Urethral shreds present certain characteristics which allow, occasionally for their localization. Small granular flakes which float in the urine usually arise from the anterior urethra and are composed of epithelial cells and leucocytes. The long, filmy shreds come from the ejaculatory or prostatic ducts and consist of mucus, epithelial cells, leucocytes, and at times a few spermatozoa. Threadlike shreds which sink to the bottom originate in the anterior urethra and consist for the greater part of leucocytes. Large, irregular and broken shreds usually originate from the chronic inflammatory process back of a stricture. The comma shreds usually arises from an ulcerated or granular area situated in the posterior urethra and

occasionally in the anterior urethra. The dot or head is composed of pus cells, while the tail contains epithelium.

Examination of the prostate and seminal vesicles.—A normal prostate as felt rectally is heartshaped with the apex joining the membranous urethra, its base notched in the centre and having a more or less definite line of demarcation and with a groove between its lateral lobes. The normal prostate does not protrude into the rectum; the lobes are flat and the gland tissue is soft and not hard, doughy or nodulated. According to Keyes, Jr., the chief signs of a normal prostate are: The lobes are flaccid, flat and insensitive. In chronic prostatitis the whole organ may be enlarged or one lobe alone may be enlarged. The gland may be boggy and tender. If a few scattered tubules are involved small shotlike nodulations may be felt irregularly scattered over the surface of the gland. In the later stages, when there is a small round cell infiltration in the intertubular substance, the gland is larger than normal and hard. The vesicles should be examined at the same time for with chronic prostatitis, the vesicles are very often involved. A normal vesicle is usually not palpable. The condition of the vesicle should be noted whether soft and distended, indurated and painful, or whether it is the seat of nodulations. If perivesiculitis is present, the furrow between the prostate and vesicles is obliterated.

The expressed secretion of the prostate and vesicles can be obtained in two ways: 1, After we have ascertained the condition of the prostate and vesicles, gently massage these organs through the rectum and catch the secretion on a glass slide as it drips from the meatus. 2, Immediately after massaging the prostate and vesicles the patient urinates into a glass which cleanses the urethra of the expressed secretion of the prostate and vesicles. This urine is termed expression urine. If the prostate and vesicles are not diseased, the expression urine will only be slightly turbid and milky in color, but if the seat of disease, the urine will contain particles, shreds and heavy masses containing numerous pus cells. If the prostate is involved, pus cells are always found on examining the prostatic smear and from a clinical standpoint the pus cells are the most important elements to look for. If no pus cells are present, prostatitis may be excluded. Gonococci may or may not be found but if many pus cells are present, it is very likely that gonococci are also present.

Examination of the urethra.—The next step in the examination consists in exploring the urethra providing the urine is clear and containing very few shreds. Any meatus too small to admit a number twenty-six French bougie must be enlarged. The largest bougie that will enter the meatus is lubricated and passed gently along the anterior urethra. As the bougie advances along the anterior urethra all obstructions, catches and sensitive spots are noted. When the instrument is just entering the bulbous urethra it is slowly withdrawn and the shoulder of the instrument will be felt to impinge on all obstructions as it glides over them and the exact site of each catch and obstruction can be definitely localized. If a bougie enters the meatus

without difficulty, but encounters an obstruction in the urethra which it is unable to pass, smaller bougies are used until one is obtained that passes the obstruction without much difficulty. After the anterior urethra has been explored with a bougie, it is then reintroduced to the bulbous urethra and aided by a firm counter pressure on the perineum, it is introduced into the bladder. By this examination we can determine the presence and location of an obstruction in the urethra but the character of the same whether due to a stricture, distended follicle or crypt, infiltrations of the mucosa and submucosa, can only be determined by further examination with the endoscope or cystourethroscope. If the smallest bougie is unable to pass a urethral obstruction, filiform whalebone bougies must then be employed.

After the examination with the bougie, the largest straight sound that can enter the meatus should be introduced. The penis is put on the stretch with the left hand and the entire length of the anterior urethra can be palpated over the sound with the fingers of the right hand. We can detect painful points, distended crypts and follicles, infiltrations of mucosa and submucosa. The distended glands are usually found along the roof of the canal.

If any discharge issues forth from the meatus after withdrawing the sound it should be collected on a glass slide and examined for bacteria. Now we come to the final step in the examination. The patient is placed in the lithotomy position and the urethra is examined with the waterdilating cystourethroscope of Buerger or McCarthy. The urethroscope is for the urethra what the auroscope is for the ear, the stethoscope for the heart, and the x ray for fractures. The aim of urethroscopy however is to see the localized urethral lesion; to know its exact location as well as its size and shape. By urethroscopy we are able to determine the pathological processes present and to treat them subsequently according to the diagnosis made. With sufficient experience, the neck of the bladder, base, trigone, prostatic, membranous and anterior urethra may be examined. Pathological conditions of the colliculus may be detected (those due to either soft or hard infiltration) dilated prostatic ducts, granulation, cysts, or chronic inflammation of Littre's glands, may be seen and definitely localized. After completing the examination of the patient in the manner thus described and deciding what parts are affected and the pathological lesions present, we are in a position to begin the treatment of the case with the hope of helping and curing the patient.

Treatment.—The duration of chronic urethritis is always protracted and requires great patience on the part of both physician and patient. From the experience of the leading genitourinary specialists of this country and Europe, after carefully investigating this question, the average duration of chronic urethritis is six months. In the experience of the reporters, about three per cent. were incurable by any treatment whatever. The indications of treatment are to destroy the gonococci and to promote the absorption of all inflammatory and postinflammatory infiltrations and restoration of the urethra and its adnexa to their normal status.

Systemic treatment of chronic urethritis.—Many of the general hygienic rules applicable in the treatment of acute specific urethritis do not apply to the treatment of a chronic infection. The diet should be full and nutritious avoiding highly spiced and seasoned foods. Coffee, chocolate, cocoa and alcohol are to be avoided until the case is well under control when they may be resumed in moderation. Sexual intercourse must be guarded against in the presence of gonococci, as it is able to reinfect the patient as well as his partner. After their disappearance, especially in the more chronic cases, it is likely to be of advantage by relieving sexual congestion, especially in one accustomed to frequent intercourse. The majority of cases require no drugs. If dysuria is present alkalies and balsamics may be administered internally. Urotropin alone is indicated before and after urethral instrumentation and associated with benzoates it is of decided benefit in the presence of pyelonephritis, bacteriuria with an alkaline urine. Tonics may be required in some cases. Periods of rest from treatment are of value in cases under treatment for several months. Prolonged treatment at times produces irritation which only subsides on stopping treatment for several weeks. Then, with intelligent treatment, the progress is more rapid.

Treatment of chronic anterior urethritis.—When a general catarrh of the mucous membrane is present as indicated by the presence of a profuse discharge containing gonococci and turbidity of the urine the patient may inject himself with protargol one per cent., argyrol three to five per cent., or silvol five per cent. B. I. D. When the patient returns to his physician it is preferable to use irrigations which have the advantages of distending the folds of the mucous membrane and insuring thorough contact of the antiseptic solution with the entire canal. For irrigation warm potassium permanganate solution one to 8,000; one to 4,000 or protargol one to 2,000 may be employed. If irrigations are used they may be followed by an anterior injection of one of the albuminate salts mentioned above. Under irrigations every day or every second day, and home injections the discharge becomes less, the urine becomes clear though containing numerous shreds. At this stage we can substitute silver nitrate irrigations of one to 8,000 or one to 4,000 for the protargol. If the discharge increases and contains gonococci return to the albuminate of silver preparations. If no reaction follows the silver nitrate irrigations continue them in association with home injections of an astringent solution as zinc sulphate or zinc permanganate until there is no further improvement. The urine is now clear but contains a few shreds, showing that the inflammation is localized in isolated spots.

The second indication in the treatment, namely, the absorption of all inflammatory and postinflammatory lesions, is met by dilatations, using either the Kollman dilator or the steel sound. A sound large enough to distend the urethral channel—stretches areas of infiltration and causes slight tears in the substance beneath the surface of the mucous membrane. A mild hyperemia with increased blood supply to the part follows and absorption is stimu-

lated. The passage of a sound forces out and expresses the contents of the urethral follicles and the stretching of the urethral wall breaks down granulations and promotes the formation of epithelium upon eroded areas. The steel sound is the instrument of choice in cases of advanced infiltrations, strictures and folliculitis.

In cases of actual stricture the largest sound which can pass through the obstruction without undue traumatism is first used. The next largest sound is then introduced. At the following treatment, the last sound used is first introduced, which is followed by the next largest. This procedure is repeated every four to seven days until the stricture is dilated up to size twenty-eight or thirty. When a curved sound fourteen to sixteen is unable to pass a urethral obstruction the dilatation may be obtained by passing soft silk bougies of increasing calibres or by passing a filiform guide through the obstruction into the bladder and threading a tunnel sound over it. The calibre of the tunnel sound is increased until number twenty-two or twenty-four is reached. Then an ordinary Van Buren curved sound number eighteen to twenty is introduced. If it passes, curved sounds are used until the stricture is dilated up to number thirty. If it does not pass tunnel sounds are continued, aided by dilatations with large, soft silk bougies until a curved sound can be passed. When the stricture has been dilated to the size of the meatus and re-contracts with undue rapidity dilatation may be continued with a Kollman dilator. The dilator is indicated in the presence of a moderate amount of infiltration and of recent origin. In using a dilator the procedure is as follows: The closed dilator is introduced into the urethra and slowly opened to any desired size. Dilatation may be carried up to number twenty-six or number twenty-eight at the first sitting and increased one to two numbers at each sitting. The instrument is screwed up gently; one waits a moment and then gently turns the wheel one number at a time. At the next sitting the instrument is opened to two or three numbers below the last maximum and gradually opened until the last maximum is exceeded by two. After thirty-five is reached, dilatation should proceed more slowly, increasing from one half to one number at a sitting. Dilatation should not be practised oftener than once in four to seven days. Every dilatation of the urethra should be followed by an irrigation either of weak silver nitrate or potassium permanganate solution. Urinary antiseptics should be administered for at least twenty-four hours after each dilatation and free drinking of water should be encouraged, sexual intercourse and alcohol should be interdicted. Patients should be informed that a stricture is similar to a scar in any part of the body and therefore has a tendency to contract and reobstruct the calibre of the urethra. They should be advised to return several times a year for observation, and, if necessary, correction of any slight relapse present.

Many cases of gonorrhea lasting for several years are caused at times, by a chronic inflammation of the glands of the urethra. Such cases exhibit few symptoms, merely a watery drop in the

morning, but are characterized by acute exacerbations at frequent intervals with a copious discharge of pus, containing gonococci. These attacks come on even with no history of exposure. Many of these cases are materially benefited by massaging the urethra over the largest straight sound that can enter the canal without undue traumatism. The penis is put on the stretch, so that all urethral and periurethral infiltrations can be easily palpated.

When the mouths of these follicles are occluded by the growth of epithelial cells, dilatation forces open their mouths and then gentle massage over the sound forces out their contained secretion into the canal. Massage of the urethra should be followed by an irrigation of permanganate or silver nitrate solution, if the secretion expressed from the follicles does not contain bacteria, otherwise an injection of one of the albuminate salts is to be preferred. If, on the other hand, the mouths of the follicles are open, due to infiltration of their walls, dilatation produces a mild hyperemia, which causes absorption of the infiltration and a return of the normal condition. If massage of the urethra over a sound does not yield results, topical applications may be made to the mouth of the follicles, through the endoscope by means of a cotton swab on a wooden applicator. Silver nitrate in strength varying from five to twenty per cent. may be used, copper sulphate in the same strength or equal parts of iodine and carbolic acid, may be employed. Treatment may be applied every four or five days. If these measures fail to clear up the infected follicles, then they must be destroyed by fulguration; applying the Oudin current for a few seconds, the mouth of the gland having previously been entered with a fulguration needle, or they may be destroyed with a galvanocautic needle, applied through the urethroscope.

Topical applications made through the endoscope are useful in healing up ulcerated areas, simple erosions and areas of granulations in the anterior urethra. Silver nitrate in strength varying from two to twenty per cent. is used, iodine and phenol in equal parts, copper sulphate five, ten or twenty per cent. The intervals of treatment depend upon the amount of reaction and strength of solution employed. It is best to begin with milder applications, gradually increasing the strength of solutions applied. Papillomata of the anterior urethra can be removed by a wire loop or destroyed by electrolysis.

Bulbous urethra.—The part of the urethral channel which is most often overlooked in examining the canal and which is very often the seat of pathological lesions is that part of the canal lying between the penoscrotal junction and the anterior layer of the subpubic triangular ligament and is termed the bulbous urethra. In our routine endoscopic and cystourethroscopic examinations we have found the bulbous urethra to be diseased in a large proportion of our chronic cases. Localized areas of granulations in this region may keep up a chronic discharge. This part of the canal can be treated by dilatations with sounds or with a Kollman dilator followed by irrigations with silver nitrate or by instillations of varying strength of silver nitrate. In-

stillations can be alternated with topical applications of silver nitrate. After medicating the post urethra the endoscope is withdrawn until the bulbous urethra comes into view and applications are made directly to the diseased areas.

Chronic posterior urethritis.—We now come to the consideration of the posterior urethra. In this part of the canal, the changes are similar to those observed in the anterior urethra. The glands and follicles may become similarly involved and the ducts may likewise become occluded.

As in the anterior urethra to accomplish absorption of periurethral infiltration, it is necessary to use dilatations, by means of the sound or Kollman dilator. The dilator is used in the presence of little or no cicatrization. The principles and technic involved in the use of these instruments are similar to that when used in the anterior urethra.

When dilatation is only intended for the posterior urethra we can use a Benique sound for the posterior urethra or in the presence of slight cicatrization the Kollman-Frank dilator for the posterior urethra can be employed. In using the dilator care should be taken not to dilate too rapidly, as the tolerance for instrumentation is far less in the posterior than in the anterior urethra. In the presence of marked cicatrization sounds are superior to the dilator. Dilatations should be followed by irrigations or posterior instillations of silver nitrate.

Most of the lesions of the posterior urethra involve the colliculus which is as a rule enlarged as the result of hyperplasia, dark red in color and the seat of chronic congestion. In the posterior urethra topical applications through the endoscope are often indispensable. Inflammations of the colliculus usually subside by applying strong solutions of silver nitrate directly to the colliculus through a Swinburne urethroscope using silver nitrate in strength varying from ten to twenty-five per cent. or by instilling a few drops of .74 to two per cent. silver nitrate into the posterior urethra through a Keys instillator. Inflammation of the colliculus, usually subsides if local treatment directed to the colliculus is alternated with treatment directed to the prostate and vesicles, which are simultaneously diseased in most cases.

Granulemata (so called polyps) of the colliculus, if small may be destroyed by direct applications of a strong solution of silver nitrate to them through a posterior urethroscope, alternating with dilatations of the posterior urethra. If large or if the treatment just described fails to destroy them, then they can be destroyed by fulguration.

The walls of the posterior urethra may also be the seat of pathological lesions. Polyps, retention cysts, granular and ulcerated areas, may be found here similar to those found on the colliculus. These lesions are as a rule controlled by topical applications of silver nitrate or tincture of iodine or instillations of silver nitrate, alternating with dilatations of the posterior urethra. If these measures fail to cure, then the polyps and retention cysts may be destroyed by fulguration. Geraghty describes a chronic infective inflammation of the prostatic utricle, causing frequent relapses of a posterior urethritis which was cured by injecting the utricle

with a five to fifteen grain silver nitrate solution once a week for a few times. Dilated prostatic ducts do not as a rule yield readily to treatment. Dilatations of the posterior urethra followed by a prostatic massage yields results in some cases. Mixed gonococcus vaccine in association with the other measures is of value in some of these cases.

Chronic prostatitis and seminal vesiculitis.—The indication in the treatment is to secure the confidence of the patient, so that he will not become restless on account of the length of time required to cure his ailment. Secondly, improve the general condition of the patient, by means of diet, tonics, and exercise in the open air. Constipation should be relieved by saline cathartics, which have a depleting action on the pelvic organs and tend in turn to relieve the congestion of the prostate. All sorts of erotic excitement should be interdicted for the reason that it increases the congestion of the prostate. The main aid in curing these conditions is through local measures directed to the prostate. Massage of the prostate has a twofold benefit, first it expresses the contained secretion from the prostatic tubules and secondly it produces a mild hyperemia which improves the local blood circulation which aids in the absorption of inflammatory products. Massage also has a beneficial effect on the posterior urethra. Severe massage may do physical harm by exciting acute prostatitis, vesiculitis or epididymitis. Mild massage very rarely does this. In massaging the prostate, it is best also to include the vesicles, for they may be involved in the inflammatory process even though they do not feel abnormal. Attention should be mainly directed to the organ obviously diseased but should include the other as a matter of routine.

The method I use is as follows: Beginning on one vesicle reaching up to the fundus as far as possible, press down on this vesicle gradually withdrawing the finger until the prostate is reached. This is done several times. Then the other vesicle is massaged in a similar manner. One lobe of the prostate is massaged, beginning at the base of a lobe and making pressure firmly downward until the apex is reached and then pressure is made from side to side. This manœuvre is practised several times and then the other lobe is massaged in a similar manner. The discharge which issues forth from the meatus is then collected on a slide. Massage is followed by an irrigation. After it is determined that a prostate is the seat of chronic inflammation, massage of the prostate and vesicles should be preceded by filling the bladder with a warm solution of silver nitrate one to 4,000 or permanganate one to 2,000. After the massage the patient empties his bladder. Massage can be performed two or three times a week and each massage should consume two or three minutes to be of any benefit. Massage should be continued until the pus cells disappear from the prostatic discharge. In cases of severe or prolonged chronic inflammation it is almost impossible to remove the last trace of pus from the prostate. In these cases prostatic massage should be continued until there is no further diminution in the number of pus cells in the prostatic smear. The patient should then be allowed to go

without treatment for four to six weeks, and in most cases it will be surprising to learn that on his return, the prostatic smear will show a decided improvement. A prostate should not be considered normal, until it feels normal to touch and prostatic smears are normal after three or four such smears have been taken and examined at intervals of one to three months. Chronic prostatitis is usually associated with a posterior urethritis and attention must be directed to this condition as well, if a cure is to be expected.

According to Kaufman (1) cases of follicular prostatitis which do not respond to massage are benefited by inserting a suppository of iodine and potassium iodide into the rectum and applying the high frequency current directly over the prostate, for five to ten minutes, using a vacuum electrode.

The bladder is then filled and the prostate carefully massaged. The heat engendered by high frequency current favors a more rapid absorption than is ordinarily secured by massage alone. The effect can be obtained by hot rectal douches. The injection should be repeated every day with an interval of a few days, every two or three weeks, to make sure that the bowel is not irritated. With these measures mixed gonococcus vaccines may be employed.

In the obstinate cases of seminal vesiculitis, not improved by this treatment and characterized by marked sexual neurasthenia or intractable gonorrheal rheumatism, Fuller advises free incision into and drainage of the seminal vesicles. He reports relief of symptoms in ninety-five per cent. of cases.

Reports of other surgeons are not so encouraging and a few patients that I have seen operated on, seemed not to have shown any improvement what so ever. The object of the operation is to provide free drainage for the cavities of the vesicles which are distended with pus and so stop the absorption of toxins into the blood stream. Catheterization of the ejaculatory ducts is recommended by Wolbarst in all cases of chronic spermatoecystitis. In this condition he recommends massage of the body of the vesicles and dilatation of its excretory duct. Dilatation is the indispensable complement of the massage which empties and expresses the vesicular contents, while dilatation facilitates and insures this desired effect.

Chronic cystourethritis (trigonitis).—Kalisher has plainly shown that the trigone is a prolongation of the urethra and belongs to the urethra and not to the bladder. The trigone develops with the urethra and ureters while the bladder is developed from the allantois. The muscle of the trigone is the internal sphincter. Inflammation of the trigone is due to an extension of the inflammation from the posterior urethra. Trigonitis is usually associated with inflammation of the posterior urethra, prostate and vesicles and subsides when these inflammatory lesions improve. Cases that do not improve usually respond to irrigations of deep urethra and bladder, using first warm boric acid solution and leaving an ounce of five per cent. argyrol solution in the bladder and later irrigating with weak solution of silver nitrate and internally prescribing urotropin. More resistant cases require

topical applications of silver nitrate to the neck of the bladder through a cystourethroscope.

Chronic epididymitis (relapsing).—Each attack of recurrent epididymitis may be treated with heat locally applied to the scrotum in the form of hot water bag, hot packs or poultices of antiphlogistin. The next procedure which is of help in relieving the pain not only in the epididymis itself but also in the groin and loin is the support of the testicle. In mild cases a suspensory bandage will suffice, in others isolating and strapping the affected epididymis and testicle with overlying strips of adhesive plaster, producing the maximum of pressure with the minimum of discomfort gives relief. Counter irritants applied locally to the testicle such as guaiacol and glycerine (fifteen per cent.) or iodine petrogen five per cent. help to alleviate pain. Injections of gonorrheal vaccine every four days are of benefit in some cases. Between attacks prophylactic treatment may be directed to the general health, seminal vesicles and testicle itself. If the posterior urethra is tolerant, massage (light) instillations and irrigations (urethrovesical) may be tried, if these measures increase the inflammation in the epididymes they should be discontinued. If these palliative measures fail there are two procedures to pursue: Subcutaneous puncture of the epididymes or vasotomy.

Patients cannot be considered as cured until the following requirements are met: 1, Absence of all clinical symptoms; 2, absence of urethral discharge; 3, clear urine passed in several glasses; 4, discharge provoked by instillation of silver nitrate, two per cent., into urethra does not show the presence of gonococci by a smear or by culture; 5, negative beer test; 6, prostate and vesicles normal to touch; 7, three successive smears from the expressed secretion of prostate and vesicles taken at intervals of three to four weeks show absence of pus cells; 8, bougie examination of urethra shows no evidence of stricture; 9, a normal condition of urethra and trigone as viewed through a cystourethroscope and 10, a negative gonorrheal complement fixation test.

Conclusions.—In conclusion I will say, that a case of chronic urethritis and diseased conditions of the adnexa takes on an average three to six months for a complete cure, while other cases take one year or longer. In order to treat a case properly, each case must be individualized, a proper examination must be made to determine the location and character of the pathological lesions present. Then, if suitable measures are instituted against definite and localized lesions improvement will be more rapid. In cases where more than one part of the tract is involved it is better to treat one part of the tract at one visit and at the next treatment another part of the tract in order to avoid irritation. In other words if a patient needs sounds and massage, alternate these procedures, in treating him. The proper treatment of chronic urethritis demands correct diagnosis, persistence in maintaining treatment and gentleness in all procedures.

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CHRONIC PROSTATITIS, GONORRHEAL AND NONGONORRHEAL.

BY JOSEPH HAROLD FRIEDMAN, M. D.,
New York.

The object of this paper is to call attention to the existence of a great amount of chronic prostatitis due to other causes besides gonorrhea. While we know that prostatitis is the most common and important complication of gonorrhea, there are other means of producing a prostatitis, just as common and more annoying, that require consideration. In discussing the causes of prostatitis the first to be considered is that form produced by the gonococcus. At the beginning of an attack of gonorrhea, the infection is limited to the anterior urethra, which includes any place between the meatus and the cut of the muscle. The muscle which surrounds the membranous urethra, while in a state of contraction is supposed to act like a valve and a barrier to keep the infection from the posterior urethra and also from the prostate. In spite of this supposition infection of the posterior urethra and prostate occurs. In spite of these natural barriers to the spread of infection, the posterior urethra and the prostate are infected in forty to eighty per cent. of the cases of acute anterior urethritis. The question naturally arises as to how this condition is brought about. It is most likely due to a metastasis or blood infection.

While the condition may be brought about by the injudicious use of instruments such as a sound or catheter in an acutely inflamed anterior urethra, causing an infection of the posterior urethra and the prostate, the instrument pushing some of the infectious material before it into the posterior urethra and so cause a direct extension of the inflammation. One should not use instruments in an acute anterior urethritis, therefore, as a factor in producing posterior urethritis and prostatitis this really must be ruled out of consideration. Metastasis or blood infection is the real factor in producing this condition.

Nongonorrheal prostatitis may be caused by an injection into the urethra of some strong chemical substance, i. e., strong solution of silver nitrate or a strong alum solution which produces an inflammation and spreads by direct contact or metastasis to the posterior urethra and prostate.

Mechanical causes such as masturbation, abstinence, coitus reservatus (withdrawal or irregular sexual relations), tend to produce a prolonged state of congestion of the prostate which if repeated often will, in time, lead to the establishment of an inflammation of the prostate. The habit of withdrawing the penis during the act of coitus and allowing seminal fluid to be ejaculated outside the vagina is always followed sooner or later by prolonged congestion and then an inflammation of the prostate gland. There are bacterial causes of prostatitis, where the prostate gland is infected by colon bacilli from the colon, or streptococci due to an infectious disease and sometimes staphylococci by a metastasis from a focus of infection elsewhere.

We also have another class of prostatitis which follows an attack of gonorrhea but in which the gonococci have disappeared and have become re-

placed by other microorganisms. Most commonly the germs are apt to be staphylococci, colon bacilli or streptococci. These reach the prostate through the blood stream and especially after the prostate organ has been weakened by an attack of gonorrhea the organ becomes susceptible to the lodgement of other microorganisms.

Pathology.—The findings in a few cases in which autopsies have been made have afforded exact observations of the changes in chronic prostatitis.

Gross appearance.—The prostate is slightly enlarged, the seat of a diffuse swelling. The cut surface appears a pale, dirty brown color, is softer than normal, and infiltrated with bands of connective tissue.

Microscopic appearance.—The prostatic tubercles are stretched or changed into swollen or large cystic cavities. The walls are thickened from an infiltration with round cells and a swelling of the epithelium. The prostatic ducts and their mouths are dilated and the seat of round cell infiltration. The mouth of the ducts may be filled with small plugs of secretion which are forced out by muscular contraction on urination, and appear floating in the urine as tadpole or comma shaped bodies, known as Fürbinger's hooklets. The cavities of dilated tubercles are filled with turbid fluid composed of pus cells, desquamated epithelium and altered prostatic fluid and it is in these tubercles that gonococci are harbored for years.

Symptoms.—Patients may complain of sticky yellowish or whitish secretion that can be squeezed out of the urethra in the morning on rising or at each micturition. Many complain of a tickling sensation in the urethra or a feeling of dampness.

Frequent and urgent urination is a prominent symptom due to an exaggerated hypersensitiveness of the urethra. Sexual symptoms are sometimes prominent, such as partial or complete impotence, the act of coitus is not satisfactorily performed, ejaculation occurs prematurely on account of the irritable condition of the posterior urethra and prostate. Mental symptoms are a striking feature, the patients are hypochondriacal, they suffer from depression of mind and are low spirited, melancholic, and despondent; and in extreme cases have suicidal impulses. The only symptom which points directly to involvement of the follicles of the prostate is prostatorrhea which is a term given to the discharge from the meatus of a turbid, thick fluid of brownish yellow color which occurs intermittently. The discharge may occur after stool and is then termed defecation prostatorrhea and may occur at end of urination when it is spoken of as micturition prostatorrhea. The discharge is accompanied by an unpleasant sensation in the deep urethra and is followed by weakness and exhaustion. Prostatorrhea is due to the contraction of the muscles about the base of the bladder and rectum pressing upon the prostate and squeezing out the contents of the prostatic tubercle through the dilated and stiffened ducts. Prostatorrhea never occurs normally and must be differentiated from other urethral discharges. A distinction must be made from a urethrorrhea which is a clear transparent albuminous fluid, emitted from every healthy urethra on sexual

excitement and erection, also from the discharge from chronic gonorrhea which can be noted by its purulent appearance and contains numerous pus cells, epithelium, gonococci and other microorganisms. True spermatorrhea and seminal emissions occurring either while the patient is sleeping or walking and characterized by presence of spermatozoa, while in a prostatorrhea spermatozoa are absent.

Examination of patient.—First the history of the patient must be taken into consideration, his previous venereal history, his last previous infection, and any previous complications.

Then we consider the present illness, the duration, incubation, and source. If the patient denies any venereal history, his sexual symptoms are investigated and the patient is asked if in coitus the ejaculation is premature and if the erections are firm, also if seminal emissions occur, their frequency and if only at night or in the daytime as well. He is asked if he masturbates or practises coitus reservatus.

The patient is next asked about his mental symptoms, whether he is despondent at times or irritable or depressed.

Physical examination.—The meatus is inspected and a smear of the discharge taken, if any is present on the cover glass it is stained with methylene blue and examined. The patient is then requested to pass his urine in two glasses and to retain a little in his bladder. The next step consists in palpation of the prostate through the rectum, the entire organ may be found enlarged and tense, or the right or left lateral lobe may be involved alone. If a few scattered tubules are affected shotlike nodulations are present, distributed irregularly over the surface. If in later stages of inflammation the prostate is only slightly enlarged but feels hard on palpation, the secretion is put on a slide for microscopical examination. The patient is then told to urinate and the stream of urine washes out the remainder of the expressed prostate contents into the glass. The urine contains flakes, chunks, and masses formed of caked and thickened prostatic secretions. Sometimes the expression urine only appears turbid from a mixture of pus.

The microscopic examination of the slide is the most important part of examination. In our clinical work we have divided the results of examination into four degrees depending upon the amount of pus cells. If the slide shows twenty or more pus cells to a field we term it first degree; if it shows ten or twenty pus cells to a field it is called second degree; if it shows five or ten cells to a field it is termed third degree; if it shows less than five to a field it is termed fourth degree.

The slide is then stained and presence or absence of gonococci or other microorganisms are noted. If no pus is present prostatitis may be excluded. It has frequently occurred that a patient presents himself with a discharge from the urethra which has been diagnosed as gonorrhea. This patient denies exposure but gives a history of gastric disturbance. The discharge is examined and found to be negative to gonococci but shows colon bacilli. His urethra is washed out and the expression of the

prostate examined microscopically, shows the presence of colon bacilli, and an inflammation of the prostate.

Another patient will present himself with discharge not occurring within a reasonable time after suspected intercourse. Massaged prostate and expression, when examined microscopically, produce no purulent material. This rules out an inflammation of prostate. But on endoscopic examination a typical congested verumontanum is found to be present.

Treatment.—It is important in treating these cases to secure the confidence of the patient and to go into his sexual history carefully. It is necessary to explain that his condition can be cured; that he is not impotent nor likely to become so and that the mental disturbance, of which he complains, is due to a local condition. Correct his wrong ideas of sexual conditions; explain that coitus reservatus is an abnormal procedure and must be stopped. The first indication is to improve his general condition by means of diet and exercise. Constipation is generally a prominent symptom and must be corrected. All sources of neurotic excitement should be interdicted on account of their effect in producing congestion of the prostate. Under the heading of local treatment we speak of measures which have a direct action on the prostate. Sitz baths, of hot water, for fifteen minutes' duration once a day have the effect of improving the diseased organ. Irrigation of the rectum with alternating hot and cold water by means of a Kemp tube is often beneficial especially in patients with marked mental symptoms. The most useful means of affecting the prostate directly is by massage through the rectum and we can in this way express the contents of the tubular glands. The advantage comes from periodically emptying the dilated prostatic tubules of their retained and thickened secretion. The massage should be formed every second, third or fourth day, depending upon the severity of the prostatitis and the patient's tolerance.

The patient should empty his bladder completely and this is followed by a urethrovesical irrigation of silver nitrate of one to 10,000 or one to 4,000 or one to 1,000 ablargin solution. Then the prostate is massaged with a full bladder and the patient is told to empty his bladder and wash out the prostatic expression. It is important not to overlook any posturethritis which accompanies prostatitis. This is best treated by instillation, with an Ultzman syringe, of five to ten grains to an ounce of nitrate of silver, depending on the severity of the inflammation. It is often important to examine the verumontanum as inflammation usually occurs in conjunction with chronic prostatitis, the best method is to treat the verumontanum once a week, and massage the prostate once a week, but it is best to clean up the prostate a little before beginning treatment of the verumontanum condition. In certain conditions the urethral sound is passed as a means of dilating the posterior urethra and a certain amount of compression is expressed upon the prostate which stimulates the process of absorption.

When we are dealing with a nonvenereal prostate due to colon, staphylococcus or streptococcus in-

fection autogenous vaccine have proven to be beneficial in about fifty per cent. of the cases, while we found other cases that do better with a stock vaccine.

After the prostate has been treated it becomes softer. While pus may still be present in expressed secretion, the pus cells become lessened and the general symptoms of the patients, especially mental, begin to abate.

Conclusion.—1. Most cases of acute anterior urethritis develop into posterior urethritis and cause prostatitis.

2. All urethral discharges should be examined microscopically for a definite diagnosis.

3. A differentiation should always be made between a gonorrheal and nongonorrheal prostatitis.

4. The prevalence of nongonorrheal prostatitis needs careful diagnosis and treatment.

5. Treatment in both conditions is practically the same.

6. Vaccines are of assistance in some cases.

60 EAST SEVENTH STREET.

CRANIOCEREBRAL ROENTGENOGRAM METER.

BY WILLIAM J. MANNING, M. D.,

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There is here presented diagrams of a cranio-cerebral röntgenogram meter that is intended to be utilized upon the heads of those persons suffering from depressed fractures or in other suspected fracture cases, inclusive of foreign bodies or projectiles being received or lodged within the wall of the

skull. The intent of the device is to aid surgeons who have to deal with these conditions with graphic landmarks upon the head that will guide them more or less and assist in locating a foreign body after a röntgenogram is taken by approximating the differ-

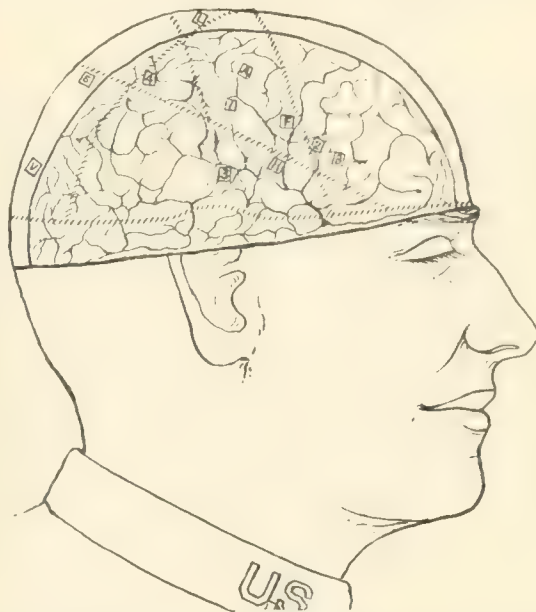


FIG. 2.—L, centre for opposite lower limb; A, centre for opposite upper limb; F, centre for opposite side of face; S, supra-marginal convolution; V, sensory visual centre; B, Broca's convolution; H, first temporal convolution; 1, fissure of Rolando; 2, division of Sylvian fissure; 3, parallel (first temporal) fissure; 4, angular gyrus.

ent centres with which they may come in contact, as described in the explanatory notes under the diagrams. It should be noted that the whole device is very simple in its application, being somewhat in the form of a chain cap with spiral springs attached at each junction of the chain, in order that it may adapt itself to various sized craniums or heads. In the event of a hematoma existing, one half of the chain can be raised and the lines carried over from the remaining half in position on the other side of the head.

Small, heavy linked steel chains are utilized for guide approximation on account of their density to the x ray and additionally to prevent breakage in handling and transportation. Coiled springs are placed at various junctions of chains shown, for adaptation to various sized heads and shapes. Pliable metallic loops fit over the junctions of the ears with the head, in order to fix the meter firmly and easily into position. Stenciled letter markers are soldered to the chains by required extensions. The reference letter explanations are stamped on the tags attached to the meter or given to the surgeon. The glabella and external occipital protuberance are painted red and blue respectively for rapid adjustment on the head. The lines and views shown by cranial chains are in accordance with the anatomical method of Professor Chiene as shown in Cunningham's *Textbook of Anatomy*. When a large hematoma exists, the chains on the affected side or part are removed or unhooked with the exception of line chain conforming to the letters R. P. N. E. and the lines are drawn upon the negative that connect at the various angles of other lateral half.

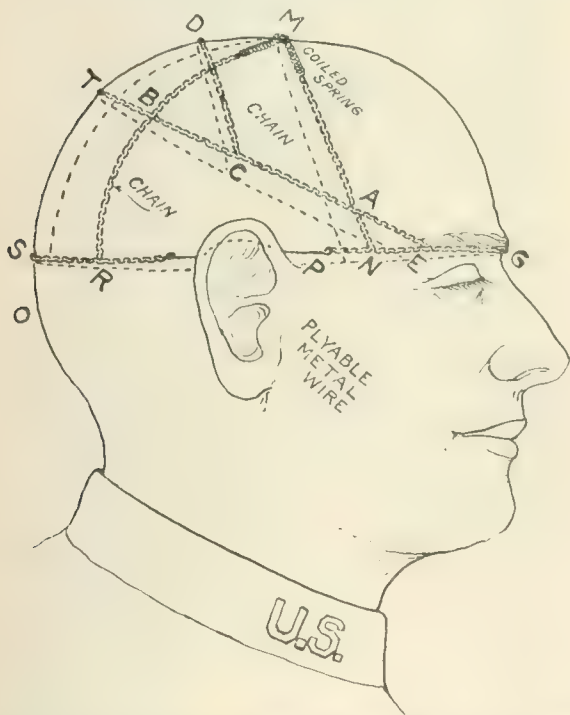


FIG. 1.—G, glabella; M, midpoint between G and O; D, upper end of a line parallel to AM; T, three quarter point between G and O; S, seven eighths point between G and O; O, external occipital protuberance; E, external angular process; P, root of zygoma; N, midpoint between E and P; R, midpoint between P and O; A, intersection of MN and ET; C, midpoint between A and B; B, intersection of MR and ET.

ARTIFICIAL PNEUMOTHORAX IN PULMONARY TUBERCULOSIS.

BY LEROY S. PETERS, M. D.,
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Medical Director, St. Joseph Sanatorium.

(Continued from page 635.)

COMPLICATIONS.

With improved technic and greater care on the part of the operator, the number of complications and accidents have been reduced to a minimum. True, certain complications are bound to occur no matter how much care is exercised by the physician, but the accidents of the earlier attempts at compression are now all but forgotten.

This has been made possible by better apparatus, especially the addition of a manometer to all makes of machines, and the lesson learned by most men in producing a compression slowly. There is no one factor that gives us uniformly better results and less complications than the gradual compression of a lung. Again, the fact of perfect asepsis has done much to avoid the large number of infections current in the beginning of the work. Now a pleura infected from without is a rare thing, and if it does occur it reflects upon the operator and can no longer be laid at the door of accident.

Whether or not time will add to our knowledge of such complications as pleural shock remains to be seen, but if we gain as much in the next decade as we have in the past, artificial pneumothorax will be freed of all its terrors.

It is well worth while to record here some of the accidents and complications reported in the literature merely as a matter of history if nothing else. Sundberg, quoted by Murphy and Kreuzsch, reports three deaths, in two of which he is sure of the causative factor, and in the third he considers the cause as problematic. One, a woman of twenty-eight, was seized with syncope as the needle was introduced into the intercostal space. She died with hemiplegic symptoms thirty-six hours later, without regaining consciousness. The postmortem showed thrombosis of the small vessels with numerous areas of softening and the cerebral cortex. The patient had received her eighth injection of air and Sundberg believes the death was due to vascular crises in the cerebrum, originating in the pleural reflex.

Another, a man forty-nine years of age became suddenly sick with marked shortness of breath, and he died in twenty-five minutes. Postmortem examination showed the vocal cords were not in the usual cadaveric position but were tightly opposed by their inner margins. This patient the author believes died of spasm of the glottis.

The third, a man of twenty-one, died at the time he received his sixth injection. The postmortem showed no cause for this death, and although it may be attributed to pleural reflex, there is no evidence for so doing, and the cause remains problematic.

King and Mills report a mild pleural reflex or eclampsia as Forlanini calls it, but the symptoms rapidly passed with no ill effects. These same authors report the common complication of air emphysema about the point of puncture as occurring

several times without harm to the patient. The only possible harm would be met when the air infiltrated the tissues around the larynx and pressure symptoms resulted.

Floyd claims the danger of air embolism is much overestimated. This would seem true for there are exceptionally few cases reported. Usually if this does occur it is the fault of the operator or the needle used. I witnessed an operation a number of years ago in which the physician used a Lapham needle. This is a needle of small bore and very flexible. The advantage claimed for it is the ease with which it can be introduced, using only ethyl chlorid as a local anesthetic. The fault, and it is a glaring one, is the inability to get good manometer readings. In the case mentioned the oscillation of the manometer was hard to interpret, but having had the same experience with this needle many times before the operator thought nothing of it and the gas was turned on. Almost at once the patient sat up, gave an inarticulate cry, fell back and in thirty minutes was dead. All that could be done was of no avail. The left arm and finally the entire left side showed a general marble mottling and proved beyond question of doubt that the operator was dealing with a case of air embolism. This, in a way, was the fault of the needle, although of course, the manometer reading should have been correct before an attempt was made to give gas.

Further bearing on the contention that gas or air embolism is very infrequent are the animal experiments showing that air can be pumped into the vein of a rabbit's ear without producing harmful effects. Of course the end results depend in what part of the circulation the air embolism lodges.

Brauer, and we must consider him a careful operator, has reported a case of embolism, and Jessen reports an experience in which embolism occurred from air getting into a vein without coming directly from the exterior.

Strange to say, Van Voornveld, writing in *Brauer's Beitræge*, considers embolism the greatest danger in pneumothorax work. He says that very little gas is necessary for fatal results. All depends on where the gas is being caught. Instead of gas a thrombus located in a pulmonary vein may be embolized. Nor does he think the inability to demonstrate gas in the cerebral vessels or coronary artery spells anything, simply because autopsy is seldom performed immediately after death and almost never under exclusion of entrance of air.

To quote him further, as abstracted by Mannheim: "Embolism can occur: 1. Locally, in the vicinity of the needle or the stitch canal: Gas from the needle; from tube (manometer or gas tank) and from external air while cleansing the needle with the stylet. Gas from alveolar air; gas from pneumothorax. 2. At a point distant from the needle: Gas from alveolar air; gas from the pneumothorax."

To quote further: "The mechanism of the local varieties of embolism are easily understood. To avoid it one should pay attention to the following points: At the first operation the needle should not puncture deeper than three c. m. on the average. The stylet should not pass the point of the needle.

The needle should be pushed ahead steadily but very slowly and should not make excursions in any direction. The patient must lie perfectly still and breathe quietly and evenly. Every new puncture should be made exactly at the same spot where the previous ones had been made. Under no circumstances should gas be permitted to enter unless one is absolutely sure they are in a free pleural space.

"During refills embolism occurs most frequently at a point distant from the puncture. This fact has unfortunately been overlooked by clinicians and pathologists. Slight adhesions are frequently torn in increasing pressure and if the tear occurs at a point where a thrombosed vein is situated the way for an embolism is prepared. The weakest point of an adhesion is usually its pulmonary attachment. If an adhesion is merely stretched to the utmost during a refill it may tear later on while the patient coughs or sneezes or strains at stool. In such cases the symptoms occur sometimes after the operation. To avoid the mobilization of thrombi in the veins of an adhesion one should give little gas at a time and under low pressure."

From the foregoing one would suppose that the foreign operators encounter embolism more commonly than American physicians. We at least in this country do not consider it a common complication although all are agreed that it is a most dangerous one.

Pulmonary hemorrhage is rather an unusual complication although it is occasionally reported. When it occurs it is due, of course, to injury to the lung by entrance of the needle through the visceral pleura. By using a Floyd needle this should never occur unless one encounters adhesions and puts too much pressure on the needle in forcing the parietal pleura. Shortle reports a case of pulmonary hemorrhage in a woman who had been under treatment by another physician for ten months. He attempted to give her a refilling and while on the table a hemorrhage occurred. He explains this bleeding by a radiograph which shows the lung had no compression, and draws the logical conclusion that his needle entered a bunch of adhesions and fibroid tissue.

The common complication of dyspnea and sometimes collapse can easily be avoided by injecting small amounts of air and watching the manometer, never giving too high pressures. This complication, if it can be called such, is due to the method of filling and can be readily avoided. Too rapid a compression will at times squeeze toxins into the lymphatics and cause all the symptoms of a general tuberculous reaction. This also may be caused by excessive positive pressures.

Sometimes, although very infrequently, one sees a spontaneous pneumothorax complicating an artificial one by the tearing of the lung substance. This usually results in an empyema and must be treated as such.

Floyd says that on account of the danger of suppression of urine a pneumothorax should not be induced in a case with tuberculous kidney complications. This warning is timely although little notice is given of such complication in the general literature, and I have had no such occurrence in any case

thus far treated. Floyd also reports a case of temporary right sided cardiac dilatation from too rapid a collapse of the lung. This emphasizes the oft repeated admonition—Do not produce the compression too rapidly.

Without doubt all American physicians are of the opinion the pleural shock or eclampsia is the most dangerous and most to be dreaded complication in the field of pneumothorax work. There seems to be some doubt in the minds of different authorities as to whether or not the symptoms attributed to pleural shock are not caused by air embolism. This may account for the differences existing in the reports, here and abroad, of these two complications. However, there seems to be no way to adjust these conflicting ideas, and as far as treatment of the case goes it makes little difference. There is one reassuring factor, if the patient lives through the first five or ten minutes he usually recovers.

For a long while I felt that pleural shock, like many other complications, was possibly due to faulty technic such as too cold gas or air or failure to properly anesthetize the parietal pleura. But, after performing the operation many times over a period of many years, I was suddenly brought face to face with apparently a most serious case. The patient had been under treatment for three months. At no time had the compression been complete owing to numerous adhesions, but at each filling he had gone about as usual with no ill effects. This time he came to the operating room, the sixth patient to be treated that afternoon. The anesthetic was given as usual (one per cent. novocaine). On entering the pleural space a negative pressure of 3 was found, and after the injection of 300 c. c. of air the pressure reading was neutral. The patient left the table to enter the dressing room and had barely reached this when he called me. Thinking he was a little faint, I walked in to find a nurse bending over him, her manner anything but reassuring. In attempting to straighten him out, it was noted that he was perfectly rigid. The pupils were dilated, the pulse absent, breath sounds coming only in jerks like the last gasps of a dying man. He was cyanotic, and almost purple.

Gradually the cyanosis crept downward until he was almost black to the hips. A hypodermic of strychnine and atropine had been administered at once by the nurse and this was followed by Hoffman's anodyne. Artificial respiration was attempted and in about ten minutes the pulse began to be palpable. He was then taken into a room and put to bed. Gradually the respiratory function returned, although the breathing was very labored. When the patient regained consciousness, at the end of half an hour, he complained of intense headache. Also, there was noted a rhythmic contraction of the right leg, perfectly involuntary, which kept up for an hour. It was as uncontrollable as hiccough and proved a great annoyance to the patient who could not understand why he was unable to stop it. After he was entirely recovered he said that the only thing he noticed on the table was a sense of fullness in the roof of the mouth, and a sensation as of electric sparks darting from his fingers and the end of his nose. His recovery

from then on was uneventful. He left the hospital for his home the second day, the headache leaving at this time. Two weeks later he reported for another filling. This was given him but he experienced the same sense of fullness in the mouth and the same electrical sensations. The pulse remained good and after lying on the table for fifteen minutes he left. However, he was advised to discontinue the treatments. I admit the shock I received may have given me a scare equal to that of the patient, but I shall never, as long as life lasts, forget the awful moments when every second I expected life to become extinct.

The nature of pleural shock is rather obscure. It is probably due to irritation of the pleura during operation and occurs only in those patients who have an easily excited nervous system. If this be true, it is of a reflex nature and, as Sundberg points out, there is a reflex spasm of the cerebral arteries which produces an ischemia followed by thrombosis and softening.

The prevention of pleural shock does not lie in warm air or gas, neither does it lie in the use of a proper anesthetic. Rhodes states that with these two factors looked after, pleural shock is impossible. With this statement I take issue, for in the case cited the air had been filtered from a room with a temperature of 88° and the usual one per cent. novocaine had been carefully infiltrated down to and onto the pleura. Regardless of the whys and wherefors of this interesting phenomenon, it is a satisfaction to know that it occurs but rarely, and does not need to deter one from entering the field of pneumothorax work. Before discussing the one most frequent but far from dangerous complication, that of pleural effusion, it may be well to note the minor complications which may occur.

Cough is usually increased, as is also the sputum when first beginning the compression. The temperature may rise, too, due to flooding the lymphatics with toxins from the diseased lung. The heart action is increased, especially if the lung compressed be the left. Later the pulse returns to normal and may even run a better curve than formerly. Stomach symptoms may arise from downward pressure on the diaphragm. In almost every case there is loss of weight at first, but this usually adjusts itself later. Some of my patients who were abnormally fat have lost as high as seventeen pounds and yet continue to do well. In patients who have adhesions there is marked pain after fillings which is usually referred to either the diaphragm region or the neck and shoulder. Gradually, as these adhesions are broken up or become stretched, the pain no longer returns. Some authors report local skin infections, and in my work, when a large needle was used, this was noticed. Later with the smaller punctures no such complication occurs.

(To be concluded.)

Resection of the Stomach.—M. Wilms (*Zentralblatt für Chirurgie*, 1918, No. 19) in resection of the stomach for neoplasms located in the lesser curvature, proposes to turn the lower segment from right to left suturing to the upper segment.

HOME TEACHING FOR SHUT IN CRIPPLED CHILDREN.

DOUGLAS C. McMURTRIE,
New York.

President, Federation of Association for Cripples; Director, Red Cross Institute for Crippled and Disabled Men.

Through the establishment of special classes in the public schools, instruction has been provided for thousands of crippled children, not too seriously handicapped, who were able to get to the classes by the aid of transportation in both directions. The first provision of this character by public educational authorities was made in London in 1899 by the education committee of the London County Council. This public action followed the establishment through private initiative of day classes for crippled children at the Passmore Edwards Settlement. There are now under instruction in special classes for the physically defective, in the larger cities of Great Britain, a total of 30,695 children. The national educational authorities extend to the local boards a grant to meet part of the expense of providing these facilities for the crippled school children.

The first city in the United States to provide special classes for crippled children was New York. Here, too, the work had been started on private initiative in the Avenue B school building of the Children's Aid Society, by an auxiliary of the Guild for Crippled Children, an organization no longer in existence. The particular auxiliary referred to, however, became the Association for the Aid of Crippled Children, which did an extensive work in promoting day class instruction of physically handicapped children. The work under private auspices began in 1899. The efforts of the association were directed constantly toward persuading the Board of Education to make special classes for crippled children a feature of the public school system.

This aim was accomplished in 1907, the Board of Education opened its first class for cripples in public school No. 67. At first the board operated the classes and the association provided transportation between the homes of the children and the schools, but later this item of service also was taken over by the school authorities. There are now in operation in the various boroughs of the city sixty-eight public school special classes for crippled children, providing for the instruction of 1,162 physically handicapped pupils who would otherwise be denied such complete opportunity for training. In addition, the board has established twelve hospital classes in which 237 children receive instruction. Since the start in New York, special classes for crippled children have been established in Chicago, Cleveland, Detroit, Baltimore, Philadelphia, and Grand Rapids.

It was at first thought that these special classes would meet all the educational needs of crippled children, not in institutions. In fact, a pioneer work carried on in New York City by an auxiliary of the Ethical Culture Society, providing visiting teachers for crippled children, was discontinued, in the belief that its service was no longer required. Two years ago, however, the Federation of Asso-

ciations for Cripples, a cooperative league of all the agencies in the city working in the interests of the crippled, began to have reported to it, largely through the department of physical training of the Board of Education, crippled children too gravely handicapped to permit their attendance in the special classes. The membership of this federation is made up of the following organizations: Association for the Aid of Crippled Children; Association of Public School Teachers of Crippled Children of the City of New York; Blythedale Home for Convalescent Tuberculous Crippled Children; Brearley League Industrial Classes for Cripples; Brooklyn Association for Improving the Condition of the Poor; Brooklyn Bureau of Charities; Brooklyn Home for Blind, Crippled, and Defective Children; Children's Aid Society; Crippled Children's Driving Fund; Crippled Children's East Side Free School; Harlem Day Home and School for Crippled Children; Hospital for Deformities and Joint Diseases; New York State Branch of the Shut In Society; William H. Davis Free Industrial School; Ladies' Auxiliary of the Orthopedic Ward of the Post Graduate Hospital; New York Philanthropic League in Aid of Crippled Children, and the Red Cross Institute for Crippled and Disabled Men. It was evident that the children needed some one to visit them in their homes to give them instruction, to provide some simple form of occupation, and to bring them into some slight touch with the outside world. The secretary of the federation began rendering this visiting service to the first children registered, in the course of her regular duties. But as the number of children grew the task became too extensive. There was undertaken in consequence, the organization of a corps of volunteers—mostly women, although there were some men—who agreed each to visit one child twice a week, an hour at a time. These workers received their assignments from the office of the federation and made regular reports of visits and of the progress being made by their pupils. The visitor also reported any special need on the part of the child or the family, and this was taken up and attended to by the federation's executive secretary.

While the work of these volunteers was most satisfactory, there were some cases which could not properly be assigned to such a visitor. The effort was always made to assign to a volunteer teacher a child within reasonable distance from the former's home. Some children lived in districts accessible to none of the volunteers. Other children presented difficulties with which it was not thought wise to saddle a volunteer.

Still others lived in neighborhoods of questionable character to which it was not thought expedient to send the young women who made up the majority of the corps. It became clear that there was necessary some professional service to supplement the volunteer work. The federation therefore retained a paid visiting teacher who handled cases not assignable to volunteers. In addition to the full time work, the strength of the volunteer organization averaged thirty-five in number.

Many of the visiting teachers became greatly attached to the children under their care, and in

many cases the results obtained constituted just cause for gratification. An interesting example that came to the attention of a volunteer teacher was that of a tuberculous spine case. Mary was nine years old and had never learned to read or write. The teacher became so interested in her little charge that she went to visit her three times a week instead of two. Even during the summer holidays the teacher kept up her instruction once a week and took the little girl out frequently. In the autumn the child sent her teacher a printed letter asking her to come back. The volunteer began the work again but was taken ill and could not continue to teach. She visits her former pupil, however, from time to time, and whenever there is any trouble at her home, Mary writes to her teacher to come and help straighten things out. The teacher has thus become the family advisor.

The full time teacher also had many cases of interest. One especially may be cited. It was the case of a child referred to as defective. She could not remember anything and was lacking in power of concentration, etc. The teacher cleverly began by showing the little girl how to play with dolls. Then as part of the game, the teacher began to teach the dolls how to read, speaking to them and explaining things to them as though they were human. The effect upon the little girl was extraordinary. She quickly lost interest in the dolls and evinced a desire to be taught herself. She made wonderful progress and had attained the grade of second year work when the teaching season was over. Now she is good in all her studies although a little slow in arithmetic.

The rule of the Federation of Associations for Cripples has always been that, while private initiative should lead, any real need of the community should be assumed as public responsibility, and be met at public expense. For this reason the federation at every opportunity, urged on the Board of Education the incorporation of home teaching for crippled children as a regular feature of the public education system. It was a cause of gratification accordingly when the Board of Education acknowledged the responsibility and made appropriation to meet it. This move, and the considerations on which it was based, is described in a report by Associate Superintendent Andrew W. Edson to the board of superintendents. The report was transmitted by William L. Ettinger, chairman of the board of superintendents, with recommendation for favorable action, to the Board of Education. The recommendation was approved by the board on December 30, 1918. The text of the Edson report follows:

"For the past few years, the Federation of Associations for Cripples, 311 Fourth Avenue, Manhattan, in cooperation with Miss Adela J. Smith, assistant director of physical training, has provided volunteer teachers for the education and training of the helpless. For the past year, however, the number of volunteer teachers was greatly lessened through Red Cross and other war activities demanding the attention of all who had time to give to philanthropic work.

"At the present time, there are in this city, more

than 125 children of school age, with normal minds, who desire an education, but whose physical condition is such that it is impracticable to transport them to school. Besides this number, there are 270 helpless cripples, as a result of the recent poliomyelitis epidemic—thirty-five of school age, twenty-nine of kindergarten age, 206 five years of age, or younger. As a consequence, the number requiring home care will increase from year to year. The only way by which these children can receive the elements of a common school education is through the efforts of teachers who will visit these children at their homes.

"During the past year, ninety-two helpless crippled children received instruction in academic and industrial work, two lessons per week, for longer or shorter periods, at the convenience of the visiting teachers. These teachers were regular grade teachers, retired teachers, and volunteer workers in other lines of activity. Reports of the work were submitted to the federation.

"One of the objections to volunteer service is the inability to obtain continuous systematic work. During the past term, the service was irregular, and, in many instances, entirely dropped, in part due to the urgent call for some form of war activity. As a consequence, many of the children suffered in their progress and lost interest in their work, and the parents became discouraged.

"It is clearly evident that the time has come when the instruction of helpless cripples should be carried on by the Board of Education, and that teachers be employed for this purpose. These children should be provided with instruction in elementary school subjects and in industrial work. These teachers may be. 1. Regular visiting teachers employed for the purpose; 2. Regular grade teachers assigned for after school service; 3. Substitute teachers.

"In my opinion, this instruction should be given three days per week, one and a half hours a day. A teacher employed for full time could care for eight children. The expense involved by the three plans proposed, estimating the number of helpless crippled children to be educated at 160, would be approximately as follows:

- | | |
|---|----------|
| "1. The employment of twenty visiting teachers at \$1,000 each..... | \$20,000 |
| "2. The employment of grade teachers from nearby schools, three visits a week, at \$2.50 a day..... | \$48,000 |
| "3. The employment of twenty substitute teachers, at \$3.75 a day (including car fare)..... | \$15,000 |

"It goes without saying that the work would be better done by paid workers who would be depended upon to be prompt and regular in their attendance and to give systematic and continuous instruction. In order to systematize the work, the following plan of procedure is recommended:

- "1. A canvass to be made for all cases of helpless crippled children of school age. These cases shall be reported to the Department of Physical Training.
2. Twenty substitute teachers to be employed to give instruction in the elementary school subjects

and in industrial work at \$3.75 a day. 3. These teachers to receive technical training in the hygienic care and methods of instruction of crippled children through the Department of Education in preparation for this special work. 4. Books and supplies to be provided from the nearby schools, when requested by the visiting teachers and indorsed by the district superintendent in charge of the schools. 5. A record of the condition of each child receiving instruction, the work carried on, and the progress made to be recorded at the middle and close of each month, and a copy of the same forwarded to the Department of Physical Training. 6. The co-operation of the Federation of Associations for Cripples to be continued in order that volunteer service may be continued wherever it is deemed advisable.

"During the period of its service, 1917 to 1919, the federation provided home instruction to 231 children."

CLINICAL NOTES FROM FRANCE.

BY CHARLES GREENE CUMSTON, M. D.,
Geneva, Switzerland.

COINCIDENCE OF MALARIA AND TUBERCULOSIS.

The associated condition of malaria and pulmonary tuberculosis in a patient is far from uncommon and either infection has an unfavorable effect upon the organism. A subject having either one or the other of these affections becomes more liable to contract the other. Each of these processes may undergo an evolution on its own account without it being clinically possible to discern the possible changes that it may undergo. On the other hand both diseases may occur together and become grafted, so to speak, one upon the other. Finally, in a third group of cases both diseases undergo their evolution simultaneously, but the symptoms of one so completely overshadow the other that a new clinical picture is created and a dual diagnosis must be made. This diagnosis must be based on the anamnesis, the clinical aspect and microscopical findings.

The anamnesis will reveal the fact that the patient has had a malarial infection or tuberculosis of the lungs. The clinical aspect will reveal a hectic temperature, hemoptyses belonging to tuberculosis as well as stethoscopic findings in the lungs, a positive tuberculin reaction, etc., while on the other hand, the rise in temperature occurring in attacks, the anemia and pigmentation which belong to malaria, as well as an enlarged spleen and a sensitive liver will be found.

Microscopic examination or guinea-pig inoculation will reveal the presence of the tubercle bacillus on the one hand; on the other there will be found a decrease of the globular value in tuberculosis and a decrease in the red cell count in malaria, as well as the presence of black pigment in the leucocytes whose number is increased. In some few cases the organism of malaria may be detected. The prognosis is naturally less favorable when both diseases occur together or develop one after the other in the same subject.

Treatment comprises a consideration of the pa-

tient at the time of the acute or chronic phase of the process, as well as prophylaxis. There is one thing that predominates over all others in the history of malaria, namely the acute paroxysm, which from its violence, malignant character, or recurrence, may create for the organism a danger which must be parried immediately. Quinine and its various salts are too well known to require mention, but there is one thing which is of utmost importance and that is an old malaria awakened into action by a pulmonary tuberculosis or a malaria (usually severe) attacking a patient with pulmonary tuberculosis.

How should the quinine be given in these circumstances? Of prime importance is the maintenance of a good condition of the digestive tract, therefore the hypodermic method of medication should be used. The method is simple, very certain in effects, and in serious malarial cases it is the only proper method to resort to. Then again, if the malaria is slow to improve it is necessary from the viewpoint of the tuberculous lesions present to maintain a good absorption power. On the other hand, the salts of quinine do not appear to exercise any untoward action in respect to the tuberculosis. When the acute phase of the disease has passed a long continued use of tonics is indicated. The phosphates and phosphorated products in general are indicated both for the malaria and the tuberculosis, while arsenic acts marvelously in both diseases, whether in mineral or organic combination. But here again, the gastric functions are to be guarded, for the stomach of a tuberculous patient must be treated with great respect. Therefore, the hypodermic method should be employed using the cacodylate of sodium or other unirritating arsenical products, such as arrhenal, but the use of atoxyl in malaria is to be avoided. For hypodermic injections of cacodylate of sodium a one per cent. solution should be employed, the maximum daily dose should not exceed fifteen centigrams of the drug. It does not seem that the association of malaria and pulmonary tuberculosis should in any way change the therapeutic aspect of the case. The ordinary medicaments are not contraindicated.

Therefore I shall not insist upon the medication in pulmonary tuberculosis and its various symptomatic aspects as there is nothing novel to be said in this respect. A more important question which I wish to consider in some detail is that of climate and sanatoria, always having in view only those subjects offering an association of malaria and tuberculosis.

As to tuberculosis, the question has long been settled and the advantages of altitude, climate, cold, dry or otherwise, have been thoroughly discussed. On the other hand, the question of sanatoria for the treatment of malaria is also settled and many warm countries have several at the present time. At first sight it might appear that sanatoria for malaria might be easier to establish than those for the treatment of pulmonary tuberculosis. It may very well be said that since the infecting organism of malaria is transported by the anopheles and this insect has a habitat and habits belonging to it, considering this, this reinfection can easily be avoided. There are

two points to be considered. First, a malarial patient may reach the chronic phase if he still has the plasmodium in his system, and the resulting anemia or other sequelæ of the disease require a proper climate for their cure. This is particularly the case when the subject is at the same time tuberculous, and I now come to the question of the proper country to select.

Tunesia is, according to many French clinicians, better than Algeria for fulfilling the desiderata of this dual cure. As to the city of Tunis itself, it can be said without hesitation that as far as softness of the climate is concerned there is no city in Europe that can surpass it. Even in winter it is uncommon for the temperature to fall below 39.5° F. and 41° F. at seven a. m. which is the coldest time in the day. Snow never falls at Tunis nor in its immediate vicinity. From ten a. m. to two p. m. the temperature usually ranges between 68° F. and 72° F. even in January. From ten a. m. to four p. m. the sun is almost hot, to such a degree that a person must not expose himself too long to the heat, especially if he has a tuberculous pulmonary lesion. The prevailing wind is north and especially northwest, which is the black spot on the picture, but if the necessary precautions be taken against becoming cooled, the wind need not be taken into account. The country possesses only a few hills and no stagnant waters or marshes where the anopheles can breed. Malaria patients certainly do well in Tunesia, while the climatic conditions are likewise favorable for tuberculous subjects.

Aside from Tunis, a certain number of places are beginning to be popular as health resorts. Such for example, is the town of Hamman-Lif on the coast, La Marsa also on the coast and only a half hour from the capital. Another town, about fifty-five miles from Tunis, and very suitable for cases under consideration, is Nabeul. It is a winter resort of the first order situated on the Gulf of Hammamet. It is well sheltered from the Oriental winds. Malaria is unknown there, while pulmonary tuberculosis is favorably influenced by the climate. A sojourn in Tunesia should only be made during the winter months as the summer is very African, and from April or May patients should leave for other climes.

ARTHRITIS IN CONGENITAL HIP DISLOCATIONS.

Briefly referring to the clinical aspects of arthritis of the hip joint in cases of congenital dislocation, a subject to which much attention has been given of late in France. Pathology teaches that these arthritides are to be logically classified under four headings, the first of which is the arthralgic form. Here, only one symptom is present, namely, pain. As Nové-Josserand and Rendu have shown the pain may assume two different characters, from which two rather distinct clinical forms are met with in practice. It may be continued, slight or severe, or it may occur in paroxysms. The first type is shown in children who become tired quickly and after taking a few steps complain of a vague pain in the point which is completely relieved by rest. In the second type the patient presents true painful paroxysms. These may be, and in fact usually are sudden and spontaneous in onset

and rarely result from movements of the joint. The maximum acuity is soon reached and the attack lasts for from one to three weeks. The pain is located in the region of the hip without much tendency to radiate, while its tenacity and recurrence usually leads the surgeon to interfere. Besides the pain one may occasionally detect a slight limitation of the movements of the joint resulting from contraction of the periarticular muscles. General symptoms are not present even of the mildest kind, the temperature is normal and there is no evidence of fluctuation in the soft structures. During the attack the child is compelled to rest but when the pain subsides he returns to his play and his limp will not change in any way on account of the painful episode from which he has recovered. The affection, which usually makes its appearance between the age of three to four years will continue off and on until the joint has been physiologically restored.

The second form of arthritis is due to overwork and as Guibert has shown is a type quite well individualized. Its principal characteristic is that it occurs in adults, producing an almost complete functional impotency which is easily recovered from by rest but will almost invariably recur. It is due to overwork and is the result of continued mild traumatism of the dislocated joint during prolonged walking. It occurs in adults who have lived with their infirmity without much inconvenience. The pain is severe necessitating absolute rest and recurs when an attempt at walking is made. The painful area is much more extensive than in the simple arthralgic form. It involves the gluteal region and thigh and is accompanied by muscular contraction. Besides the spontaneous pain it is possible to produce pain by exercising pressure over the femoral head, in the iliac fossa and over the internal portion of the inguinal region. The various well known symptoms of coxalgia are absent, particularly the diagnostic sign first described by Rocher, namely, a pain produced in the hip joint when movements of torsion are given to the foot around the longitudinal axis of the lower limb while in complete extension. There is no evidence of periarticular inflammation and the general health is not involved.

The third variety is that of dry arthritis and unlike the two preceding types it does not cause paroxysms. The commencement is sudden and a dry arthritis is manifest from the pain and functional impotency, both symptoms progressively increasing as time goes on and to which other symptoms become added. The pain is spontaneous or may be provoked and is almost constant even when the patient is at rest. It varies greatly in intensity, and is seated in the lumbar, gluteal and femoral regions. Pain provoked by pressure is located in Scarpa's triangle, on the sides of the great trochanter and in the external iliac fossa. Rocher's sign is slightly positive. Functional impotency is the consequence, the patient refusing to move on account of the pain. All the movements of the joint are limited, particularly abduction during complete flexion of the thigh, and some crackling may be heard when the joint is moved. There are no enlarged inguinal lymph nodes, while the region of

the hip shows nothing abnormal on inspection other than the deformity resulting from the congenital luxation.

The fourth and last form is tuberculous arthritis, and is probably the most frequent of all. It offers the most distinct signs although it is not to be supposed that the diagnosis is always easy. The onset which begins with pain, but not so sharp as in the simple arthralgic type, is also not so continued nor is it diurnal, at least at the beginning. A child has been playing as usual when toward the afternoon it ceases to play on account of some indefinite pain. By night and when in bed it becomes severe, the child waking up in agony from the relaxation of the contracted muscles. During the next few days the syndrome becomes more distinct and assumes the ordinary type of tuberculosis of the hip joint.

RECENT GLEANINGS RELATIVE TO THE PROPHYLAXIS AND TREAT- MENT OF INFLUENZA.

BY LOUIS T. DE M. SAJOUS, B. S., M. D.,
Philadelphia.

(Continued from page 598.)

Apart from quinine in the treatment of influenza, cinchona preparations have also been recommended. Recently powdered yellow or calisaya cinchona, administered in doses of three or four teaspoonfuls a day in black coffee, has been advised by R. Dubois. According to Lereboullet, 1918, the cinchona preparations are particularly useful during convalescence.

The mode of action of quinine and allied alkaloids in influenza, granting that a beneficial effect actually is exerted, is an open question. It seems difficult to believe that mere antipyretic or analgesic actions may account for such benefit or that these alkaloids have a definite inhibitory influence on any bacteria present. Sollmann, referring to the mode of action of quinine in full doses in S. Solis-Cohen's treatment of pneumonia, states that the anatomical lung changes are not affected by this procedure, indicating that the action is probably not exerted on the local process. As a matter of fact, what evidence is at present available suggests rather that the action of quinine may in some way be exerted through the leucocytes.

As is well known, a relatively low leucocyte count is a characteristic feature of the blood in influenza. According to R. Hunt, 1918, the count in this disease is typically between 5,000 and 9,000; Forbes and Snyder, 1918, averaging 202 counts in fifty cases, found the leucocyte count on the first day of the disease to be 6,166; on the second day, 5,378; on the third day, 7,522, and on the fourth, fifth, and sixth days, about 8,000. Ruth Tunnicliff, 1918, conducting experiments on phagocytosis in influenza, observed a nonspecific fall in opsonins accompanying the development of the leucopenia, and reached the conclusion that these two factors contributed to the severity and frequency of complications. She also observed a decrease in specific opsonins for the

Streptococcus viridans accompanying the development of pneumonia, with a subsequent rise to or above normal in conjunction with recovery. Now, experiments with quinine on leucocytes have shown that, in a manner similar to that obtaining in the case of the malarial parasite, this alkaloid causes, in small amounts, stimulation, and in large amounts, depression and death of these cells. While Hamburger and Hekma, 1908, found phagocytosis hindered when leucocytes were placed in a 0.001 per cent. solution of quinine, Manwaring and Ruh, 1907, observed stimulation of phagocytosis by very low concentrations of the drug. Again, experiments in both man and lower animals have shown that quinine causes at first an increase in the number of lymphocytes in the blood stream, soon followed by a decrease, and this, in turn, by a rather pronounced increase. The opsonic index was found by T. B. Wilson, 1907, to be slightly increased in man by doses of fifteen grains. H. Lyon Smith, 1910, tested the effect of a one in 7,500 solution of acid hydrochloride of quinine on phagocytosis, this strength of solution being used as representing roughly the concentration of quinine in the blood obtained by administering ten grains of quinine to a person weighing 140 pounds. A small amount of morphine was added because Smith had found it in practice to exert a favorable influence. The results consisted of a definite increase in the phagocytosis of various kinds of microorganisms, and the author was led to conclude that in certain forms of bacterial invasion, including influenza, prompt administration of quinine in the initial stages and in the ideal dose, which he considers to be one grain for every stone (14 pounds) of the patient's weight, is likely to strengthen the natural first line of defense. The coincidence that the number of leucocytes in the blood stream in influenza is relatively low, and that quinine in proper dosage is capable of stimulating the activity of these cells, would appear to suggest that there is to be found in this direction at least one valid reason for the confidence in this alkaloid expressed by a number of experienced clinicians.

Concerning the treatment of the cough in influenza a considerable variety of suggestions have recently been made. According to Fantus, 1918, the favoring of expectoration to obviate clogging up of the bronchioles is a desideratum in this connection. In mild cases he uses ammonium chloride in 0.3 gram doses with a flavoring syrup vehicle, and taken every two hours in a half tumblerful of water. In the event of failure of this measure, or in cases already more severe, he claims to have obtained good results by adding 0.12 gram of sodium iodide to each dose of the ammonium salt. To support the resulting secretory effect, fluids are freely given, the patient taking a glassful of milk or other nutritious liquid every two hours and a glassful of lemonade, grape juice and water, or seltzer water, etc., every two hours, in alternation with the milk. When secretion has become copious, the daily dosage of iodide is reduced gradually. Lereboullet uses, for frequent cough in influenza, am-

monium acetate in a daily dosage of 1.5 to three grams, with or without sodium benzoate, and, for nocturnal cough tending to produce sleeplessness, a sedative syrup containing a little opium or codeine. H. H. Myers, 1918, has emphasized the advantages of controlling painful or disturbing cough with diacetylmorphine hydrochloride in 1/12 to 1/6 grain doses rather than with heavy cough syrups which frequently induce gastric irritation and render feeding more difficult.

Among the symptoms frequently requiring individual treatment in influenza is sleeplessness. It must be borne in mind that proper rest is equally as important an auxiliary in the development of immunity against infection as it is in the repair of tissues after exertion or injury. In some instances the insomnia of influenza is due to cough, or other discomfort in the respiratory passages, being such that the composure requisite for sleep cannot be secured. Not a few patients find themselves unable to remain in the recumbent position any length of time, relief from tickling sensations in the larynx or trachea being experienced only when the sitting position is assumed, and cough recurring almost at once after a return to recumbency. In these instances of sleeplessness due to cough, relief from the latter, obtained by means such as those referred to in the preceding installment, will of course act secondarily on the insomnia. Frequently, however, a remedy which will simultaneously exert a mild hypnotic effect and somewhat dull the sensitiveness of the coughing centre is more appropriate. Among such remedies are barbital and chloral hydrate. Fantus, 1918, recommends that the patient who experiences difficulty in going to sleep take one 0.3 gram barbital tablet at bedtime, to be repeated two hours later if sleep has not yet supervened. Where barbital fails he substitutes with advantage an equal dose of chloral hydrate, to be repeated every hour until the patient is asleep, avoiding its administration, however, in cases with weakened circulation. Other observers have used such similar agents as sulphonethylmethane (trional) and chloral formamide. The latter, formerly an official drug, is asserted to possess less of a depressant influence on the circulation than chloral hydrate, though it is also admitted to be less reliable as a hypnotic. Horder, 1918, relieves sleeplessness with ammonium bromide in ammoniated tincture of valerian, paraldehyde disguised with tincture of quillaja and tincture of orange, or a combination of ammonium bromide with chloral hydrate. In delirious patients Sir John Moore, 1919, has used hyoscine hydrobromide, 1/100 grain, cautiously to induce sleep, with successful results.

Vomiting in influenza may be treated by abstention from food or limitation to a very light, liquid diet for a day or two, care being taken also to avoid the administration of irritating drugs. Horder, however, gives 0.06 mil of tincture of iodine in four mils of water every hour for six doses, and also has an injection of normal saline solution into the rectum given two or three times during the starvation period.

(To be continued.)

Editorial Notes and Comments

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THE TREATMENT OF NARCOTIC ADDICTS IN NEW YORK.

As a result of a conference between the Board of Health of the City of New York, the Commission of Narcotic Drug Control of the State, Miss Sarah Graham Mulhall, and Judge C. T. Collins, chairman of the committee of justices, the Health Commissioner appointed a Committee on Narcotic Relief of the Department of Health of the City of New York, composed of Major M. C. McMillan, chairman, formerly assistant sanitary superintendent for the Borough of the Bronx; Dr. S. Dana Hubbard, acting director of the Bureau of Public Health Education; Ole Salthe, acting director of the Bureau of Food and Drugs, and Miss Mulhall. They were instructed to provide relief for the drug addicts who had been cut off from their regular sources of supplies by the arrest of several physicians and pharmacists who had been making an illegitimate use of their privileges and who, instead of treating the addicts with a view to their cure had merely supplied them with the drug desired. As noted in the NEW YORK MEDICAL JOURNAL for April 12, the committee opened a clinic at 139 Centre street for the treatment of drug addicts on April 10th.

Doctor Hubbard was placed in charge as chairman of the committee on details and Miss Mulhall was made treasurer, having signified her willingness to provide such funds as might be required to

purchase drugs, etc. On the day the clinic was opened twelve addicts appeared. The number increased rapidly until Sunday, when a maximum of 795 was reached. In the first five days of its operation eighty ounces of heroin and five ounces of morphine were dispensed in the clinic. There narcotics were dispensed in strict accordance with legal requirements by registered pharmacists in the employ of the Health Department. The money to purchase the narcotics, \$2,217, was provided by Miss Mulhall personally. The drugs were supplied at actual cost to the addicts, the money being handled exclusively by Miss Mulhall's personal representatives, who are volunteer sociological workers not connected with the city government in any way. This arrangement avoided any of the financial complications which might have ensued from the use of public money.

On entering the door of the clinic each patient is given a serial number. This number appears on a case history blank and on two clinical cards. The clinical cards bear the name, address, occupation, and age of the addict. Blanks are left for the drug used, the date on which it is prescribed, and the amount ordered. The patient keeps one of these clinical cards, the other being filed serially. The patient is then examined physically, the results of this examination being inscribed on the case history. Both clinical cards are handed by the patient to one of several physicians in attendance, who writes a prescription in triplicate in accordance with all the provisions of the State and Federal laws, for one day's supply of the drug, noting the facts on both cards and filing one. Although some patients have asserted that they were in the habit of taking as high as fifty-four grains daily, the committee decided to adopt fifteen grains as the limit for the daily dose to begin on. On his subsequent appearances this amount is diminished and it is diminished daily, and in no case is more than one day's supply provided. If the patient suffers materially by the reduction to fifteen grains he is subjected to a thorough physical examination by Doctor Hubbard himself, who alone has authority to increase the amount of the drug given, and, of course, will only do this where the physical condition of the patient makes it imperative.

The case histories taken have brought out some extremely interesting facts, the most prominent of which is the comparative rarity of patients of advanced age, the large majority being between the ages of twenty and thirty. Another surprising feature is the relatively small proportion of women

who have presented themselves, there having been only sixteen women in the first 177 cases. A very important fact has been brought out, namely, that among the addicts are men occupying positions of grave responsibility, including such vocations as that of chauffeur, motorman, signal man, etc., in which carelessness might lead to grave consequences to others. Doctor Hubbard suggests that in licensing men for such vocations hereafter they shall be examined physically for evidences of drug addiction.

It is questionable whether any considerable proportion of the addicts can be cured by this outdoor clinic method. Undoubtedly some can. But Doctor Hubbard is of the opinion that the majority will require hospital treatment. The Health Department has already opened a hospital for this purpose on North Brother Island, and the larger hospitals are urged to provide for the hospital treatment of addicts. This is particularly desirable where a hospital has an out of town connection, as most of them have. The majority of the addicts will require complete mental and physical rehabilitation and probably a change of environment in order to prevent their relapse into addiction, even after they have once learned to do without the drug.

In commenting on the situation Dr. Royal S. Copeland, Commissioner of Health of the City of New York, said to a representative of the *NEW YORK MEDICAL JOURNAL*: "This law affords us an opportunity to apply one of the lessons taught to surgeons by the war. It enables us to open up the wound completely, clear out all the dead and injured tissue and thus pave the way for complete recovery. The immediate results of these radical measures are shocking to the uninformed observer, but the end result is a quick and complete recovery with the minimum loss of tissue and function. The new law as it is being administered with the cooperation of my department has, for the first time, given us an authoritative and definite knowledge of all the facts connected with the narcotic drug evil. It has opened up the wound in a manner which shocks the general public. We are now applying the proper procedures to ensure a definite cure. I wish, through the columns of the *NEW YORK MEDICAL JOURNAL*, to assure the conscientious physicians of this city that those who treat drug addiction as a disease will not be molested in the performance of their professional duty. And it is the duty of every physician to treat the addicts who come to him for help. The only persons who have anything to fear from the operation of the law are the physicians and pharmacists who, instead of treating addiction as a disease, and undertaking its cure by the administration of diminish-

ing doses of the narcotic, abuse the privileges accorded them under the law and cater to a continuance of the drug habit by the unrestricted prescription and sale of narcotic drugs. The public must not be impatient. We must not undertake to close the wound until all of the diseased tissue has been removed."

TYPHOID VACCINATION NO SUBSTITUTE FOR SANITARY PRECAUTIONS.

Thanks to the publication of the full text of Colonel McCaw's instructive report on typhoid fever in the American Expeditionary Forces [*Public Health Reports*, March 28, 1919], we are now better prepared than ever to deal effectively with this disease. It is clear that, however successful antityphoid inoculation may have proved under the ordinary conditions of life in peace times, its protection was insufficient under the much more severe tests of war conditions.

With so much written, before the war, about the success of typhoid immunization in the United States Army, and with the certain knowledge that all the soldiers in the present army had received antityphoid inoculations, it is quite understandable that here and there medical and sanitary officers should have neglected the strict observance of sanitary precautions laid down in the *Army Medical Manual*. Equally comprehensible, under these conditions, is the fact that in repeated instances medical officers failed to diagnose the disease until it was long under way.

It is always good to study one's mistakes, for only in that way comes progress. We have no patience, therefore, with those who resent Colonel McCaw's report as a reflection on the physicians who gladly contributed their services to the army, or with those who deprecate the publicity given this report by its publication in *Public Health Reports*.

There was a danger in this country of neglecting sanitary measures and relying entirely too much on immunization. The experience of the American Expeditionary Forces constitutes a wholesome lesson and once more teaches us that there is no short cut to health protection. Health officials and sanitarians owe a debt of thanks to Colonel McCaw for his courageous and full account of the causes of typhoid fever in the army in France and to the Public Health Service for making this report available for study. Widespread discussion of this report throughout the United States will undoubtedly prevent more deaths from typhoid fever within a single year than occurred in the army during the entire war.

THE TROPHIC AND MOTOR DISTURBANCES FROM COMPRESSION OF THE SPINAL CORD.

Pathology abounds in data which unquestionably demonstrate the nervous system to be capable of producing extremely varied changes in nutrition, and it was formerly held by the Paris school that these disturbances were the result of an irritation of the nerves and would never occur in cases of complete division of the nerve trunks. But these disturbances are likewise produced in lesions of the spinal cord and may involve the muscles, skin, joints, bones, and viscera. In the first place, muscular atrophy is to be mentioned, which Charcot supposed to be the result of lesions of the motor nerve cells.

The cutaneous trophic manifestations consist of papular or lichenoid eruptions, urticaria, zona, and pustular eruptions resembling ecthyma. These cutaneous manifestations possess in common, a character of pain, due to compression, which tends to show that they are not independent of the medullary lesion, namely, that they nearly always coincide with the exacerbations, when exceptionally intense. * To the cutaneous disturbances, hypertrophy of the various anatomical elements of the skin must be added. This causes the folds to become larger and harder. The epidermis becomes dry and striated, yellow in hue, with an increase in hair and raised plaques. The nails thicken; become incurved, take on a yellowish brown color, and show deep grooves. The development of the fatty tissue is a rather frequent phenomenon in affections of the cord, but is far from being constant. This tissue increases in the muscular interstices and around the vessels and nerves. A lipomatosis is produced which often conceals the atrophy of the muscular structures and may even lend the aspect of hypertrophy to the part, the so-called classic pseudohypertrophy.

Finally, changes in the dermis and underlying structures are often observed following an erythematous patch and which constitute the eschar. This cutaneous morbid change is more commonly seen on the buttocks, but it may develop on any region of the body which is submitted to prolonged pressure. It is possible that mechanical irritation plays a certain part in the production of decubitus acutus, but nevertheless it is quite certain that the nerve lesions are first and foremost among the pathogenic factors, placing the cutaneous surface in a condition which will more easily succumb to the action of irritation, no matter of what nature. An apparent proof of this is that frequently the lesions of decubitus occur within a few hours

following a traumatic lesion of the cord. Joint lesions of a trophic nature are occasionally encountered. These consist of either an acute or subacute arthritis and are more prone to occur in cases of medullary trauma. Finally, the lungs, liver, or kidneys may present trophic disturbances represented by hyperemia or ecchymoses, but these are in reality uncommon lesions and therefore need merely be mentioned, as their pathogenesis is still surrounded in obscurity.

In compression of the cord the earliest symptoms are motor disturbances, consisting of paresis with muscular spasm, and later a paralysis appears with loss of movements and an increase in contracture and at length flaccidity ensues at the time when the cord lesion becomes complete and all the corticospinal and cerebellospinal motor tracts are interrupted by the development of a myelitis. Although the pathogenesis is not yet perfectly clear, it may be accepted as probably correct that in the majority of cases of compression of the cord the spasmodic type of contracture is the most common, while the flaccid type, when destruction is not complete, is the rarest form.

A BONE DRY PROBLEM.

The enforcement of prohibition will involve many novel problems. The use of alcohol as a solvent and menstruum for drugs is so general and its properties as a solvent are of such great value that it will be impossible to dispense with it without a complete reconstruction of our materia medica. An effort to do away entirely with the use of alcohol as a menstruum would be so far reaching that even if we had any satisfactory, nonintoxicating substitute, it would take years to bring about the change. But we have no satisfactory substitute for alcohol in that direction and we are therefore called upon to decide whether we shall conserve the interests of the sick by continuing the use of alcohol as a solvent in medicinal preparations or whether the sick shall be made to suffer by a discontinuance of the use of alcohol as a menstruum merely because a comparatively few people misuse the medicaments containing alcohol in order to gratify their craving for alcoholic stimulants.

The Bureau of Internal Revenue has hitherto held that the mere presence of alcohol in a liquid was not to be taken as conclusive evidence that the liquid was an intoxicating liquor. The question of whether it was or was not an intoxicating liquor would depend upon the amount of active ingredients present.

This stand has been enforced in a sane and reasonable manner by the bureau, which has published from time to time lists of preparations which purported to be medicinal in character, but which in the opinion of the bureau contained an insufficient proportion of the medicinal ingredients to support this claim. These preparations have been listed as not being medicinal in the opinion of the authorities and those who sold them have been required to take out licenses as liquor dealers. The rulings which have been made by the bureau have been fair and the methods of promulgating the lists as a warning to dealers have proved satisfactory. It is to be hoped that this method will still be pursued so that dealers will have a definite guide before them as to what is an intoxicating liquor and what a medicinal product.

In some cases the State authorities have followed the lead of the Federal authorities and have adopted the findings of the latter from time to time and made them a part of the State regulations. This is a wise procedure, as an attempt on the part of any State or local authority to set up its own list of preparations which may not be sold as medicines would result in a degree of confusion which would seriously embarrass legitimate business in medicinal products.

THE HOUSING PROBLEM.

The war has taught many medical and surgical lessons, especially in the field of preventive medicine. The most valuable of these is the necessity for conserving and maintaining the health of the population at a high standard. The examination of men for the army in all countries has revealed some very deplorable facts, and has demonstrated that there are many remediable defects in our system of civilization.

While it is true that death rates have decreased, thus showing that the science of public health has progressed, infant mortality is still unduly high. An excessive infant mortality of course is due to several causes, one of the chief of which is neglect of breast feeding. Improper or badly regulated diet, however, although it is indisputably a main factor of a big infant mortality, is, by no means, the only one. Environment obviously plays a prominent part in keeping death and morbidity rates of adults and infants at high figures. It must be borne in mind that unhealthy environment not only is a fruitful cause of death but is responsible for much ill health and for the production of a puny, under-

sized race. The question of environment is almost wholly a question of housing. Environment is improved with housing reform. Therefore, the statement that the success of preventive medicine largely hinges on housing reform appears to be absolutely justifiable. In large cities the death rates, and those of young children in particular, are invariably highest in the districts in which housing facilities are inadequate and arrangements unsanitary. The state of the houses in an area may be taken as an index of health conditions therein. Throughout the civilized world the need for improved housing accommodation is engaging the earnest attention of farseeing statesmen and leaders of the medical profession, who recognize that the first important step in the direction of better public health, of decency and morals, is to provide good houses. On the whole, perhaps, housing conditions are superior in America to those existing in Europe. The standard of living is, generally speaking, higher here than in Europe, but at the same time there is room for very considerable improvement in this respect in this country. In our large cities and industrial centres there are numerous slums. Indeed, it may be questioned whether there are in any part of the world, with the possible exception of the Far East, city areas in which there is a greater density of population than in certain parts of New York city and Chicago.

Reforms as to housing are as urgently called for in all parts of the world, in the country as in the town. Even more so in some lands, for the matter has been dealt with, to some extent, in the city, but has been almost wholly neglected in rural districts. That in America, rural sanitation is very inadequate has been demonstrated on many occasions. It is stated that there is considerable evidence to show that whereas in cities health conditions, as measured by the general death rate, are quite generally improving, conditions in the rural districts are almost stationary.

Regarded solely from the purely selfish point of view, the welfare of each unit of a population should be the concern of all its members. The very existence of slum areas in cities and of unsanitary houses in rural districts constitutes a standing menace to the community at large. They provide a fruitful soil in which communicable and epidemic disease may flourish and supply foci from which the same can spread far and wide. Consequently as a measure of defense against the dissemination of disease, housing reform should occupy a foremost position in any public health campaign.

FLABBINESS.

The basic idea of the training period through which the nation has just passed is the deletion of flabbiness—mental flabbiness, moral flabbiness, physical flabbiness. Under the stimulus of war we have sweated off mental, moral, and physical fat. We have been forced to curb our appetites. We have learned to sacrifice without complaint, to dare without bluster, and to sink our will in the common weal. Many of us went to the training camps flabby. We learned to rise early, bathe cold, eat plainly, work hard, and sleep soundly. We learned to obey promptly, to think precisely, to work accurately, and to command properly. One by one the vest ripples of the body, mind, and soul disappeared and we were proud to be hard and fit again. There is a great lesson in all this. Flabbiness is man's greatest sin against himself. It begets sloth, fear, and selfishness. It undermines the mind, the character, the body. Is this lesson, learned at the cost of lives and limbs and worldwide sacrifice, to be lost? Is the ponderous abdomen and feeble leg of yesterday to replace the straight front and springy carriage of today? Are we going to shrink from the cold bath and the hardening necessities of daily life? Or will we attack the postwar period resolved to remain hard and fit in body, mind, and soul?

News Items.

Reopening of Warwick Farm for Drug Addicts Urged.—Justice Collins, chairman of the New York State Magistrates' Association Committee on the Narcotic Drug Evil, urges the reopening of Warwick Farm, at Warwick, N. Y., for the use of drug addicts in the emergency forced by the crusade to break up the illicit traffic in drugs in New York.

Meetings of Local Medical Societies.—The following medical societies will meet in New York during the coming week:

MONDAY, April 21st.—New York Academy of Medicine (Section in Ophthalmology); Medical Association of the Greater City of New York; Psychiatric Society of Ward's Island; Yorkville Medical Society.

TUESDAY, April 22d.—New York Academy of Medicine (Section in Obstetrics and Gynecology); New York Dermatological Society; New York Medical Union; Metropolitan Medical Society of New York City; New York Psychoanalytic Society; New York City Riverside Practitioners' Society; Therapeutic Club; Valentine Mott Society; Washington Heights Medical Society; Woman's Hospital Society.

WEDNESDAY, April 23.—New York Academy of Medicine (Section in Laryngology and Rhinology); New York Society of Internal Medicine; New York Surgical Society; Brooklyn Pediatric Society.

THURSDAY, April 24th.—Hospital Graduates' Club, New York; New York Physicians' Association; Ex-Intern Society of the Methodist Episcopal Hospital, Brooklyn.

FRIDAY, April 25th.—Academy of Pathological Science; Audubon Medical Society; New York Clinical Society; Society of Alumni of Sloane Hospital for Women (annual); Brooklyn Society of Internal Medicine; Hospital Graduates' Club, Brooklyn.

SATURDAY, April 26th.—Lenox Medical and Surgical Society; New York Medical and Surgical Society; West End Medical Society.

Philadelphia Medical Societies.—The following medical societies will meet in Philadelphia during the coming week:

MONDAY, April 21st.—Blockey Medical Society; Medical Society of the Woman's Hospital.

TUESDAY, April 22d.—Jewish Hospital Clinical Society; West Philadelphia Medical Association.

WEDNESDAY, April 23d.—County Medical Society.

THURSDAY, April 24th.—Pathological Society.

FRIDAY, April 25th.—South Branch, County Medical Society; Medical Club (directors); Neurological Society.

Red Cross First Aid Courses for School Children.—First aid instruction for school children is to be introduced into all public schools of the United States, under the supervision of the American Red Cross. Dr. E. R. Hunter is director of the first aid division of the Red Cross and he reports that almost all state superintendents of instruction have indorsed the course. It is roughly estimated that there are about 100,000 fatal accidents in New York every year and it is believed that in many of these, death could have been averted by timely first aid treatment.

Clinical Society of Hospital for Deformities and Joint Diseases.—A stated meeting of this society will be held in the dispensary building, 41 East 123d Street, New York, Tuesday evening, April 22d, with Dr. Samuel Jahss in the chair. Interesting clinical cases will be presented by members of the staff and papers will be read as follows: Increased Responsibilities of Medical Education in America, by Dr. George D. Stewart; Radiographic Diagnosis of Influenza Pneumonia and Its Complications, by Dr. I. Seth Hirsch, which will be illustrated by lantern slides.

Medical Association of the Greater City of New York.—The twentieth anniversary meeting of this association will be held in Hosack Hall, New York Academy of Medicine, Monday evening, April 21st, at 8:30 o'clock, under the presidency of Dr. Edward E. Cornwall, of Brooklyn. A program of unusual interest has been provided, which includes the following papers from two distinguished members of the medical profession: Neuro-circulatory Asthenia, by Major Charles A. Mix, Medical Corps, U. S. Army, of Chicago; the Possibilities of Gallstone Pathology, by Dr. John B. Deaver, of Chicago.

Public Health Service to Increase Nurse Corps.—The Department of Nursing of the American Red Cross Society has entered into an agreement with the United States Public Health Service by which graduate nurses will be supplied to the service as Red Cross nurses are now supplied to the army and navy. There are now only about ninety nurses in the United States Public Health Service, and through the cooperation of the Red Cross it is planned to increase the corps to about 750. Under a recent act of Congress designed to meet the growing hospital needs of the enlarged merchant marine the number of patients to be cared for in the hospitals of the United States Public Health Service will be increased from about 50,000 to approximately 75,000 a year. Miss Lucy Minnerode, of Fairfax, Me., has been appointed superintendent of the United States Public Health Nurse Corps.

Medical Reserve Corps Commissions.—Commissions in the Medical Reserve Corps are being offered to officers of the Medical Department who have been discharged from the service upon completion of their duties connected with the emergency. Under the law they cannot be returned to the inactive list of the Medical Reserve Corps, but must be discharged and reappointed in the reserve in order to continue their connection with the Medical Department. It is planned to build up a large Medical Reserve Corps and include all members of the medical profession who served creditably during the war. It is said that the policy governing these appointments is such as to insure that within the limitations prescribed by law every officer so appointed will receive rank at least equal to that held by him at the time of discharge.

Personal.—Dr. H. Sheridan Baketel has resumed the practice of medicine after two years and nine months of active service in the United States Army. He has offices at 16 Fifth Avenue, New York and at 54 Sidney Place, Brooklyn.

Lieutenant Colonel Stuart McGuire, Medical Corps, U. S. Army, of Richmond, Va., returned from France recently and has been elected president of the Medical College of Virginia. He served with the American Expeditionary Force in France as director of Base Hospital No. 45.

Dr. Marianna Taylor, of Wayne, Pa., has been placed in charge of the medical department of the reconstruction work carried on by the Society of Friends in France.

Lieutenant Colonel Nelson Miles Black, Medical Corps, U. S. Army, has been made officer in charge of the section of head surgery, Surgeon General's Office, Washington, D. C., succeeding Colonel Walter R. Parker.

American Delegates to the Red Cross Conference at Cannes.—The following men have been invited to represent the United States at the Red Cross conference at Cannes, France:

Dr. William H. Welch, director, School of Hygiene and Public Health, Johns Hopkins University; Dr. Simon Flexner, director, Laboratories of Rockefeller Institute for Medical Research, New York; Dr. Herman M. Biggs, Health Commissioner, New York State; Dr. Edward R. Baldwin, director of Edward L. Trudeau Foundation for Tuberculosis, New York; Dr. Theobald Smith, director of Animal Pathology, Rockefeller Institute for Medical Research; Dr. Wickliffe Rose, director general, International Health Board Rockefeller Foundation; Colonel George Walker, U. S. Army, in charge of venereal diseases, A. E. F.; Colonel Homer Swift, U. S. Army, consultant in medicine, A. E. F.; Colonel William F. Snow, U. S. Army, President of Association of State and Provincial Boards of Health of North America; Dr. L. Emmet Holt, professor of diseases of children, College of Physicians and Surgeons, New York; Dr. Samuel McC. Hamill, professor of diseases of children, Philadelphia Polyclinic and College for Graduates in Medicine; Dr. Fritz Talbot, chief of Children's Medical Department, Massachusetts General Hospital, Boston; Dr. Livingston Farrand, Director General American National Red Cross; Major A. M. Garvin, chief, Bureau of Tuberculosis, A. R. C., France; Major William Palmer Lucas, professor of pediatrics, University of California; Colonel Richard P. Strong, U. S. Army, professor of tropical diseases, Harvard University Medical School; Assistant Surgeon General N. S. Cummins, U. S. Public Health Service; Colonel F. F. Russell, U. S. Army; Lieutenant-Colonel Lindsay R. Williams, U. S. Army.

Laxity in Sanitation Charged.—The chief surgeon of the American Expeditionary Forces has issued a circular in which he charges that from June, 1918, many cases of typhoid and paratyphoid appeared among the American forces in France. "During the Chateau Thierry offensive," the circular discloses, "approximately seventy-five per cent. of the troops engaged were afflicted with diarrheal diseases, such as simple diarrhea, bacillar dysentery, typhoid, and paratyphoid."

Civil Service Examinations.—Among the positions for which the New York State Civil Service Commission will hold examinations on May 24th are those of bacteriologist and assistant bacteriologist in the State Department of Health. These examinations are open to men only and candidates must have a thorough knowledge of bacteriology, infection, and immunity, together with practical experience in the bacteriological diagnosis of infectious diseases. There will also be an examination for assistant physician, regular or homeopathic, in State hospitals. For full particulars and the proper application blanks address the State Civil Service Commission, Albany, N. Y.

Distinguished Service Crosses for Surgeons.—A long list has been published of officers in the United States Army who have been awarded the Distinguished Service Cross. We print below the names of the medical officers cited with a note of the particular service mentioned in the citation.

Brigadier General Francis A. Winter, M. C., chief surgeon of the lines of communication, organized medical units, and established medical supply depots.

Colonel Frank C. Baker, M. C., commanding officer evacuation hospital No. 6, Chateau Thierry.

Colonel Joseph Blake, of New York, chief consultant for the district of Paris and commanding officer Red Cross Hospital No. 2; standardized procedures, especially methods of treating fractures.

Colonel George Crile, of Cleveland, Ohio, new methods of treatment and prevention of infection and of surgical shock.

Colonel Percy L. Jones, M. C., commander U. S. ambulance service with the French army.

Colonel James McKernon, of New York, for devotion to duty and the high standards which he set for professional efficiency.

Colonel Joel E. Goldthwaite, of Boston, for foresight in organizing ability in directing the reconstruction service and rehabilitation of the wounded.

Colonel Paul C. Hutton, M. C., chief surgeon of the Paris group and formulator of the hospital plans followed in that section.

Colonel Thomas W. Salmon, of New York, demonstration that war neuroses could be treated in advanced sanitary units with greater success than at the base hospitals.

Colonel James Mount, M. C., arrived in France with the first American troops, created a medical supply depot, and administered a medical supply service for the American Expeditionary Force.

Colonel Joseph P. Siler, M. C., in charge of the laboratory service of the American Expeditionary Force, for his service in the prevention of diseases.

Colonel Sanford Wadhams, M. C., assistant to the chief surgeon, American Expeditionary Force, member of the general staff, and directed hospitalization and evacuation of Medical Corps in advanced areas.

Colonel William H. Wilmer, M. C., surgeon in charge of the medical research laboratories, Air Service, American Expeditionary Force, for services in testing of the aviators and for diminishing the number of accidents in that service.

Lieutenant Colonel Henry Beeukes, M. C., services as inspector of hospitals for the troops in the field.

Miscellany from Home and Foreign Journals

Plastic Surgery of the Lids after War Injuries.—T. Harrison Butler (*Archives of Ophthalmology*, March, 1919) says that before the war injuries of the lids calling for extensive plastic surgery were not common and few surgeons gained sufficient experience to become proficient in their repair. Now patients are operated on with a more certain knowledge of the correct procedure and of the detailed technic necessary to success by those who have been called upon to do this work during the war. Cases fall naturally under two heads: deformities and malposition of the lids caused by wounds and by contracting scar tissues; and actual loss, partial or complete, of one or both lids. Three types of operations are employed to remedy these defects; the use of pedunculated flaps; V Y and sliding operations; and grafting. In the large majority of war injuries we now always use a pedunculated flap, but when the deformity has been produced by burns we fall back on grafting. The degree of success gained is largely influenced by the state of the lid edges; giving an uninjured margin a satisfactory lid should be obtained by a well planned attack, but if the lid margin be absent or seriously damaged the final result is apt to be imperfect.

It is often impossible to achieve success in one operation, often several are necessary, and much patience is needed before the defect yields to a course of treatment in which each intervention is designed to lead to the final adjustment. When large portions of the lids have disappeared and much fibrous tissue has to be cut away, the new lid must be built up by successive stages. The Wharton Jones, or V Y method is unsuitable except for the most trivial cases. Although apparently less severe than the flap method it actually leaves more visible cicatrices and generally fails to cure the malposition of the lid. The Wolfe or whole skin graft is sometimes very successful, but is uncertain. Pedunculated flaps, cut from the cheek or temple, have given uniformly good results and are employed by the writer in preference to any other method whenever the conditions are favorable. Even apparently trivial displacements of the lids are more satisfactorily treated by flaps than by procedures which seem less formidable. The technic of the operation is thus given: An incision is made below or above the edge of the displaced lid and all adhesions and bands, which often run deeply into the orbit, are freely separated. The skin is undermined till the lid lies easily in its normal position. The length and width of the defect are now measured with compasses, and a suitable flap marked out, starting from the outer edge of the wound and extending upward for the same length as the wound. The external incision is not carried as low down as the internal, the part left below being as long as the flap is wide. The flap is now dissected up first with scalpel and then with scissors till it rotates freely without any wrinkle at the turn. The base should be separated as little as

possible to leave a good blood supply. The end of the flap must be left blunt and the depth of the dissection is just as much as comes naturally. Catgut sutures are used. The flap will be found to be firmly healed in place in about a week. In cases where a depressed scar is caused by loss of bone, the cavity left when all the redundant fibrous tissue has been cut away can be filled with fat from the buttocks; best at a subsequent operation. Cases are reported, illustrated by photographs, which show the results of building up missing lids by pedunculated flaps and the replacement of the eyebrow and eyelashes.

When flaps cannot be obtained, as in cases of severe burning, the writer prefers the Esser epithelial outlay, an operation that is still in its infancy, and with which his experience is not so great. The technic is as follows: An incision is made along the edge of the lid in the manner already described. A piece of dental "stent" or "dental molding wax" is warmed and molded till it fits into the pouch easily. An epithelial graft is now sewn round the stent, which is put into the pouch, and the edges of the pouch are united with four or five sutures. In a week or ten days the wound opens spontaneously, or is opened, and the stent is removed. On the table are placed needles threaded with thin catgut, needle holder, and conjunctival forceps. Molding wax is easier to use, but it cannot be boiled. It must be softened in warm water, molded to shape, and sterilized by immersion in an aqueous solution of bioxide of mercury 1:500. An alcoholic solution tends to dissolve the wax. The graft, about one and one quarter inches square, is cut from the flexor surface of the forearm, arm, or the inner aspect of the thigh. The arm must be flexed or the muscles will stand out and the cut will be too deep. The surface is made flat by the use of two thin boards with well squared edges, each about one quarter inch thick. A sharp razor is employed, a stream of saline poured over its edge as it cuts a thin graft not including any subcutaneous tissue. The graft is laid on the sterilized towel and spread out with the raw surface downward. The stent is placed on it and the graft sewn round it with fine catgut. The line of sutures must be placed so that they lie toward the outside when the stent is in the pouch.

It is necessary to make the original incision sufficiently long to allow the pouch to flatten out easily, otherwise a pit will persist and a second operation will be necessary to unfold it. When the unfolding is complete it may be necessary to excise the edges, which sometimes remain hard and raised. When the graft is placed vertically at the inner canthus a secondary intervention is generally required to complete the unfolding. A flat crescent seems the best form for a mold placed above or below the lids, but more experience is needed to determine what is its most suitable shape. An inlay is a similar procedure to place grafts in the conjunctiva to remedy contracted sockets.

Pathological Studies of Cranial Wounds of Warfare.—Genewein (*Brun's Beiträge zur Klinische Chirurgie*, Band 109, 1918) first studies the problem of the effects of missiles, the mechanism of reflected bullet wounds and the value of more or less pointed projectiles from the viewpoint of rotation. As to the nomenclature of wounds of the skull, the writer is content with the following denominations: Wounds by ricochet, tunnel wounds, penetrating wounds with retained missile, comminutive wounds, and those resulting from bursting of explosives at a short range. Genewein gives a detailed description of the mechanism of the effects of bullets on the cranial vault. First there are those where the line of fracture forms radiations around the entrance aperture or on the other hand in a concentric fashion. These fractures produce a flattening of the cranial surface. One also meets with fractures resulting from secondary effects of the missile. The relative thickness of the different portions of the skull plays an important part both in the production and the type of fracture. Tracts of bullets in the cerebral substance are very large and are due to necrosis and melting down of the tissues as a direct result from the bullet, accompanied by expansion of the brain matter. Microscopic examination of the tract always offers the same picture. Following what the writer is pleased to call the large "secondary tract," a thin zone of complete necrosis is found and outside of this is a zone of transition composed of a mixture of nearly normal tissue and elements having undergone necrosis or those of hemorrhagic nature, the number of which decreases as the tract becomes further removed. The destructive effects of the missile diminish with the distance of the range. The effects of missiles fired at a long range are represented by indirect wounds and wound by *contre coup*. The writer also considers wounds by bursting shell, those where the missile is retained in the cerebral matter and missiles which become displaced in the brain, but offers nothing original to the subject.

Some Phenomena of Surgical Shock.—A. Rendle Short (*British Journal of Surgery*, January, 1919) made investigations on surgical shock and allied conditions at a group of casualty clearing stations in France. The term of shock was reserved for depressed vitality due to traumatism, and not including concussion or hemorrhage. The loss of blood up to a pint did not by itself harm a healthy man. Delayed or secondary shock was attributed to toxemia from intestinal paralysis. Syncope from mental effects, such as pain or emotion were considered transient phenomenon. A very potent factor was toxemia from acute streptococcal infection or incipient gas gangrene, and often confused with shock and accounted for the majority of cases of delayed shock. The phenomena of surgical shock are pallor, loss of muscle power, and tone, some blunting of the mind, rapid, weak pulse, fall in blood pressure, subnormal temperature, and reduced urine. The knee jerks were normal except in cases of deep shock when they were lost. The alkali reserve of the blood was reduced. The acidosis was increased, but considered an accessory

rather than an essential factor. The adrenalin content of the suprarenals, confirmed at autopsy, was not reduced. Experiments showed that the blood in shock was not toxic to another animal. The bloodvessels were contracted. The popular belief that shock was due to an exhaustion of the vasomotor centre was not upheld. The superficial veins were contracted and often in a state of acute spasm. The red blood corpuscle count was greater in the capillaries than in the veins. The nerve cells of the sympathetic ganglia and of the spinal cord showed no changes. The sensory nuclei of the brain showed a profound loss of Nissl granules, indicative of cell exhaustion. The motor nuclei were normal. The Purkinje cells of the cerebellum, showed considerable loss of Nissl granules in most cases. Similar changes were produced by profound exhaustion and the normal appearance of cells could be restored by sleep. It is the shock hemorrhage syndrome that called for treatment. There was a slight but definite value in giving fluids. A hot alkaline drink was given to counteract the acidosis. Saline by rectum and subcutaneously were often helpful to a certain extent, but a treatment based upon morphine injections with the object of giving the patients sleep and rest instead of disturbing them by the rectal injections was preferred. The use of heat in the prevention of shock, also proved of value in the cure. In order to secure sleep the patient's ears were filled with cotton plugs, and the men were put in a quiet and secluded place. Adrenalin was considered dangerous. Strychnine was regarded as useless. Alcohol was harmful, especially after ether or chloroform had been given. Pituitary extract was only useful when intestinal paralysis was present. Digitalin was useful in combating the condition. Blood transfusion was far more useful and lasting as a remedy for the shock hemorrhage syndrome than any of the other remedies used. But it was not always possible to apply this treatment.

A New Technic for Suspension of the Kidney. Rawley M. Penick (*New Orleans Medical and Surgical Journal*, April, 1919) used the Kelly incision for the operation, approaching the kidney through the superior lumbar trigonum. He made the incision a little larger, if necessary. When the deep lumbar fascia is reached it is opened with a clean cut, and beginning at the lower angle of the wound a ribbon of fascia is dissected about two thirds of an inch wide. The end is secured with a hemostat and laid aside for the present, and the operator proceeds to deliver the kidney up into the wound as usual. The perirenal fat is stripped to the hilum and the capsule incised and dissected, the sutures introduced, two on each side. These sutures are caught in hemostats and laid aside while the perirenal fat is gathered by a circumferential large suture, forming a cup shaped support under the kidney, and the ends are left long for later attachment at the lower angle of the wound in the musculature. The ribbon of fascia is now picked up and a large chromic gut suture threaded into the end to prolong it; it is then fitted around the lower pole of the kidney, just below the hilum, and a stitch securing it to the capsule of the kidney near

the front is introduced to prevent slipping. The ends of the suture prolonging the ribbon of the fascia, are left in the hemostat while the kidney is being replaced and the sutures of the capsule are secured in the adjacent musculature, as usual in this procedure. When this stage is reached the kidney is placed in the position desired and the suture prolonging the ribbon of fascia threaded on a carrier or large needle and fixed in the muscles of the back, at the most convenient point, fitting snugly around the kidney and holding it securely while the denuded surface on the kidney forms adhesions. The large sutures in the subphrenic fat securing a support under the kidney are now drawn sufficiently taut, forming a cup shaped support. This last procedure closes the loose space under the kidney and, while it may not be necessary, it is quickly and easily done. The wound is then closed in the usual way, layer by layer.

Tendon Transplantation of the Foot.—A. Steindler (*Journal of Orthopedic Surgery*, April, 1919) reports forty-eight cases of tendon transplantation of the foot, where the physiological method was employed. The author refers to the advisability of preserving the physiological integrity of the tendon during surgical manipulations. First the normal gliding apparatus of the tendon must be preserved or reconstructed. The mesotendon of certain tendons must be preserved in order to maintain nutrition. Some tendons may stand a certain amount of stripping from their mesotendon attachments. Extensive tendon transplantations should be eliminated in a number of instances where arthrodesis are indicated. In the foot and ankle there are only a few tendons which may be interchanged, therefore the problems are reduced to a few vital ones: 1. In paralysis of the tibialis anticus or accompanied by slightly paralyzed extensors of the foot, substitution by the tendon of the extensor of the big toe is to be considered. The relative, comparative weakness of this muscle will not rule out the exchange as long as the tibialis posticus is acting. The report includes a number of cases of apparently isolated paralysis of the tibialis anticus, some with the development of high arch and even contractures of the short flexors of the toes. 2. In paralysis of the tibialis posticus, it may be substituted by the use of the common flexor of the toes, which is located behind the sheath of the tibialis posticus. Both tendons may be imbedded in a common sheath. 3. In paralytic pes calcaneus of moderate degree, with paresis of the gastrocnemius, substitution may be made by using the tendon of the peronei. An incision, made midway between the outer edge of the tendo Achilles and the posterior edge of the peronei, will give equal access to both sheaths, and a side to side attachment of the tendon will be possible without interfering with the broad mesotendon of the peronei. 4. Leo Mayer has described a technic for substitution of the paralyzed tibialis anticus by the peroneus longus. This tendon is liberated high up, inserted into the sheath of the tibialis anticus and fastened to the insertion of the scaphoid. 5. In cases of paralysis of both the tibialis anticus and tibialis posticus, a double transplantation was used combining the methods of the

first and second groups; substitution of the tibialis anticus by the extensor of the big toe, of the tibialis posticus by the flexor of the big toe. 6. In cases of paralysis of either tibialis anticus or tibialis posticus combined with paresis of the gastrocnemius a double transplantation was done, combining the methods of the first, second, and third groups: Substitution of the tibialis anticus by the extensor hallucis or the tibialis posticus by the flexor digitorum and of the gastrocnemius by the peronei. 7. Finally, in cases of paralysis of both the tibialis anticus and posticus and of the gastrocnemius, a triple transplantation was carried out, combining the first, second, and third methods; substitution of the tibialis anticus by the extensor of the big toe, of the tibialis posticus by the flexor of the toes and of the gastrocnemius by the peronei. The reason tendon transplantation has fallen into disrepute is that the indication of this method has been unduly extended to cases in which the existing indication was that of arthrodesis. The detailed report of forty-eight cases, in which the technic of sheath preservation and preservation of the nutrition has been strictly observed, with the exception of three cases where Mayer's method was used.

Treatment of Weak Feet.—Leo C. Donnelly (*Journal of Orthopedic Surgery*, April, 1919) encountered as many cases of weak feet during his examination at a local board, as he did during active military service in France. Most of the registrants with weak feet wore the so-called English walking shoe, a narrow toed shoe. The patients' feet were weak chiefly on account of their shoes, faulty standing posture and undeveloped foot muscles. The muscle pull of the foot flexors, foot extensors and foot supinators were taken each week. The wearing of military shoes was advised and these were fitted according to the rules laid down by the Surgeon General's Office. The patients' feet were soaked in a solution of formaldehyde and given a foot powder containing boric acid and salicylic acid. The bromidrosis disappeared in about two weeks. Exercises were prescribed. All of the feet improved in muscle strength, and some arches were raised five eighth inch. The same course was tried successfully with the older patients.

Static Defects of the Feet.—Edward A. Rich (*Journal A. M. A.*, December 14, 1918) presents an extensive discussion of the proper methods for the diagnosis of static defects of the feet, illustrating the various procedures with diagrams and photographs. He shows that the only satisfactory means of diagnosis are by the combined use of the pedograph, the contour line of the upper foot, and relation of the lower margin of the scaphoid to the line drawn from the posterior, inferior aspect of the internal malleolus to the plantar surface of the distal end of the first metatarsal bone. The method of interpreting the findings revealed by these diagnostic measures is detailed and illustrated, and the general principles and methods of treatment are set forth with reference to the precise conditions to be corrected. The statement is made that far more attention should be given by the general practitioner to the static defects of the feet than is customary.

Quinine Administration.—Robert Howard (*Journal of Tropical Medicine and Hygiene*, January 1, 1919) recommends, in the treatment of malaria, the use of the hydrochloride and bihydrochloride salts of quinine in preference to the sulphate and bisulphate. The hydrochloride contains much of the highest percentage of pure alkaloid among the quinine salts—81.8 per cent.—while the bihydrochloride, owing to its extreme solubility in water, is indicated for intramuscular or intravenous injection. In malaria prophylaxis he uses the hydrochloride either in tablet form or solution, in the latter case usually adding one minim of dilute hydrochloric acid to each grain of quinine, in order to convert it into the bihydrochloride. In definite malarial pyrexia he employs the bihydrochloride; this salt makes a tablet which is very soft and friable, and so soluble that even after administration as a tablet, tinnitus may be noted within an hour. In susceptible patients complaining much of tinnitus, the latter may sometimes be decreased by giving a few minims of dilute hydrobromic acid along with the quinine. Babies can be made to take quinine by putting some quinine tannate in the mouth and immediately giving the breast. As this salt contains only about thirty per cent. of the alkaloid, the dose as ordinarily calculated must be at least doubled when it is used, a baby one year old thus receiving two to three grains at each dose. Pure quinine was also tried by the author, with some success. It is a damp, sticky powder, and is given in doses one half or one third those applying to the tannate. Further investigation of the use of pure quinine is required, particularly as regards its mode of absorption.

Herxheimer Reaction Due to Quinine in Malaria.—Autric (*Bulletin de l'Académie de médecine*, January 21, 1919) holds that, just as in syphilis arsenobenzol and mercury sometimes cause exaggeration of syphilitic symptoms, so in malaria quinine may cause a febrile paroxysm. In the French colonies, old residents with long standing malaria often state that a moderate dose of quinine will cause them to have a paroxysm. Among colonial medical men a definite opinion prevails that where malarial fever proves resistant to quinine, judiciously administered, an attempt should be made to cut short the paroxysms by suppression of quinine, the drug being later resumed without delay and preferably given intermittently. The author reports two cases recently witnessed in which stopping quinine administration at once arrested a series of daily paroxysms, in one instance permanently. The quinine Herxheimer reaction is ascribed to destruction of the malarial parasites by the drug, setting free toxic products which induce fever. In view of this, quinine may be a dangerous remedy if given at the wrong time, viz., at too short an interval before the paroxysm, reinforcing the latter by the addition of a reaction over and above that occurring in the normal course of the paroxysm. Especially is it dangerous if the attack is itself of a serious type, as in pernicious malaria, where the limits of resisting power of the body have already been reached. Quinine dose should not be made proportionate to the severity of the infection; on the contrary, the graver

the infection, the greater the circumspection required as regards dose. If the time of an expected paroxysm is not definitely known, i. e., if there is apprehension lest the drug be administered less than eight hours before the beginning of the attack, it is better to give it after the attack, or at least not until defervescence has plainly set in. In grave, pernicious malaria, symptomatic treatment should be given priority over quinine. The latter, especially in large doses, might exaggerate the symptoms and carry off the patient. It would be better to "jockey" with the disease, and use quinine only when a favorable opportunity presents itself.

Clinical Studies of Coagulen.—H. K. Bonn (*Indianapolis Medical Journal*, March, 1919) reports his experiences with coagulen in twenty-five cases, principally at the operating table. Coagulen is a cell free preparation of thrombozym, obtained by fractional centrifugalization, and consists solely of the blood platelets; therefore the substance is a physiological styptic. Coagulen therapy is contraindicated in advanced stages of arteriosclerosis, aneurysms, and syphilitic vascular changes. The powder may be dissolved in hot sterile distilled water, or in normal salt solution; the tablets in hot sterile distilled water only, as salt is incorporated in the tablet. Flakes form as the powder or tablets are dissolved and the solution should be shaken vigorously until all flakes are dissolved. The solution should then be boiled not to exceed three minutes. Ampoules of the solution need no further treatment before using. Coagulen may be given by subcutaneous or intravenous injection, applied locally by means of a gauze sponge, tamponade, or by injecting or spraying the site of the bleeding, or it may be given by mouth, dissolved in water, tea, or milk. It should not be stronger than three per cent. for intravenous injection, but for other methods of use five to ten per cent. solutions are to be used. In giving coagulen by the subcutaneous or intravenous method, the injection should be made very slowly and discontinued at once if any headache, cardiac pain or eye derangement appears. When applied locally on a mop it must be applied to the precise point of bleeding for at least three minutes, and then the gauze must be carefully rolled away beginning at the edge, so as not to disturb the clot. Or we may press a gauze mop on the spot, withdraw it quickly and immediately spray or inject the solution.

From his experience Bonn draws the following conclusions: 1. Coagulen definitely intensifies and accelerates the complicated process of coagulation, no matter whether applied locally or given subcutaneously or intravenously. 2. Coagulen is a harmless physiological hemostatic. 3. The preparation is decidedly useful in checking hemorrhage of whatever origin. It must be remembered, however, that the quality of the patient's blood is a criterion of the effectiveness of coagulen, since the preparation merely adds a certain amount of thrombozym to that already present. 4. Coagulen is particularly useful for checking bleeding coming from areas which do not adapt themselves readily to mechanical methods of control of hemorrhage; for example, the cul de sac of Douglass. 5. The use of coagulen

for the checking of blood during operations should, in my opinion, be limited to coagulen tamponade of oozing surfaces inaccessible to suture or mechanical control, and to local use in the subfascial and subcutaneous planes. Fonio's method of spraying or injecting coagulen solution for the mastery of bleeding appears to me to be time consuming and not to afford the degree of safety of ligation. 6. The ability of coagulen to replace transfusion as a procedure to arrest hemorrhage is certainly debatable. If a few doses of coagulen do not promptly check the bleeding, transfusion should certainly be done, although if coagulen has been effective I believe that it is better to wait a day or two before the transfusion is performed. 7. Coagulen appears to be worthless in controlling hemorrhage issuing from beneath a slough.

Pseudodiphtheria Infection.—Louis Martin and Georges Loiseau (*Bulletin de l'Académie de médecine*, January 21, 1919) refers to the fact that in normal throats and at times also in cases of sore throat or laryngitis, there are often found organisms which yield on serum white colonies developing in twenty-four to forty-eight hours. The organism is a short rod, frequently with pointed extremities, positive to Gram's, and strikingly resembling the short forms of the diphtheria bacillus. The existence of this organism renders difficult the differentiation and isolation of diphtheria carriers, for twenty to thirty or even seventy-five per cent. of well subjects yield diphtheroid organisms growing on coagulated serum, while only two to five per cent. actually harbor true, pathogenic diphtheria bacilli. As a new, improved procedure capable of eliminating this difficulty the authors employ tubes of deep, litmus, and glucose agar. Three per cent. agar is first prepared and placed in test tubes to a depth of six centimetres; these tubes are sterilized. Three grams of glucose are now dissolved in 200 mls of distilled water, thirty mls of tincture of litmus added together with a little decinormal soda, if necessary, to restore the litmus to a sensitive tint—and the mixture sterilized by filtration. The agar in a number of tubes is then melted and cooled to 50° C., about five mls of the sterile glucose litmus mixture added, and a uniformly bluish violet color secured by agitation. For use these tubes are first liquefied on a water bath, then cooled to 50° C. and inoculated with bouillon containing an emulsion of the organism to be identified—this organism having previously grown in a pure colony on serum. After eighteen hours, tubes inoculated with the diphtheria bacillus have turned red, and with a magnifying glass colonies are visible throughout the mass of medium and are observed to be absent from the free surface. Tubes inoculated with nondiphtheritic organisms remain bluish violet or even may have become definitely blue; there are very many colonies at and near the surface of the medium, but none in its depths. The diphtheria organisms growing in the depths are generally long, the short form being exceptional. The organisms that grow at the surface, on the other hand, are always short. The former are generally lethal to the guineapig and yield a toxin, which, in turn, yields an antitoxic horse serum. The latter, when in ab-

solutely pure culture, are not lethal, produce no toxin, and consequently no antitoxin, even when injected in large amount into horses. The diphtheria organisms attack glucose and render glucose media acid within a few hours; the nondiphtheritic organisms instead increase the alkalinity of glucose media. Observation of the time required for decolorization of the Gram stained germs constitutes another practical method of differentiating the diphtheria and nondiphtheritic germs, the former soon becoming decolorized by absolute alcohol while the latter strongly resist decolorization.

Operative Indications and Prognosis in Influenzal Empyema.—Louis Legendre (*Presse médicale*, January 16, 1919) reports twenty-three operative cases of suppurative pleuritis accompanying influenza. Of these fifteen recovered and eight died. He divides the series into two definite groups—that of the white or pale dyspneics and that of the blue or cyanosed dyspneics. In the former the respirations are but twenty-five to thirty per minute and the dyspnea seems due exclusively to the amount of the exudate. The pallor is of toxic origin. These patients have had pulmonary foci, but these have already subsided, the onset dating back from twenty-six to fifty-eight days. In these patients operation always resulted in gradual reduction of the dyspnea and an immediate fall of temperature. Recovery regularly followed. In the blue dyspneics, on the other hand, the rate of breathing was forty-five or fifty to the minute, and there was marked cyanosis of the face and extremities, due not only to the exudate, which was generally small in amount but especially to pulmonary lesions, often bilateral, viz., pneumonia, splenopneumonia, bronchopneumonia, congestion, or edema. In these patients operation caused no drop in temperature, but by creating an artificial pneumothorax reduced the already markedly deficient respiratory surface and increased the dyspnea.

The patients treated in this manner, eight in number, all died in twenty-four to forty-eight hours after the operation. It seems true, at least, that if these patients had otherwise any chance of survival, the intervention, carried out too soon, had a marked influence in removing it. Operative shock could not be held responsible, local anesthesia having been used and the time of operation restricted to two or three minutes. Care was taken to permit only a slow evacuation of the exudate. Among the fifteen patients who recovered was one in which, in the presence of dullness of the lower lobe of the left lung, exploratory puncture yielded twenty-five mls of turbid fluid. For the succeeding twenty-four days the patient was treated by repeated punctures and intrapleural injections of specific serum. At the close of this period the patient had become a white dyspneic with healed pulmonary lesions; operation now yielded two litres of fetid streptococcic pus, and was followed by a drop in temperature on the next day and recovery. The author definitely recommends that influenzal pleuritis be treated by punctures and serum injections until the lung lesions have disappeared or improved; surgical procedures can then be undertaken with every likelihood of success.

Treatment of Purulent Pleuritis.—Victor P. Diederich (*Surgery, Gynecology, and Obstetrics*, April, 1919) presents a review of 147 cases of empyema which were studied at the Camp Pike Base Hospital during the period of six months, from March to December, 1918. The pleuritis followed three distinct types of infection, influenza followed by hemolytic streptococcus or pneumococcus pneumonia, measles followed by hemolytic streptococcus or pneumococcus pneumonia, or primary lobar or bronchopneumonia caused by the pneumococcus or hemolytic streptococcus or both. Great importance is attached to the cross infections in pneumonia empyema, during the primary stages and later. All hemolytic streptococcus infections as well as carriers should be isolated. Otherwise the pneumococcus cases may resolve into hemolytic streptococcus pneumonias. The same is true for the pneumococcus cases of the different types. They should be separated so that a Type II pneumococcus does not contract a Type IV pneumococcus pneumonia. When this was carried out in the wards the proportion of hemolytic streptococcus pneumonia cases was reduced. Aspiration is supposed to increase pocket formation. In this event they may be taken care of by the trocar cannula method. When the fluid has become distinctly purulent and the pus has become walled off, trocar thoracotomy is indicated. Blowing against positive pressure with the blow bottles is of distinct value in aiding the expansion of the lungs. Patients should be kept out of doors and warmly clothed. The patient should be kept in a happy frame of mind and the nutrition should not be neglected. The teeth and mouth should receive careful attention. Digitalis was not used, but ice bags were placed over the precordium in cases of failing heart action; camphorated oil was given subcutaneously. Glucose in a twenty-five per cent. solution was given intravenously in cases with pneumonia, which showed signs of dehydration and acidosis. While the patients were convalescing they were put in classes and given breathing and setting up exercises twice daily.

Aseptic Intrapleural Effusion of Blood in Influenzal Lung Involvement.—Charles Richet, Jr., and André Barbier (*Bulletins et mémoires de la Société médicale des hôpitaux de Paris*, November 21, 1918) report five cases of intrapleural blood effusion accompanying influenza. The clinical manifestations were strikingly alike in all these cases, though in three the condition complicated pulmonary congestion, in the other two, pneumonia or bronchopneumonia. The patients all presented on the fifth to the ninth day an increase of the physical signs unaccompanied by any change in the general condition or respiratory function. Auscultation revealed the same impaired resonance and shower of fine râles as had been noted the day before, but the vibratory phenomena were diminished; sometimes there was ezophony and whispering pectoriloquy, with or without bronchial breathing. The possibility of a pleurisy having been thought of, exploratory puncture followed and brought forth a few mils of fluid apparently consisting of pure blood. The effusion was of moderate volume, in no

instance requiring thoracentesis. On the next day or a few days later, puncture became negative. The course of the disease seemed uninfluenced by the effusion, four patients recovering rapidly while the fifth succumbed to bronchopneumonia. All the patients had albuminuria, and in one instance there was almost complete anuria. The fluid obtained by puncture appeared to be noncoagulable blood, but cell examination, showing the presence of many white cells, proved it to be a mixture of blood and pleural fluid. There were few polynuclears but many mononuclears, consisting mainly of large macrophages, some united to form endothelial plates. Direct examination and cultures demonstrated no microorganisms, though the influenzal filterable virus could not be excluded. The sputum of these patients contained indiscriminately the Pfeiffer bacillus, the catarrhal organism, or the pneumococcus, either in pure culture or in combination. Among other patients in the same hospital the authors had found small effusions of light yellow serous fluid, without erythrocytes or microorganisms. The bloody effusion evidently consists of this same form of exudation plus extravasated blood. The condition is doubtless analogous to the hemorrhages so readily occurring in other parts of the body in influenza.

A Lesion in the Putamen.—L. Newmark (*Journal of Nervous and Mental Diseases*, February, 1919) reports the case of a man, sixty-five years old, who, after having experienced a transient disturbance of articulation some time before, suffered a slight impairment in the use of the left extremities, which appeared to him as a numbness or awkwardness in the action of the left hand, and a loss of facility in moving the left toes, associated with a slight tremor of the left hand on voluntary movement, and of the lid of the left eye. After an observation of three months the disease was thought to be progressive and possibly, incipient paralysis agitans. Yet in the remaining two and a half years of the patient's life no further progress in the affection of the extremities was observed, but paralysis of the bladder and weakness of the anal sphincter supervened about a year and a half before his death. There was no Babinski sign of involvement of the pyramidal tracts, and all the tendon reflexes were normal. The record contains no mention of the abdominal or the cremasteric reflex. Subsequently lymphatic leucemia was detected, and the patient died of this disease. On autopsy leucemic infiltration was found in various organs and in the meninges of the brain and cord; the arteries supplying the central nervous system were profoundly sclerosed; the putamen in the lenticular nucleus of the right hemisphere was shrunk, its contraction being almost exclusively in the lateral dimension, many of its nerve fibres degenerated and its area occupied by a mass of neuroglia with abundant nuclei, the changes in this neuroglia leading to an appearance of corrosion or cavitation of the putamen, while the putamen of the other hemisphere showed a comparatively slight proliferation of the glia nuclei. The right globus pallidus was hardly more than secondarily affected through the loss of fibres which pass between it and the putamen.

War Neuroses.—Hugh T. Patrick (*Journal of the Indiana State Medical Association*, February 15, 1919) says that war neuroses never develop instantaneously, rarely rapidly. The situation becomes insupportable only by degrees. The man has been growing weary, sleepless, apprehensive, irritable, sensitive. That is the time for prophylaxis. A rest under proper influences restores his physical vigor and his morale, and he is ready to fight again. It has been found that many cases caught young can be quickly cured just back of the lines and the man returned to the front. For several reasons these cases are not adapted for general hospitals, but are best handled in special neuropsychiatric units. Under present conditions to invalid the patient home is the worst possible procedure.

Cerebral and Facial Duality.*Bérillon (*Presse médicale*, January 16, 1919) maintains that the functional independence of the two cerebral hemispheres manifests itself not only in independent action of the upper extremities but also in what he terms facial duality. Whereas movements of decision, impulsion, and offence are naturally in the province of the right hand, or sword hand, the left hand constitutes the organ of restraint or defence—the shield hand. The same dual functions are to be noticed in the expressions of the face. The right half of the face reflects ideas of expansion, sociability, and affection, whereas upon the left half are mirrored thoughts of mistrust, defiance, or opposition. The eyes participate in this duality of expression. The right eye expresses kindness, while the left ordinarily preserves an attitude of observation and watchfulness. This facial duality is hardly perceptible during repose, but becomes accentuated to the highest degree from the effect of various exogenous or endogenous stimuli. It is particularly noticeable in men of action.

Anosognosia.—Babinski (*Presse médicale*, January 16, 1919) several cases of left sided hemiplegia presenting a peculiar mental attitude in virtue of which, in spite of relative preservation of the intellectual functions so that they are able to answer most questions correctly, they appear to be unaware of their paralytic condition and make no complaint of it. When requested to raise the right arm, they do so at once in a normal manner; when requested to raise the left arm and then asked whether they have done so, they either remain silent or answer "Yes," although the arm has not moved. One patient, when requested to watch his arm and then told that he was not executing the command to raise, did not seem surprised or disturbed at the fact, but merely answered: "It is because it moves less quickly than the other." For this condition Babinski proposes the term anosognosia. A noteworthy feature is that such patients show anesthesia with more or less complete loss of deep sensibility and of the sense of position. This is probably a prerequisite to the anosognosia, yet does not entirely account for it. There is present a special psychic disturbance. It is as if the patient had completely lost interest in his paralyzed arm, was incapable of fixing his attention upon it, and, as it were, no longer had any remembrance of it. This disturbance is probably the result of a cortical lesion. It sometimes passes off very rapidly.

The Adrenalin Content in Infants' Blood.—D. Kramer (*Monatschrift für Kinderheilkunde*, xiv, Nos. 8 and 12, 1918) in his researches, undertaken under Borend's direction, used cadavers. They revealed the fact that in intoxications due to feeding or other conditions, there was an absence of adrenalin in the suprarenals. This was likewise the case in premature infants, or at least the amount of adrenalin was below the normal. It is to be supposed that this lack of adrenalin in the suprarenals is due to hyperfunction of these glands and not to a larger proportion of adrenalin entering into the circulation.

Postmortem Cæsarean Section.—M. Heppner (*Journal A. M. A.*, March 8, 1919), reports a case of postmortem Cæsarean section and successful delivery of a living child in a patient received moribund from influenzal bronchopneumonia. Cæsarean section during life was not permitted, but about one and a half minutes after the mother's death was absolutely certain, when the fetal sounds had become so feeble that they could not be heard with a stethoscope, an incision was made and the living child was delivered. The child lived, but died when twenty-five days old. The cause of death was croupous pneumonia.

Treatment of Wounds by Excision, Without Antisepsis.—Lefèvre (*Presse médicale*, January 2, 1919) treated 195 severe war wounds by simple excision of the contused and contaminated tissues without the employment of any antiseptics. Primary immediate closure and delayed closure both gave good results, even when only carried out after four days had elapsed. Primary closure proved feasible in seventy-eight per cent. of the cases (unselected), and was practised even where the wound contained the perfringens organism and streptococci, without subsequent untoward results. Success attended this procedure in 91.33 per cent. of the cases. In fifteen instances, the wound margins being under excessive tension, primary union was not obtained. In two additional instances the wound had to be reopened because of local abscess and gas formation, later healed by second intention.

Disease of the Plexuses of Auerbach and Meissner in a Case of Intussusception.—Leriche and Masson (*Presse médicale*, January 9, 1919) report the case of a man aged twenty-four years, upon whom they had carried out an ileoceocolic resection for acute intussusception, in which marked inflammatory lesions of the plexuses of Auerbach and Meissner were found in the resected portion of intestine. They believe these changes in the sympathetic nervous supply of the bowel cannot be held as a mere chance observation. Severe involvement of the sensory-motor innervation of the intestine cannot be considered simply a coincidence in a condition showing manifest perversion of intestinal peristalsis. The one must obviously be the cause of the other. Exaggerated peristalsis of one segment of intestine, and atony and dilatation of another, the whole resulting in intussusception, are apparently to be thus accounted for. The observation is at least one which may lead to something definite in the study of the cause, hitherto obscure, of intussusception.

Proceedings of National and Local Societies

NEW YORK NEUROLOGICAL SOCIETY.

*Three Hundred and Sixty-Eighth Regular Meeting,
Held at the Academy of Medicine,
December 3, 1918.*

The President, Dr. FRIDERICK TILNEY, in the Chair.

Presentation of Clinical Material.—Dr. S. PHILIP GOODHART presented a case of intracranial infiltrating aneurysm at the base. The patient was a middle aged woman who gave a history of a long standing rheumatic disorder for which she had taken a number of cures. There was at present evidence of arthritis in the joints, especially of the hands and feet. She had also suffered from headaches, mostly confined to the left side of the head. Three years ago these headaches suddenly became intense and persistent and were accompanied by a ringing sound in the left ear. To this ringing were finally added noises of different character which after a period of six weeks eventually involved also the right ear. The patient noticed that the headache was less when lying down, and she noticed that she could diminish the noises in both ears by pressing deeply into the soft parts of the neck, slightly below and a little anterior to the left ear, manifestly over the carotid. This also diminished the headache to a large extent. The left eyelid was edematous in the morning. There was a point of tenderness over the left mastoid. There was hyporeflexia of the cornea and a relative diminution of all forms of sensation all over the left half of the body, doubtless purely functional. Objectively, on auscultation a distinct bruit was heard behind both ears; with the aid of a soft rubber stethoscope a loud bruit could be heard in the right ear synchronous with the pulse. The eye grounds were practically normal. Systolic blood pressure was 130, diastolic 80. Röntgenological examination revealed no abnormal bony changes. The case was probably one of intracranial aneurysm and probably at the base posteriorly.

Dr. L. PIERCE CLARK remembered seeing a woman last spring who had an aneurysm of the left frontal sinus and acute exophthalmos. The condition was diagnosed first by an ophthalmologist. The ear bruit on auscultation did not decrease on sitting up; in fact it was intensified and she had violent vertigo in lying down. This condition was rarely diagnosed. The speaker had seen but two other cases. The only thing to be done was to use the iodides, but one patient became better by using morphine.

Dr. CHARLES A. ELSBERG remarked that he had seen a metastatic new growth give exactly the same symptoms as those of Doctor Goodhart's patient.

The Treatment of Facial Paralysis.—Dr. CHARLES H. JAEGER presented a child who three years ago had a complete left facial paralysis. Following orthopedic principles which had been found to be sound in poliomyelitis, it was decided to rest the muscles, avoid irritation and motion and prevent distortion. When the case was brought to Doctor Jaeger he decided that here was a chance

to see what complete rest and maintaining the physiological position and shape of the muscles would do to restore the normal tone of the muscles. The problem seemed to be one of holding up the affected muscles permanently. The simplest thing was to have some sort of a net made into a cap to fit snugly over the head and then to apply a brace consisting of two strips of adhesive plaster with attached ribbons, the ends of which could be tied into the cap, while the cheek was drawn up to correct the sagging; or a small hook could be attached to the end of each ribbon and these hooks could be slipped into the net cap. This procedure was followed, the child willingly cooperating in the treatment, and the attachment, with frequent renewals, was worn constantly for three months. Within one week after applying the brace, the condition showed signs of improvement. The facial expression had become more natural, there was less drooping of the left corner of the mouth and the left eyelid could be more nearly closed. At the end of three months the child was entirely cured. She was not seen again for nearly two years, but three weeks ago her mother had brought her to Doctor Jaeger's office with a history of Spanish influenza and a return of the paralysis.

Dr. J. A. BOOTH considered that Doctor Jaeger's arrangement of the adhesive plaster, instead of a hook to fit in the corner of the mouth, might be an improvement in a method of treatment that had been in common use for years.

Dr. L. PIERCE CLARK said that after all it must be remembered that however severe facial paralysis might seem, the great majority of these cases practically all recovered spontaneously. It was only in the severest grades that one might expect contractures, and then the majority of the contractures were in the line in which the splint was here applied. It might be well to try and see what this method would do to overcome the marked sagging following mastoid disease and injuries of the face of severe grade. In regard to hyperglossal anastomosis, regarding the relative improvement in Bell's palsy, Sir William Gowers said that whenever the paralysis was shown, by electrical reactions, etc., to have existed over three months, some part of the function of the seventh nerve would remain lost. He had a patient, a man, who had his beard so trimmed by a tonsorial artist as to make both sides of the face appear symmetrical and the improvement was so great that his own friends did not know he was paralyzed.

Dr. WILLIAM M. LESZYNSKY did not consider Doctor Jaeger's analogy between the paralyzed facial muscles and those of an extremity affected by poliomyelitis a good one, but for many years he had been accustomed to recommend the use of a small hook to be inserted at the angle of the mouth, and retained in position by a thin strip of adhesive plaster fastened over the malar bone during the early stage of facial palsy, in order to give support to and prevent stretching of the paralyzed zygo-

matic muscles. He thought that Doctor Jaeger's idea of the application of the plaster to the skin in order to elevate and support the upper lip was preferable to the hook which occasionally set up irritation of the mucous membrane. The additional strip of plaster over the masseter, as demonstrated in this case, however, was superfluous and could be dispensed with. It should be remembered that in many cases which appeared severe at first, recovery might take place spontaneously. If recovery in bad cases could be hastened by simply keeping the paralyzed muscles at rest indefinitely, then all of the customary methods of treatment such as electricity, massage, etc., could safely be discarded. Attempts on the part of the patient at voluntary effort to move the facial muscles had always proven one of the most important measures leading toward ultimate recovery of function.

Dr. A. P. LENSMA, of Seattle, having had a unilateral facial paralysis himself, had tried every method to correct it, with the exception of the use of adhesive plaster, and his personal experience was that rest was not an effectual method of treatment. He had a great deal more success with diathermia, though it did not have any effect on the ptosis. The discomfort of the condition came more from the contraction than from a nerve pain, and the patient always felt very much better for some time after massage. The principle of rest for contracture did not appear to be a physiological measure. It might be that the use of the adhesive plaster itself, its composition, had some effect on the circulation and thereby brought about the result achieved by Doctor Jaeger, but that a cure was effected by the immobility produced by the brace itself would seem to be doubtful.

Dr. SMITH ELY JELLIFFE said in response to Doctor Leszynsky's suggestion that "if this form of treatment be effectual we will have to lay aside all our old methods of handling these paralyses," that he hoped that we would wake up and learn that the older methods were inadequate, if not stupid, for physiological stimulus of muscle action was not obtainable by the old methods of massage and electricity. Real stimulus was received through the motor cortex through ideation. In recent experiments in the physiological laboratories where extensive studies on the peripheral nerves had been carried out, they had shown that electrical stimulus was not a stimulus at all, and that degenerated nerve processes were not helped in the slightest by electrical stimuli.

Dr. RICHARD B. KRUNA said the effect of massage was the accomplishment of concentrated rest, as elimination of the products of fatigue thereby took place considerably more quickly than if the muscle were left to itself. Neither rest alone or stimulation alone would accomplish what one wanted to achieve, but a combination of the principles of stimulation and of concentrated rest by massage and the principles of ideation together had to be utilized. In the treatment of infantile paralysis a combination of the three often gave a better total result than under the application of any single method.

Doctor Jaeger, in closing the discussion, expressed his gratification that the subject had aroused so much interest from the society. He himself felt that as this was merely a single experience; one could not from this make general rules or laws governing the treatment of all cases especially those of nerve injury during a mastoid operation. He presented the child to show results in this particular case where electrical stimulation had been carried out for almost a year without benefit, and the opposite of this treatment, or complete rest, had brought about the most satisfactory results. There was absolutely no similarity between this method of broad external support and Doctor Leszynsky's method of dragging up the cheek by means of a small hook placed in the corner of the mouth and fastened over the ear. The latter was unphysiological: it produced traumatism to the already weakened muscle by attempting to carry the entire weight of the cheek on the very small area engaged by the hook. Doctor Jelliffe's remarks coincided with his own views about the regeneration of muscle, i. e., that it must be a central regeneration and that the muscle should not be regarded as a single entity, but in its relation with the brain and cord. It was one organ in three parts, and one could not, by applying external stimulation, expect regeneration from the muscle when the normal physiological process was ideation and central stimulus. That was the modern treatment of poliomyelitis, and that was the way in which the speaker expected to continue to treat cases such as the one he presented. The two plasters were applied for a very definite reason; the first plaster was placed over the affected muscle, the second alongside of it to assist in supporting the weight of the cheek.

Ten Years' Work of the National Committee for Mental Hygiene.—Mr. CLIFFORD W. BEERS, founder and secretary of the National Committee for Mental Hygiene, delivered this address. He began with a brief explanation of why he published his autobiography, *A Mind That Found Itself*, which was a frank description of conditions as he saw them while a patient in hospitals for the insane from 1900 to 1903. His motive in publishing his book was to organize a movement to improve these conditions and to help prevent mental disorders. Following this, he was instrumental in organizing a society with these aims in view and to do work similar to that done by another national agency in the fight against tuberculosis. The success of the National Committee for Mental Hygiene, which was founded in 1909, had in part been due to the fact that it did not antagonize the hospital officials, but gained their cooperation by proving to them that it was working also in their behalf. The preliminary plan was formulated in 1906 and in 1907 the speaker got in touch with Dr. Adolf Meyer, who believed that results could be obtained by inducing a group of psychiatrists and others to participate in forming a national committee, the purpose being to improve conditions among the insane and to institute methods for the prevention of mental troubles. In considering a title for the committee, the inclusion of all these words would have proved unwieldy and Doctor Meyer suggested the use of

the phrase "mental hygiene," which proved to be a very happy choice, as it included the idea of prevention. It was not an easy matter to organize the National Committee for Mental Hygiene. The organization was founded, as stated, in 1909, but it was two and a half years before funds for initiating the work were secured. Mr. Henry Phipps then contributed \$50,000 for the first three years of work, and Dr. Thomas W. Salmon, who, during the war, had been in France in charge of the neuropsychiatric work of the American Expeditionary Forces, was appointed medical director. There were many difficulties encountered in beginning the work as there was no other organization's experience to draw upon. In consequence the first task was to gather reliable data regarding a variety of subjects. The most immediate necessity that presented itself was to get accurate information regarding the institutions for the insane. Before very long a wealth of information poured in.

The fact that the initial work was under the direction of Doctor Salmon was very fortunate. He at once won the confidence of every one with whom he dealt. The managements of the various hospitals welcomed the help of the committee and extended every assistance. The next work attempted, after gathering information and starting the library, was that of surveys. The method of making these was to send a well trained psychiatrist into a state to make a personal study of the situation, yet not necessarily to look for abuses. The committee did not resort to unwise publicity by overfeaturing shortcomings, but tried to enlighten the public as to actual requirements so that, when necessary, new laws should be enacted. Twelve or fifteen surveys had been made to date, with funds provided for that purpose by the Rockefeller Foundation, except in South Carolina, Texas, Wisconsin, and Pennsylvania, which were financed in other ways. After a report of the conditions existing in South Carolina was made to the Legislature of that State, it appropriated \$500,000 for a new institution, and today South Carolina has a modern State hospital, whereas prior to that, conditions were on the same low scale that obtained fifty or more years ago. The people of Texas made an appropriation of \$600,000 for the remodeling of one old institution and the building of one new one, for it had been found that for lack of places to care for them the insane were held in jails and almshouses. Similar conditions were common in other States, which, fortunately, however, were fast decreasing in number. It was the hope of the committee that in time the entire country might be surveyed. If funds for this sort of survey work continued to be available it would be possible to put an end to the so-called legislative investigations which did more harm than good, as surveys made such legislative investigations unnecessary.

The activities of the national committee also included work in behalf of the feeble-minded. Indeed, this phase was developing more rapidly than any other. Surveys, as was to be expected, formed an important part of it, and far-reaching effects were being produced in a number of states. Another special activity consisted of the studies in the

psychopathology of crime. Many of those present were familiar with the work of Dr. Bernard Glueck at the Psychiatric Clinic at Sing Sing Prison, which had been supervised and financed by the national committee. His studies led him to the conclusion that the mental factors were the main ones in the problem of crime and must be considered in any efforts at prevention of crime. The work done at this clinic had already influenced the management of crime in these States.

Another activity lately started was the Bureau of Uniform Statistics of the National Committee. Statistics of mental diseases were most inadequate, and in addition had heretofore not been gathered on a uniform basis. Within the past year, however, 144, of the 1,500 hospitals for the insane in the United States had agreed to use uniform statistics blanks, all of which were sold to them at cost by the committee. The work was also being extended into Canada, where the idea was cordially welcomed. In time dependable statistics on mental diseases would be available.

These were some of the committee's special activities. The national committee was carrying on educational propaganda, which was having its effect, not only among physicians but among the general public. Mental hygiene exhibits had been found to be most useful in enlightening the public, as were public lectures. It was the intention of the committee to create as soon as possible new exhibits with duplicate sets for lending purposes.

When the phrase "mental hygiene" was adopted more was accomplished than was realized at the time. The solution of the problems of feeble-mindedness, prostitution, vagrancy, delinquent children, were all included under the term "mental hygiene," so the scope of the work originally planned had been greatly extended.

Because the national committee was already in existence when the United States entered the war, it was used as a rallying point and was able to lay out plans for the United States Government in providing proper care for the nervous and mental cases in the army. Through the war work of the committee some 50,000 recruits had been rejected for various nervous and mental conditions, and the analyzing and classifying of these cases would provide wonderful material for research into the causes of these conditions. The war had undoubtedly done a great deal for the science of neurology and psychiatry, especially in the way of securing public recognition of their importance.

Some eighteen state societies for mental hygiene had been organized in this country and a number of States. It was hoped that within a few years all States would be organized, and all of them would have such agencies. Furthermore an international movement had been begun. The speaker had personally organized the committee in Canada, where he met with the most enthusiastic cooperation, some of the most prominent people in the Dominion having taken a personal interest in getting the work under way. Meetings were held at Quebec, Montreal, Toronto, and Ottawa, and everywhere the movement was most cordially endorsed. A report had lately been received from the Canadian Na-

tional Committee, which was only six or seven months old, showing wonderful results. It was doing war work, carrying on studies of different kinds, notably in regard to immigration and the correction of laws, and in regard to juvenile delinquents, etc. After ten years of work it might safely be predicted that the mental hygiene movement had come to stay and that it would in time spread to all parts of the world.

Dr. L. PIERCE CLARK said that Mr. Beers had presented the problems confronting the Committee for National Hygiene and the work they were doing in so fascinating a manner and so completely that there was hardly anything left to be said. It was surprising to note what they had accomplished while laboring under the disadvantage of being so short-handed and having such a small amount of money, and yet the good will and good offices of the different members of the committee were always generously furnished. Doctor Salmon had once said he hoped the time would come when the committee would get all the obvious work done through laymen and the medical profession as a whole, and then be able to turn its attention to research and investigation. Of course there had already been research and investigation in the directions mentioned by Mr. Beers, but there was still considerable to look forward to in the functions medical hygiene would meet in the domain of research. One of the most important functions in future of the national committee should be to search into the nature of the economic and social factors that played a rôle in the induction of mental disorders. To carry this out to best advantage, there should be mental hygiene clinics where all types of conduct disorders could be investigated and treated upon the basis of their causative defect. The scope of such a clinic should embrace such general conduct disorders as defective nursery ethics, disorders of puberty and adolescence, and lying, thieving and swindling, before they advanced so far as to require legal measures. Unfortunately, in the past many of these cases had been sent to medical clinics where they were not given proper attention, as they had only too frequently been considered nonmedical. There should also be departments in the clinics, which would deal with defective adaptations in the domestic relations, and with economic and social maladjustments. The coming need at present, so far as could be foreseen, was to socialize a part of the psychiatric activity outside the institution and clinic *per se*, and make it a real part of the community life. It had already been learned that one had to reach the individual at an early period of life, and therefore earnest attention should be given toward reaching back in point of time toward the earliest life of the psychopathic individual, so it was worth while considering whether the Committee for Mental Hygiene could not establish an ideal type of clinic of mental hygiene to be worked out first in some large city. The education of school children should be handled scientifically and an effort made toward a better attitude and relationship to society as a whole. Some of the functions of mental hygiene were gradually being extended in the courts. To do this work, there had to be trained workers.

The social workers, the individuals who had cared for society's psychiatric attitude toward the public, needed to be augmented. There was opportunity here for the after war activity of the intelligent men and women who had been engaged so earnestly in war work committees, Y. M. C. A. enterprises, etc., and from them would come a great revival of humanistic interests helping the whole problem of mental hygiene in research as well as in practical activity. If this idea could be arranged and developed it would serve a great function for the future and would prove of benefit to the whole community as well as those psychopathically inclined. It was time for the fields of psychiatry and neurology to be regenerated, and this could come through an extension into peace conditions of the reconstruction planned during war.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting of Wednesday, February 5, 1919.

The President, Colonel WILLIAM J. TAYLOR, in the Chair.

Concussion and Contusion Injuries of the Eye.

—Lieutenant Colonel GEORGE E. DE SCHWEINITZ discussed some of the results of ocular concussion, and contusion injuries in warfare, and some of the pathogenetic problems which they presented, of certain of the differences which were evident as compared with the results of such injuries in civilian life, and of one or two new clinical pictures. An extensive literature has been accumulated on this subject and at least two important atlases have been produced, one by Lagrange and one by V. Szily. Colonel W. T. Lister, of the English R. A. M. C., has made notable contributions. In general terms the fundus lesions now under discussion were caused directly by a blow, or sudden forceful pressure on the eyeball, behind, from the side, or tangentially; or indirectly, by the transmission of concussion or shock (*contre coup*). In the first instance the lesions are classified as lesions by contact; in the second instance, as lesions by concussion. The contact lesions were caused by a missile which grazed the globe but did not rupture it, or by a fragment or portion of a fractured orbital wall or floor or roof, thrust harshly against the eyeball. The concussion lesions were caused by, a, concussion at a distance; b, by transmission of concussion or shock through the bony facial structures, and c, by slight blows on the anterior part of the eye, the concussion being transmitted through the transparent media to the posterior pole (Lagrange). The lesions may be summarized as: 1, Lesions by concussion; 2, lesions by impact; 3, combined lesions, i. e., both by concussion and impact. Should the lesions of the inner membranes result from a concussion at a distance, their development has been attributed to the commotion of the air column shaking the ocular wall in the same manner as it shakes the door of a room.

Should the concussion waves reach the eye in a line of transmission through the bony facial structure, the effect has been likened to the lifting up and shaking of a ship by a ground swell and the entire adipose envelope is concussed, resulting

in ruptures of the inner ocular coats (Lagrange). External manifestations may be absent, therefore, routine ophthalmoscopic examination of the eyes of wounded soldiers should be made. The statement that lowered eyeball tension is an important sign of perforating scleral wounds must not be taken unreservedly in view of the many observations in this war. The cases of injury of the optic nerve in the canal by a missile which passed through the orbit posteriorly, which sometimes cut across the nerve, or the nerve was injured by a radiating fracture of the orbit were notable. The result was an irremediable atrophy of the nerve and blindness. Avulsion of the optic nerve, when jerked from its socket, was not infrequent. Contusion and concussion injuries of the eye in this war which have followed oblique wounds of the facial bony structures have represented about six to eight per cent. of the whole number. There seems very little doubt that lesions of the inner eye by concussion from a distance, by concussion transmitted through the bony facial structures and following blows on the point of the eye by preference were located in the macula and paramacular area; that impact lesions were equatorial and always adjacent to the site of contact; that a contact lesion spreads toward the centre; that posterior pole and equatorial contact lesions approached and joined each other; and that missiles which traversed posterior to the bulbus and radiating fractures of the orbital vault were responsible for most of the direct optic nerve injuries.

Captain GEORGE H. CROSS stated that a markedly interesting picture was presented in the ophthalmological service in Hospital No. 11, at Cape May, which was the enormity of the hemorrhages or involvement of the fundus which masked temporarily the true condition. A long time after the injury there would be the appearance of a rupture, but it was difficult to tell whether there was atrophy or rupture of the structures beneath. We had three cases of, so called, "holes" in the macula, all due to injury of the skull and not directly to the eye. We also had another type of lesion in the case of a soldier with a piece of shrapnel about a centimetre square in the median line of the sphenoid, which directly penetrated without injuring either eye directly, but the visual fields were unusually contracted. Externally the eyes were perfectly normal. In other cases the missile struck the antrum injuring the orbital rim and floor. While the eyeball showed no external evidence of injury, rare fundus conditions were found internally. In some cases the orbital rim and parts of the bony wall had been torn away but without injury to the eyeball itself, excepting that it had been displaced from its normal position. Examination showed that there may be only light perception, with this peculiar condition of the fundus; in others a surprisingly large proportion of vision is retained. In one soldier the foreign body, while not injuring the globe directly, struck the rim of the orbit, traveling along the nasal side, finally lodging in the orbital fat. The patient stated that when struck he became temporarily blind in both eyes; in three or four days he began to recover vision in the right eye, and when he ar-

rived at Cape May the picture was that of a fine granular pigment in a triangular area below the disc, with no other evidence of injury. There was a perceptible diminution of vision in an area corresponding to the pigmented area noted in the fundus, but no scotoma was found, and no other pathological condition.

REEDUCATION OF THE BLIND SOLDIERS.

Lieutenant Colonel JAMES BORDLEY, director, Red Cross Institute for the Blind, Baltimore, Md., said that in an investigation of the wage earning pursuits of the civilian blind it was shown that the vast majority of the 85,000 blind in this country were dependent, in part or in whole, upon their friends, or the State; that in 100 cities forty-three per cent. of the professional beggars were blind people; that the average wage of conscientious blind men was about four dollars a week, and that of the same type of blind women was about half as much. Blind people have a very definite economic value when they were properly trained. More money was wasted each year in foolish charity than would be required to train and place our whole blind population. Few people knew that there was not a single school for the vocational training of the adult blind in the United States, that there never had been devised a scientific scheme for their education and training and that not a single normal school trains teachers for the blind. The medical profession was not altogether blameless for the mental deterioration of many blind people; through mistaken sympathy the blind are kept in ignorance of their real condition. The attitude of the family was often a most serious drawback to their occupational development. The attitude of the public was responsible for much of the trouble of blind people and it was primarily to overcome this attitude that St. Dunstan's in England, and Evergreen in this country were opened. They were not schools in the narrow sense, but rather, universities where the blind are taught hope and courage, trades and professions, ambition and success. The men there were not "poor dear blind boys," but strong, resolute, normal men expecting to win. The courses of instruction at Evergreen were divided into recreational, essential handwork, and vocational. The blind man had more difficulty learning to play than to work, and for this purpose music, dancing, bowling, swimming, gymnasium exercises were available as indoor activities, and field events as outdoor sports. Typewriting was included in the essential handwork. Another essential study was the raised dot type of the blind—Braille. The usual schemes for developing the sense of touch were taught. As occupations of profit there were taught bookbinding, telephone operating, massage, and other industrial and commercial subjects. Included in the commercial course was the application of an experimental store, the advance agent of a chain of stores to be operated by and in the interest of our blinded military men. The experimental store in size, color, shape and fixtures is the model that has been adopted for all the stores, and from this experimental store at Evergreen the men will be transferred to our experimental stores in the business section of Baltimore. These stores will be called

"The Victory Stores," meaning the defeat of gloom, despair and affliction by the blind man himself. Our plan for teaching industrial work for the blind was evolved by our having an industrial engineer make a survey of industry and by a process of elimination it was readily discovered what jobs the blind could best fill.

RESEARCH WORK IN THE PROBLEMS OF AVIATION.

Major WALTER B. LANCASTER, Boston, stated that for the study of the problems of flight the visual function may be divided into the purely sensory or percipient, the adjusting mechanism, and the psychic side of vision. Sensory functions withstand the strain of asphyxiation and fatigue without breakdown. Under this head are the retinal functions of light sense, color sense, form sense. The adjusting mechanisms are three: Fixation, focusing, and adaptation to light. These are rather complex functions, and are likely to break down under strain; whether they will or not in a given case depends upon whether any defect is present, and on how well the defect is compensated, some defects being better compensated than others. To insure the best compensation the mental and physical conditions must be maintained at their best, hence the importance of the "care of the flier." The psychic side of vision includes stereoscopic vision and various matters of judgment and discrimination based on visual perception. They are not much affected by asphyxiation and fatigue. Investigations are now being carried on regarding stereoscopic vision, and other methods of estimating distances at long range, as to light, sense and adaptation, as to accommodation speed, and as to the relative value of different ways of measuring heterophoria. The motion pictures from the Mineola laboratory shown, illustrate the problem of the blind angle and the way things look to the flier.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

La Nevrose d'angoisse et les etats d'emotivite anxieuse. De l'Emotion aux troubles nutritifs. Clinique-pathogenie-traitement. Par le Dr. FRANCIS HECKEL. Paris: Masson et Cie., 1917. Pp. vii-531. (Prix 9 fr.)

In this octavo of some 500 pages or more Doctor Heckel, a specialist in diseases of nutrition, discusses the anxiety syndromes which are so frequently observed, and which constitute so large a field in general medicine. In his introduction he rightly observes that to attempt to encompass these disturbed emotional states under the titles "neurasthenia," "psychasthenia," or "psychoneuroses" is of little value, a point that most of the more pragmatically inclined neurologists have been insisting upon for some time, but to little advantage, since so many physicians are bound up in their thinking with "names" instead of the "behavior of things."

Notwithstanding the fact that the term "anxiety

neurosis" was introduced into nosology by Freud in 1895, and made the subject of an extremely suggestive and fairly well delimited picture by him, the author observes that nearly all of the studies which have appeared since seem to utilize the term to cover a melange of anxiety symptoms which are present in various different conditions such as the cyclothymias, beginning organic processes such as paresis, other frank and manifest psychoses in the "beginning" phases, various compulsive states, etc. Obviously no friend of the general psychoanalytic principles, which he stigmatizes as "monstrously hypertrophied," he goes on to a criticism of the doctrine clearly indicative of a "diminutive atrophy" of knowledge of its primary principles. Even the neophyte knows that Freud set apart the "anxiety neurosis" as a syndrome characterized as due, not so much to unconscious factors, but to perfectly obvious maladjustments, mostly lying in the open and therefore having little or nothing to do with the unconscious, and not therefore needing the psychoanalytic approach.

Heckel then goes on and presents a new melange of symptoms infinitely more heterogeneously thrown together than the studies which in his introduction he finds fault with. This is a species of illogical logic perfectly easy of comprehension, when an author criticises, with much venom, any group of hypotheses which by his criticism reveal a lack of comprehension of the things criticised.

Notwithstanding these fundamental preconceptions and faulty understandings of things psychic he has brought together a valuable lot of material which were it better sorted and more logically disentangled would have made a real contribution to an extremely important and difficult series of problems which occupy the attention of many practitioners.

Births, Marriages, and Deaths.

Died.

BAILEY.—In Berkeley, Cal., on Wednesday, March 26th, Dr. Ellsworth Bailey, aged twenty-nine years.

BALCH.—In Richmond, Mass., on Tuesday, April 8th, Dr. Galusha Burchard Balch, aged eighty years.

BRANAMAN.—In Kansas City, Mo., on Tuesday, April 1, Dr. Abraham Branaman, aged sixty-five years.

DEY.—In New York, N. Y., on Monday, April 7th, Dr. George Edwin Dey, aged eighty-five years.

GANTZ.—In Spencer, Ind., on Sunday, March 23d, Dr. Thomas H. Gantz, aged seventy-eight years.

GOBRAN.—In Rochester, N. Y., on Sunday, April 6th, Dr. Louis C. Gobran, aged sixty-five years.

HILLS.—In Binghamton, N. Y., on Friday, March 28th, Dr. Lyman H. Hills, aged eighty-two years.

MARCHESSAULT.—In Ashland, Wis., on Tuesday, April 1st, Dr. Joseph Arthur Marchessault, aged sixty-seven years.

PARR.—In Vincennes, Ind., on Thursday, March 27th, Dr. George L. Parr, aged seventy-two years.

PETERSEN.—In Brooklyn, N. Y., on Monday, April 7th, Dr. Marcus Ernest Petersen, aged forty-seven years.

PENDLETON.—In Hebron, Conn., on Sunday, April 6th, Dr. Cyrus H. Pendleton, aged eighty-eight years.

RICHARDS.—In Spencer, Ind., on Tuesday, March 25th, Dr. Samuel D. Richards, aged seventy-nine years.

ROBINSON.—In Long Beach, Cal., on Thursday, April 3d, Dr. Theophilus C. Robinson, aged fifty-seven years.

VAN FLEET.—In New York, N. Y., on Saturday, April 5th, Dr. Frank Van Fleet, aged fifty-eight years.

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WHOLE No. 2108.

Original Communications

TREATMENT OF THE TWO COMMONEST SEQUELÆ OF LABOR AND THE TWO MOST FREQUENT DISEASES OF WOMEN.*

BY BARTON COOKE HIRST, M. D.,
Philadelphia.

In selecting the present subject the choice was practically dictated by a remarkable condition in the branch of medicine in which I am particularly interested. It could not be said of any other department of medical practice that sixty per cent. of the diseases comprised in it were preventable, should not exist and were the fault of the medical attendants of the patients in whom these conditions developed. And yet this statement, reluctant as we may be to admit it, can be made of the pathological conditions peculiar to women. In an analysis of all the women who consult physicians on account of something incidental to their sex it appears that fifty per cent. are suffering from lacerations of the birth canal and ten per cent. from retroversion of the uterus; the first always the result of childbirth, the second nearly always the result of the process of generation at some stage.

In view of these facts it would seem almost justifiable to halt attempts at progress in other directions until physicians dealing with gynecological conditions shall have removed this reproach to their work. It would seem logical to inquire why such a condition of affairs exists and to seek the best means to remedy it.

I would offer the following explanations for your consideration and criticism: First, the education of medical students in obstetrics is not what it should be in America: a much higher standard prevails in other countries. In France, for example, a student must attend a woman's hospital clinic four months continuously, three hours a day; must be in residence for sixteen days and must have personally delivered at least twelve women. In Great Britain, Dr. W. S. A. Griffith, of St. Bartholomew's Hospital (1), says, "A three months' continued course in obstetrics and gynecology, the whole time being given up to the subject would probably be sufficient." Contrast this with the absurdly inadequate and ill advised recommendation of the Council on

Medical Education of the American Medical Association and the requirements of our State boards. Second, lack of progress in this matter is due in part to the kind of selfstyled gynecologist prevalent in America in the past and still existing but in diminishing numbers. The word "gynecologist" should denote one who is familiar with all the phenomena peculiar to women. But, as we know, the specialists who assumed this designation as a rule devoted themselves solely to the surgical treatment of certain conditions, the majority of which were the rather remote consequences of labor. Having no experience with parturition and its immediate consequences, such men were not qualified to advise the general profession as to preventive and curative treatment and even had they been it was too much to expect that they should voluntarily cut off sixty per cent. of their business, for at the very least this proportion was furnished by the inefficient conduct of labor and management of the puerperium by physicians in general practice. I would assign these two causes then as the principal reasons for the enormous number of women more or less disabled by the consequences of labor.

There is a third, however, that cannot be ignored. In Philadelphia one fifth of the 40,000 parturient women, 8,000 a year, are in charge of midwives and I dare say something like this proportion prevails in other large centres of population. If the education of our medical students in obstetrics is poor, what shall be said of the training of our midwives? It must be confessed that our position in this respect is unworthy of a civilized country. If a correct explanation is here offered of the unsatisfactory state of affairs in regard to the physical condition of many of our women, the remedy is not far to seek. And what problem before the profession today offers by its solution greater good to a greater number or a more exhilarating prospect of early achieved success?

In the hundred million and more of our population the birth rate is approximately twenty-five per thousand. This means two and one half million births a year. It is unnecessary to state that out of this number of mothers there is an impairment of efficiency in a large proportion. I would guess the percentage to be twenty-five or thirty; that is, more than 600,000 women are annually added to the horde of those unnecessarily more or less incapacitated, by the two commonest sequelæ of labor, the

*Read before the Buffalo Academy of Medicine, February 10, 1918.

two most frequent and most easily prevented diseases of women, lacerations and retroversions.

Now for the remedy of a condition unsatisfactory alike to the physician, the sociologist and the laity. Obviously there are three things to be accomplished: First, an improvement in medical education; second,

How shall it be done? If a physician in general practice were asked this question he would probably reply in regard to the detection and repair of injuries that an examination should be made immediately after labor; that the injuries thus discovered should be immediately sutured. Such has

been the usual practice for at least a generation. What is the result? I still find in my office and dispensary patients the same old fifty per cent. of injured genital canals and in the former class, office patients in good circumstances, the women have been practically all primarily repaired. In regard to the uterine displacements following labor I find the general physician usually gives the matter no attention at all. Something is wrong therefore with the methods so long in vogue.

Without further discursiveness let me now give my conception of the advice the general physician should receive from the specialist: Do not attempt to make an accurate diagnosis of injuries directly after labor; postpone the examination for three to five days; when the distortion of the tissues has disappeared, the bloody discharge has diminished and when with a good light, a proper posture of the patient, a really accurate diagnosis can be made. I cannot make it otherwise after many years' practice and with ample clinical experience. I do not believe, therefore, that the general physician without special training and facilities can do so.

After an accurate diagnosis is made a thorough repair is next in order at any time after the fifth day. I mean by a thorough repair the restoration of the cervix, anterior vaginal wall, posterior vaginal wall and pelvic floor, to the normal condition of a nulliparous woman, a "*restitutio ad integrum*."

Many objections can be urged

against this advice. I am aware, I think, of them all; but none of them are insuperable. And how else can the desired result be obtained?

I wish some one would tell me a better way; if, however, none can be found is it not preferable to face the difficulties of the situation resolutely; to learn how to do this work properly, to provide oneself with the necessary implements and to educate the public to an appreciation of the advantages of a thorough restoration to a normal condition after labor.

In regard to the prevention of a chronic retroversion of the uterus there is not the same room for difference of opinion and the problem is a simpler one. Every woman should be examined

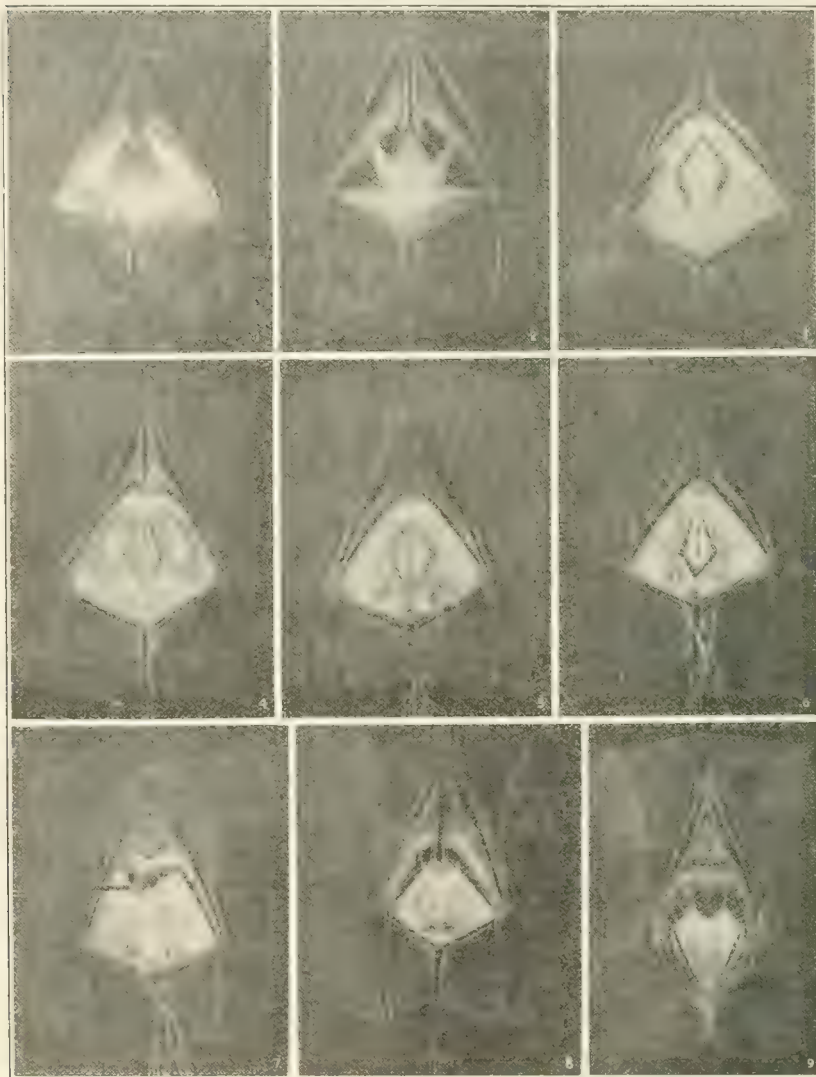


FIG. 1.—Incision for demulcation of the pelvic floor. 2. Incision completed. 3. Mucous membrane removed and both layers of triangular ligament incised to expose the levator. 4. Levator ani sutured. 5. Deep transverse perineal sutured. 6. Gap in triangular ligament through which the pectoralis protrudes sutured. 7. Sulci closed. 8. Column of vagina, brace in place. 9. Placental body sutured and sutures inserted in Colles's fascia.

correct advice from the specialist to the general physician under whose care the majority of labors come, and third, a sensible regulation of the midwife question.

Much might be said on each of these subjects. I shall confine myself to one and to that one on which I might be supposed to be most competent to speak, namely the advice that the specialist should give to the general physician. It is plainly the duty of the latter to limit in number and extent the injuries of labor by its proper management and to detect and completely repair those that do occur; also to prevent or to detect and to correct without delay retrodisplacements of the uterus, thus eliminating sixty per cent. of the diseases of women.

three weeks after labor to determine the position of the uterus. If it is displaced a bimanual reposition should be carried out. But whether it is in place or not every woman should be instructed to assume the knee-chest posture twice a day for five minutes for the last three weeks of the conventional six weeks of puerperal convalescence.

My friend, Doctor Polak, of Brooklyn, who makes his patients perform the kangaroo walk with the same idea in mind, writes me that he had reduced the number of retrodisplacements after labor in his clinic to three per cent. I have tried this kangaroo walk and although I keep myself in good condition by constant physical training I find it an athletic feat of some difficulty. I think, therefore,

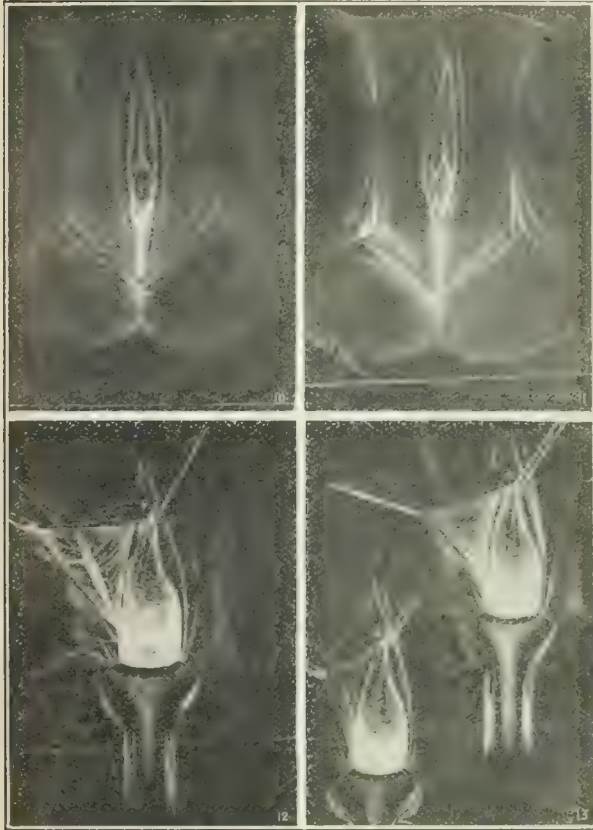


FIG. 10.—Sutures in Colles's fascia tied and skin sutures of No. 1 overchromicized gut incised. 11, Operation completed. 12, Anterior sulcus denuded, inferior layer of triangular ligament cut; compressor urethræ exposed and sutured. 13, Sutures inserted and tied in compressor urethræ; the triangular ligament and mucous membrane sutured.

that the correct assumption of the knee-chest posture is more practical and I believe it to be quite as effective.

If, at the end of six weeks the uterus is still retroverted, there is a choice of two procedures dependent upon the social status of the patient. The poor working woman should be advised to have an operation, and the one selected should not only make her well but keep her well in spite of subsequent childbearing, which most of the operations advocated for this purpose will not do. A woman of the leisure class should be treated differently. After reposition of the uterus a pessary may be inserted and the patient put under the charge of an expert in massage and Swedish movements for eight

weeks. The pessary is then removed. If examinations at intervals for the next two months show that the uterus remains in good position the patient is discharged, cured. If the retroversion recurs the patient is advised to have a permanent cure by operation or, if she demands it, the temporary use of



FIG. 11. Correct assumption of knee-chest posture, which should be demonstrated to the patient.

a pessary may be substituted, till she can make up her mind to undergo the operation.

It will be some time before the methods here advocated or others with the same purpose are generally adopted and efficiently carried out. Meanwhile there will be a steady accretion to the already enormous number of cases now demanding surgical treatment. Consequently no one dealing with this subject can ignore the inquiry as to the best technical procedure to correct these two consequences of labor. Moreover, this knowledge will always be essential to a successful management of such cases primarily.

I venture to submit, therefore, some suggestions under this head. The commonest of all the injuries of labor is laceration of the pelvic floor. Its repair



FIG. 12. Patients performing kangaroo walk, as suggested by Doctor Polak.

constitutes numerically fifty per cent. of a gynecological surgeon's work. And yet there is no operation that I have observed in special or general surgical clinics that seems to me to be so incorrectly performed. It will be acknowledged, I think, that

the indispensable requisites for the proper performance of this operation are a knowledge of what happened to the woman in labor, a familiarity with the anatomy of the region and a technic that will restore each injured structure to its original condition. If this test is applied to what may be observed in

in nature but are now well understood. They are a diastasis of the fascial plate between the vagina and bladder; an elongation or rupture of the longitudinal fascial fibres derived from the uterovesical ligament, and the cardinal ligaments in the bases of the broad ligaments; and a rupture of the muscle

and fascia of the urogenital trigonum, or, to use an anatomical term with which we are more familiar, the compressor urethræ; and the rupture of this muscle between the layers of the triangular ligament. It is only the last named injury that can be repaired by a simple technic during the puerperium. The others can be prevented by the proper conduct of labor. Finally no reference need be made to the technic of cervical repairs. There is no difference of opinion on this point. But it may not be generally known that the collective experience of several clinics has demonstrated that these repairs cannot be safely made till after the fifth day of the puerperium. Another argument in favor of the intermediate repair of the genital canal, for from the patient's point of view, it would appear unsatisfactory to have one part of this region repaired and then to be subjected to a second operation to correct the omission of the first.

The next matter that we should reach an agreement on is the best technic for the surgical cure of retroversion, for surely there must be one better than the rest and we all know that at least fifty-one operations have been proposed for this purpose. Here again progress has been delayed by the type of gynecologist already referred to and by the general surgeon, neither one of whom has any interest in nor a practical acquaintance with the chief physiological act of a woman's life, the process of generation.

Obviously the end to be obtained by this operation is to maintain the uterus in a normal position permanently in spite of subsequent pregnancies and labors and to do nothing that will

most clinics I think it would be agreed that there is room for improvement. In fact, after observing this work in many places here and abroad, I was obliged to devise an operative technic of my own.

Next in frequency to injuries of the pelvic floor come injuries of the anterior wall and of the supports of the bladder. These injuries are complex

complicate these processes. After groping about for many years for such a procedure and trying numbers of them in series of cases I think I have found one that complies with this ideal. My experience with its component parts, neither one of which is original, extends over twenty years; the experience with their combination nearly five. During this

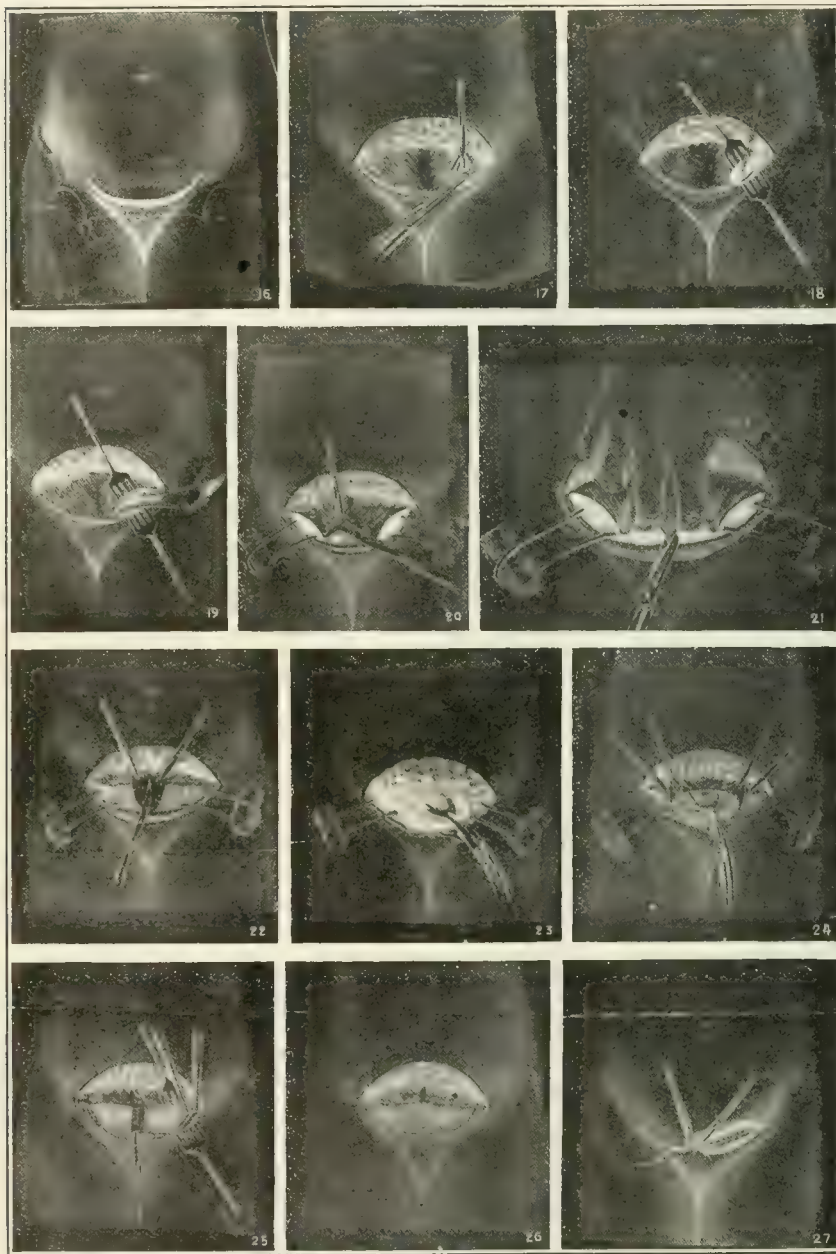


FIG. 16.—Incision to open both groins. 17, The aponeurosis over the inguinal canal is incised from the external ring upward parallel with Poupart's ligament. 18, The round ligament caught by a blunt hook. 19, One round ligament pulled out about six inches. 20, Both ligaments shortened. 21, Cutting attachment of aponeurosis to pyramidal muscles. 22, Incising peritoneum. 23, Seizing the uterus with Somer's clamp. 24, Coalescing the fundus uteri and inserting the suspension stitch. 25, Peritoneum closed and round ligaments sutured in inguinal canal. 26, Loops of the shortened round ligaments sutured together. 27, Wound closed subsequently invisible.

latter period, I have endeavored to pursue a follow-up plan like all my colleagues and so far in 160 operations I have not been able to find a patient nor to hear of one who had a recurrence of the displacement after a subsequent childbirth, or difficulty in her labor traceable to the operation. In one woman only, not pregnant after the operation, I was not satisfied with the position of the uterus.

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1821 SPRUCE STREET.

PHYSIOTHERAPY IN THE TREATMENT OF OSTEOMATA.*

Report of Two Cases.

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Paris,

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During the world war we encountered two typical cases of osteomata of the lower extremities which were not due to fracture. These osteomata caused a functional impotence, which we were able to combat advantageously by the physiotherapeutic means at our disposal. The first case was that of a captain of infantry wounded on July 12, 1918. Following this there developed an ossifying myositis which could not be attributed to the wounds which he had received. The following is the history of the cases:

CASE I.—Captain N. At the age of three weeks he was operated upon for congenital club feet. When he was seven years old a second tenotomy was performed. In 1909 when he had reached the age of twenty-one, while a student at the Superior Normal School, in executing some military exercises he experienced violent pain at the level of Achilles tendons and as a result of this he was unable to remain standing. With rest, massage and compression by means of a Velpeau bandage he soon recovered. He no longer felt any pain and was able to resume his military exercises without feeling any pain or discomfort in his feet.

When war was declared he joined his regiment and left for the front. The former trouble, until the day he was wounded, had not recurred. He was wounded in two places; a superficial shell wound in the centre of the left leg, and a penetrating shell wound in the retromalleolar region of the right foot. After the wounds had cicatrized, he suffered from a painful edema of his heels. The least movement of either foot caused intense distress. It was difficult and extremely fatiguing for him to walk.

On August 14, 1918, the patient was transferred to the physiotherapy service and it was found in addition to the physical signs enumerated that flexion of the feet and legs was markedly diminished. This limitation was more marked in the left foot than in the right. Two hard bodies were found occupying the entire inferior half of the

longitudinal fibres of the Achilles tendon. These masses were painful to the touch, and, due to the edema which was present, compact and immobile. The feet showed traces of the congenital affection. The toes deviated slightly outward and the axis of the legs passed through the third interosseous space of the right foot and the fourth space of the



FIG. 1.—Beadlike osteomata of the left tendon Achilles.

left foot. In addition to this we found a partial atrophy of the anteroexternal muscles of the legs and a slight hypotonia when the patient maintained the upright position.

The physiotherapeutic treatment which was applied in this case consisted of a warm bath of ten minutes followed by methodical massage for the extensor muscles of the legs and feet, accompanied by a hot air current to assist in disengaging the cicatrices; progressive manual movements of the tibio-tarsal articulations and the reeducation for walking by means of horizontal ladder, an inclined plane, and a chariot.

With the diminution of the edema we were enabled to explore the region of the Achilles tendons of the patient more deeply. We found a series of small hard bodies, surrounding the tendons and in some instances located posteriorly.

The x ray taken at the Val-de-Grâce showed bone formations grouped in islets, located in the tissues. Several of these were situated directly in the

*Address delivered before the Société de Médecine de Paris.

Achilles tendon. These small bones were distinctly separated from the bones of the legs and in no way could their formation be attributed to a periosteal formation dependent upon the diaphysis.

The presence of these small bones did not hinder us from obtaining an adequate mobility of the feet

the bone formation begins at the portion of the tendon adherent to the bone and they appear in prolongations, like long needles. They have been known to reach the length of twenty-seven centimetres, in a case mentioned by Barth.

What is the cause of this bone formation in the muscles and in their tendons? It is necessary to find a predisposing causative factor. This predisposition on the part of the individual for an ossifying myositis has been proved for some time by the existence of a progressive ossifying process, which is called progressive ossifying myositis. Lejars has observed a characteristic progressive ossifying myositis of Kemmel; where the osteomata invaded the striated muscles of the neck, the back, the shoulders, the superior extremities, the pelvis, and the inferior extremities.

As etiological factors syphilis, rheumatism,



FIG. 2. —Beadlike osteomata of the right tendon Achilles.

of the patient and when he left our service he was completely cured and again took his place in the army.

With what affection was this patient afflicted? Was it an ossifying myositis or an osteomata? Or was it simply some sort of a calcareous formation? We will immediately set aside the last hypothesis, for the shape of the beadlike, hard bodies and the presence in the Achilles tendons proved that they were not caused by a calcareous infiltration, occasionally encountered following surgical interventions. Beside, the examination of the radiographic plates showed the bodies to be symmetrically formed bone. In a general way osteomata or ossifying myositis are found in the muscle sheaths, or within the muscles. They are formed by successive conjunctive changes in the tissues in a previous hyperplasia. Osteomata are also found in the conjunctive tissues of the arachnoid, the pia mater, in the choroid, the pericardium, the cardiac muscle, the skin, the aponeurosis, and in the tendons which are in the vicinity of the joints. In the last instance

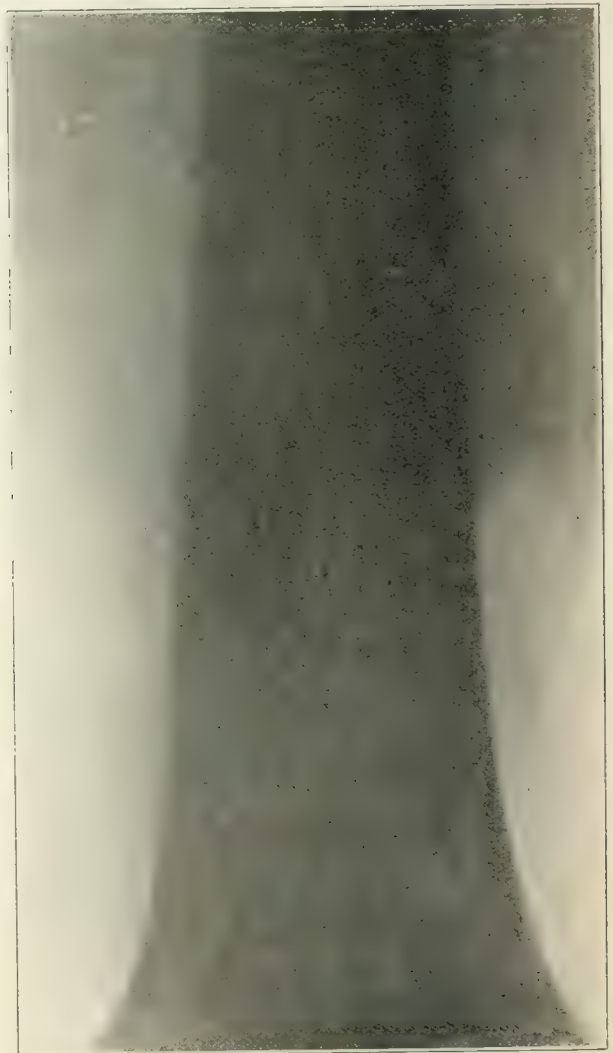


FIG. 3. Osteomata of the right thigh caused by shrapnel wound. There is no fracture of the bone.

chronic arthritis, and traumatisms have been given, the latter being the most frequent. The traumatisms may be caused by a type of compression, as in the case of osteomata of foot soldiers, described by Pitha and Podrotzki, or the osteomata of cavalry men, described by Josephson and Favier, or by a

fall, as in the case described by Lapointe, and finally, by the blow of a horse's foot, in a case quoted by d'Ombrédanne.

We have had occasion to encounter a case of osteomata of the quadriceps brought about by a shell wound. The following are the observations made in this case: The eminent surgeon Paul Reynier explains the formation of osteomata by the histological disposition of the tendinous fibres upon the bones; on account of the tendon being adherent to the bony substance by immediate cellular juxtaposition without interposition of the periosteum or of any other tissue, between the cells and the tendinous fibres which go up to the osteoblastic columns until the formation of the fleshy mass of muscle. He states, "Under these conditions it is easily seen that if a traumatism of a tendinous fibre is arrested and retracts it takes the osteoblasts with it, and under the influence of the traumatic irritation causes a proliferation of these cells with a final formation of bone" (1).

What should be the treatment for these ossifying myosites? The majority of surgeons do not share the opinion of d'Ollier, who prescribes exercise. All of my surgical colleagues at the Val-de-Grâce, whom I questioned in order to get their competent judgment, advised against any operative procedure. The x ray gave encouraging results in a few cases; but up to the present time we do not know of any similar cases which have been recorded; we think that physical agents when properly applied in these cases render an appreciable service. The physical agents in the form of heat, methodical massage and movements, if they do not cause the disappearance of the formations of osteomata, at least arrest the progress of their formation and effectually combat the functional difficulties which arise from their presence.

When massage is well applied it reduces the congestion in hyperplastic tissues, augments the local circulation, and establishes a normal nutrition for the tissues. But massage alone is not sufficient, it is necessary to add early manual movements, in order to render the muscles more supple and to give the maximum movements possible to the articulation.

We are of the opinion of our departed master, Lucas Champonnière, that methodical massage can in no possible manner contribute to the proliferation of the bony formations. It has been shown in the two foregoing cases, that the physiotherapeutic treatment consisting of massage, movements and thermotherapy, enabled us to reestablish the functions of the limbs of our patients, to such an extent that they were enabled to return to their military services.

CASE II.—Private M., of the Seventh Infantry, wounded April 27, 1917, by a fragment of shell, at the inferior third of the thigh. On August 22, 1917, he arrived at the hospital for physiotherapeutic treatment. He presented a limitation of flexion of the leg upon the thigh. The angle of flexion, taken by the Jobelin meter, was ninety degrees. There was a muscular atrophy of the right quadriceps. On palpation a large, hard mass was found which greatly hindered the movements of the leg

and as a result interfered with walking. When the leg was placed in forced extension, a few distinct crackles were elicited at the level of the hard body. On September 14, 1917, under the influence of physiotherapeutic treatment flexion became less difficult and the angle of flexion reached seventy-five degrees. At the same time the crackles at the level of the hard mass became more frequent. When the leg was placed in a position of forced extension it caused a vertical displacement of the body which upon profound palpation gave the impression of a body of bone.

The patient was radiographed. The x ray plate clearly showed the presence of a voluminous osteoma at the level of the inferior third of the right femur, completely separated from the diaphysis, which did not present any trace of a fracture.

Physiotherapeutic treatment was continued for some time. If this had not been done the size of the body would undoubtedly have increased. A slight limitation of flexion persisted, but he was able to resume his military service. The quadriceps regained their muscular tonicity, which enabled him to walk easily and with little fatigue.

As we could find nothing in the antecedents of the patient which would explain a predisposition for progressive ossification, we were forced to admit that the osteoma in this patient had been caused by the irritation which had been produced by the wound. Many surgeons believe beyond a doubt that osteomata of this type are of periostitic origin.

We, therefore, have come to the conclusion that the administration of early methodical movements and rational massage for patients with osteomata are indispensable and that these remedial agents do not tend to augment the size of these bodies. Immobilization favors the production of the ossifying process and will eventually cause the patients to become crippled.

It may be necessary to administer systemic treatment in cases of syphilis, arthritis, or rheumatism. One thing that we must not overlook, is that in the majority of cases of ossifying myosites, the muscles become atrophied and the ossified adjoining tissues are surrounded by a large layer of cellulitis. By the use of methodical massage, warm baths, hot air currents, and movements, we are able to combat the cellulitis, to supply proper nutrition to the adjoining tissues, and in this way restore the normal life of the muscles.

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Attenuation of Tubercle Bacilli.—Nathan Raw (*Lancet*, March 8, 1919) records the results of consecutive cultivation of single strains of tubercle bacilli of human, bovine and avian types on artificial media for twelve years. All three strains were highly virulent when isolated, but during the years of their artificial cultivation each has progressively lost in virulence so as now to be almost wholly avirulent, though each has preserved its other characteristics unaltered. It is the author's intention to experiment with these avirulent organisms in the treatment of human tuberculosis.

THE BACILLUS OF SPANISH INFLUENZA.

(Preliminary Report.)

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An organism has been isolated from cases of Spanish influenza at the Wesley Research Laboratory at Oklahoma City, by the writers, that so strikingly meets the requirements of Koch's law of specificity as to throw a new light upon this most dreaded malady and warrants the conclusion that it is distinctly a disease caused by its own organism.

Morphology.—It is a bacillus that morphologically resembles closely the bacillus of ordinary influenza, or the bacillus of Pfeiffer and evidently has been encountered by others in the course of the recent epidemic; but, owing to its marked similarity to the common influenza bacillus, has not been properly identified. It has the same cultural characteristics, with reference to hemoglobin media, but differs from it in so many other respects as to leave no room for doubt that it is altogether a different organism.

It is a tiny rod, measuring as Pfeiffer's bacillus about .2 micron in width and about .5 micron in length, and, in old cultures becomes almost invisible. It is gram negative and, like the ordinary influenza bacillus, at times takes the stain more deeply at the poles. Colonies on blood agar plates appear in about eighteen hours as large, bluish white droplets, with irregular edges, and tending to spread out from the highest elevation and become confluent.

Unlike Pfeiffer's bacillus, it is motile. In fresh cultures many organisms are seen to move rapidly in a straight direction in a tumbling end over end manner. It does not ferment glucose, nor acidulate milk, but grows well in a salt free media, that, in addition to the required amount of hemoglobin, contains lactose and other ingredients of milk. A favorable media is made by substituting the usual ten grams of peptone in a litre of lean beef infusion with ten grams of ordinary malted milk. Upon this media all colony characteristics are much more pronounced, growth is more rapid, continues longer and the organism remains more staple and needs not to be transplanted so frequently.

Pathogenicity for Animals.—It is not a recognized fact that Pfeiffer's bacillus has much pathogenicity for the common laboratory animals. Pfeiffer produced influenza in monkeys by way of the respiratory tract and some results have also been obtained in rabbits by intraperitoneal injections of large doses of pure cultures; but on the whole the specificity of the ordinary influenza bacillus has hardly been proven by animal experimentation.

The organism here in question, however, has its strong point in this respect. When cultures of the organism are inoculated into the nostrils of guinea pigs the typical clinical picture of influenza develops after an incubation period of five days and they die from twelve to twenty-four hours later of a diffused bronchopneumonia. After one animal among several has been infected with the disease others are affected in turn through contact. In rabbits all of these symptoms and pathological conditions may

be produced directly within a few hours by injecting large numbers of the organisms into the circulation. The following constitutes the series of experiments upon which the conclusions of this paper are based.

Experiment I.—A few drops of a normal salt suspension of the mixture of organisms of a twenty-

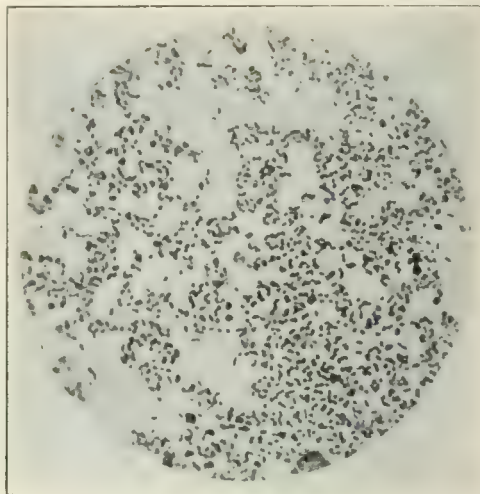


FIG. 1.—Bacillus of Spanish influenza in culture directly from the sputum of a case of influenza with pneumonia.

four hour culture grown from the sputum of a clinical case of influenza without pneumonia was allowed to run down the left nostril of guineapigs, numbered one and two. Twelve hours later in both animals there developed an acute rhinitis and they were discharging a mucopurulent material from the nostrils into which they had received the culture; smears showed many pus cells and a mixture of bacteria corresponding to that of the original source. This acute condition was of brief duration and within the next twelve hours it was apparent that nothing further was developing as a result of the inoculation. On the fifth day of the experiment, however, there developed in both animals the typical clinical picture of influenza with pneumonia, as seen in man and they died after a period of about eight to twelve hours of illness.

The first symptoms noted were an apparent uneasiness of the animals and a change of the character of respiration from the rapid and shallow panting characteristic of the guineapig's breathing. The inspirations became more prolonged and deep and were followed by a corresponding forced expiration. The intensity of this breathing increased very rapidly as the disease progressed, and, within a few hours had developed into the most striking feature. Leading up to the fatal termination the outward and inward movement of the abdominal walls of the guineapigs were such as to present the picture of a working bellows. The temperature at the onset was elevated to about 104° F., but it began to fall at the height of this respiratory feature and just previous to death was subnormal, registering about 98° F.

Pathology.—Postmortem findings revealed, as the principal feature, the one thing that played such a prominent part in fatalities from influenza—a diffused bronchopneumonia with special involvement of the left lower apex. Besides this there was a

dilated left ventricle and a flabby condition of the heart muscle. The liver was engorged with blood and the kidneys, spleen and the vascular system in general showed evidence of an intense toxemia. The vessels under the skin and of the visceral area were all prominently dilated. Thin slices were cut from

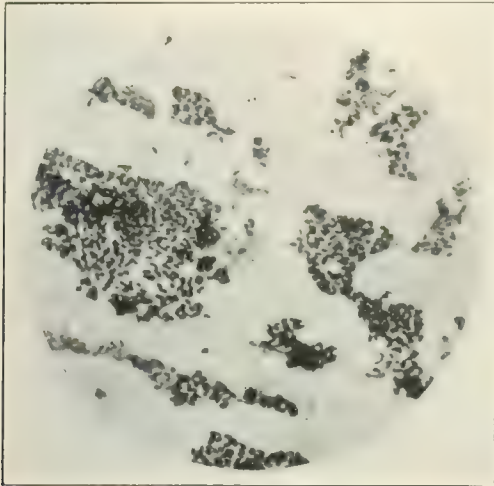


FIG. 2.—Bacillus of Spanish influenza in culture directly from the sputum of a case of influenza without pneumonia.

the most conspicuous parts of the engorged lungs and smeared over the surface of blood agar plates with the view of finding the organism of the infection. After twenty-four hours of incubation a luxurious growth appeared on these plates, which consisted of the organism we have described practically in pure culture. A few colonies of *Micrococcus catarrhalis* were present and also a few colonies of streptococci.

Experiment II.—Guineapig No. 3 was inoculated through the nostrils, in the same manner as the animal of the preceding experiment, with a pure culture of the organism isolated from guineapigs No. 1 and No. 2, with the view of meeting Koch's law of specificity in this respect. In due time this animal became ill and presented the same clinical picture and died in the same manner as in the cases of the other animals we have mentioned. The pathology was also the same, with the exception that the lungs were necrotic in places, especially the left lower apex. Pure cultures of the infecting organism were again obtained in the same manner as in the cases of guineapigs No. 1 and No. 2.

Experiment III.—Guineapig No. 4 was inoculated, through the nostrils with a culture that primarily had been isolated directly from a case of influenza. Guineapig No. 5 was inoculated likewise directly with the bloody sputum from a case of influenza with pneumonia, guineapig No. 6 received the organisms into the nostrils, which had been isolated from guineapig No. 3. These animals were now placed in a cage with nine other healthy and uninoculated animals. On the fifth day following, all of the inoculated pigs began to show evidences of the characteristic respiratory infection and died, one after another, all within the following twenty-four hours; while none of the control animals showed any signs of the same ailment as yet.

After four days more had passed, however, three of these animals became ill and before the end of two weeks all but two of the entire lot had become infected and died. A postmortem examination was held on each animal, and, in each case, the pathology was found the same, differing only in the extent of local necrosis of the lungs. A diffused bronchopneumonia was present in every animal.

Experiment IV.—The nostrils of rabbit No. 1 were smeared with culture from a blood agar slant, known to be the organism directly from man. After six days the animal was seen to be breathing with difficulty owing to an acute rhinitis and discharging nostrils. The rabbit died two days later, apparently as a result of a complete blocking of the nasal passages through an edema of the mucous lining. Postmortem findings showed also a pneumonia, although more of the lobar type than the guineapigs had shown. Cultures, however, of both the nasal secretions and from the lungs, showed the presence of the organism with which the rabbit had previously been inoculated in practically pure culture.

Experiment V.—The peritoneal cavity of rabbit No. 2 was injected with one c. c. of a suspension of a phenol killed culture consisting of the twenty-four hour growth of a single blood agar slant in ten c. c. of normal salt. After two hours the rabbit became prostrated and showed the same activity of the respiratory mechanism as had been so strikingly manifested in the infection of the guineapigs. All the symptoms rapidly increased in intensity and within thirty minutes the rabbit was breathing in regular bellowslike fashion and died before the end of the hour. The pathology was identical with that of all the guineapigs of the preceding experiments.

Experiment VI.—Rabbits Nos. 3 and 4 were injected with one c. c. of a normal salt suspen-

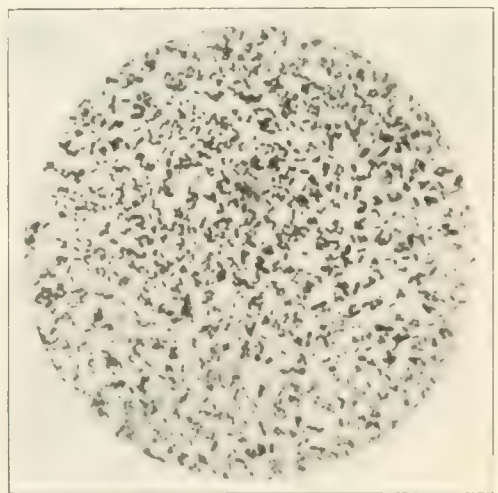


FIG. 3.—Bacillus of Spanish influenza in culture from the necrotic areas of the lungs of a case of influenza with pneumonia.

sion of a living culture from the same source and of the same dilution as that of experiment No. 5. The injection was made in the veins of the ears. Both rabbits became prostrated within thirty minutes following the inoculation and developed the

characteristic bellowslike breathing and died before the end of an hour from the beginning of the experiment. The pathology was the same as in the case of rabbit No. 2 with the exception that the pneumonia had not become so fully established.

Experiment VII.—Rabbits Nos. 5, 6, 7, and 8, young animals six weeks of age, each received one c. c. of the usual suspension of the twenty-four hour growth of one blood agar slant in ten c. c. of normal salt of the organism of strain No. 2, isolated from the sputum of a case of influenza without pneumonia, into the ear vein. All the animals showed signs of malaise in about forty-five minutes, but the usual symptoms of respiratory disturbance failed to develop. Rabbit No. 5 died twelve hours later and showed some lung involvement, but not the typical pneumonia as had been found in the preceding cases—both guineapigs and rabbits. Rabbits Nos. 6, 7, and 8 apparently recovered from the direct action of the organism they had been inoculated with, but continued to show evidences of illness. On the fifth day of the experiment all had marked swelling of the joints of both forefeet and were unable to move about without a great deal of pain and discomfort, apparently. Rabbit No. 6 died twenty-four hours following the appearance of this joint involvement and postmortem findings revealed large abscesses of all of the joints of the forelimbs including the phalangeal joints. The lungs were apparently normal, but the heart showed areas of degeneration, the gallbladder was distended and the liver contained many abscesses and necrotic areas. Cultures made from pus from the joints, the liver abscesses and the bile revealed the organism the rabbits had originally been inoculated with in pure state.

Rabbit No. 7 died three days following and, after death, showed the same pathology as above. Rabbit No. 8 is still alive, which is fourteen days from the time it was inoculated. The pain in the joints apparently has subsided and the animal shows no discomfort. It also eats well, but is growing more and more emaciated every day.

Experiment VIII.—Rabbits Nos. 9 and 10, full grown animals, were inoculated through the ear vein with the same strain of organisms and size of dose that had failed to kill the young rabbits directly. In these animals, however, there developed the characteristic symptoms of influenza within the usual time of forty-five minutes and they died thirty minutes later. Both animals showed the characteristic engorgement of the lungs, especially manifested in the left lower lobe.

Experiment IX.—Rabbit No. 11, a young rabbit of the same lot as those of experiment VII and rabbit No. 12, a very large and full grown animal, both received the known fatal dose of organism in question into the ear vein, with the view of noting comparative results with all conditions the same in young animals on one hand, and older animals on the other. After the usual period of forty-five minutes, the older rabbit became prostrated and seriously ill, as all the other animals of his size had done and it died in the same manner and showed the same pathology. The younger rabbit, however,

showed no such acute effects, and, apparently, recovered entirely after five days.

Experiment X.—Rabbit No. 13, a large, full grown animal, received the fatal dose of a living culture into the ear vein, and, immediately following was given two c. c. of the blood serum of a young rabbit, which apparently had proven to be immune to the direct action of the organism, with the view of noting whether this would protect older ones or those susceptible.

After the usual forty-five minutes, the animal became ill, but the bellowslike respiratory action of its abdominal and chest walls that characterizes the onset of pneumonia and acute poisoning was very slow in developing and the animal was still alive at the end of two hours. However, its condition had become very threatening and another dose of ten c. c. of the young rabbit's blood, corpuscles included, was injected into the peritoneal cavity. There was a slight temporary exacerbation of the animal's condition and it appeared as though it would die immediately. This exacerbation, however, soon passed away and the animal began to show rapid improvement. After six hours, though breathing heavily and deeply, it was moving about and it appeared as though it would recover. The next morning, however, it was found dead in its cage and postmortem findings revealed an advanced stage of pneumonia with almost gangrenous lungs.

Conclusions.—1. The organism isolated from the sputum of patients suffering from influenza, both of the mild, the severe, and the fatal form, has a powerful elective affinity for the respiratory tract of the laboratory animals, and, in rabbits and guineapigs, both the living and the dead organism produces the identical symptoms and the same pathology as that found in cases of influenza in man, both by way of the respiratory tract and by way of the circulation.

2. The organism may be recovered again from the lesions of the dead animals, and, when injected into a second animal, it produces the same results, as the primary inoculations.

3. In a small proportion of cases of influenza the organism may be isolated directly from the sputum by ordinary cultural methods. In those cases showing an extensive mixed infection of such secondary invaders as streptococci, pneumococci, and Micrococcus catarrhalis, the same organism may be isolated indirectly by using rabbits or guineapigs as a filter.

4. The specific action of the organism depends upon either an ectotoxine or endotoxine that apparently further depends upon some biochemical change in the blood as a result of the action of some unknown product not essential to life and is not present in the blood of all individuals.

5. It appears possible to neutralize whatever the fatal base is, for a number of people, especially between certain ages, with blood that does not contain it.

6. The organism, though of the morphology of Pfeiffer's bacillus, is not the same.

7. The action of the organism is strikingly specific and does not depend upon such secondary invaders as streptococci, pneumococci and the

Micrococcus catarrhalis in producing any of the clinical symptoms of influenza or its pathology.

8. Treatment resolves itself into a further study of the true nature of the poison the organism in some way produces or carries with it and of the biochemical laws of the human blood serum, whereupon apparently depends the fate of the individual in the course of infection. In the absence of complete understanding of the chemistry of the organism or its poison, the use of a vaccine made from pure cultures should not be encouraged because of the possible danger of elevating the bacteriolytic index of the individual's blood serum.

9. The disease of the recent epidemic is not influenza of the form well known and of past epidemics, and the term Spanish influenza has been used in this article for the express purpose of leading the reader away from the thought of the old time disease and to avoid confusion of this later and more fatal infection with it.

TWELFTH AND HARVEY STREETS

ARTIFICIAL PNEUMOTHORAX IN PULMONARY TUBERCULOSIS.

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(Concluded from page 680.)

EXUDATES.

The question of exudates deserves more than passing mention, for in my experience no one complication has given the trouble and worry, both to physician and patient, as has the occurrence of effusion.

At the end of the first year of my work I was inclined to feel that the question of effusions was somewhat of a myth, and I even flattered myself that my technic was faultless and my knowledge of this form of operative interference was of necessity perfect. Otherwise why should I, as against so many others, fail to elicit fluid in the chests of my patients? Just, however, as I was riding on the crest of this wave of satisfaction my first case developed, and, to be brief, many others followed until over sixty per cent. of cases treated a year or more showed varying amounts of fluid. From close observation I now feel confident in predicting that, given the proper amount of time, practically ninety to 100 per cent. of cases operated upon will show varying amounts of fluid. To cite an example—one patient had received gas for nineteen months with perfect results when suddenly a moderate effusion occurred which went from serous to seropurulent and finally become purulent, showing, however, on culture and by microscopic examination the presence only of the tubercle bacillus.

The question as to the cause of exudates is a difficult one. Various opinions have been expressed and there may be reason in all. However, it may be very confidently stated that owing to the uniformity of their occurrence the causative factors must lie within the chest and not without, or, in other words, the factor of infection in refilling is very improb-

able. The fact that when a pneumothorax has been established, thus separating the pleural surfaces, an extension of the tuberculous deposits on this surface is easier inasmuch as there is no opportunity to retard the spread of the tuberculosis process by a gluing together of the surfaces as is seen in the average pleura (von Muralt).

Then, too, we have the pleura in an unphysiological position which, as Kaufmann has demonstrated, in dogs produces an anatomical change in the serosa, as is evidenced by the decreased ability of gas resorption. One has a right to expect that the infected pleura is particularly disposed to exudative inflammation under these changed relations. Forlanini observes that exudates occur after exposure to cold or from exertion and mentions the fact that the transitional seasons, especially March and April show the greatest number of such cases. In my



FIG. 13.—Fibroid lung before compression. Note gas formation, below diaphragm, in colon.

experience I am able to bear this out to a certain extent, the greatest number developing in the change from our excellent fall climate to our winter.

In my opinion there is also an irritative effect of the gas pressure on the layers of the pleura, even though a minimum pressure is produced. The very fact of a foreign element within the pleural cavity must of necessity cause inflammation with its attendant exudation. I see little, if any, difference in the effect upon the pleura by the different methods of operation, although, as has been stated, Americans use the Forlanini procedure. This fact alone, when one considers the proportion of effusions abroad, where for a long time at least the Brauer open method was used, speaks little for the technic as a causative factor.

The effect of the introduction of air itself may be reason enough, for we are all familiar with the

relative frequency of effusion in a spontaneous pneumothorax. This may, of course, be either serous or purulent as in the case of exudates complicating the compressions.

Exudates may be classified as serous, seropurulent and purulent, the latter being divided into those

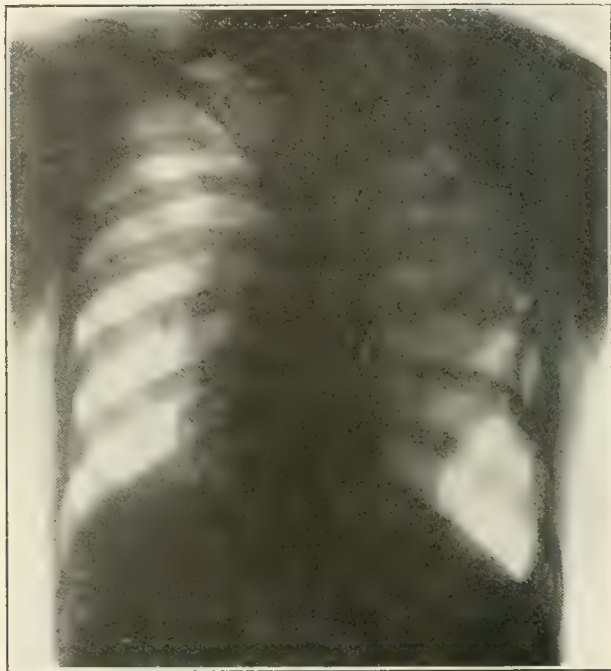


FIG. 14.—Same lung after compression. Active area completely compressed, with no effect on fibrosis.

showing no organism except the tubercle bacillus and those showing a mixed infection, usually the staphylococcus, the latter being relatively rare, both in the work here and abroad. It may be well to state at this time that in my pus cases the specific gravity was high and a large albumen content was demonstrable, showing without question the fluid to be an exudate rather than a transudate. It would seem that there should be little question, at least as to this distinction, unless a hydrops could be demonstrated elsewhere in the body. This is also the opinion of all men reporting fluid cases.

The effect of effusion is open to discussion. Certain writers (von Mural, Koniger) believe that they have demonstrated the presence of antibodies in the exudate and also in the blood stream, and attribute the beneficial effects noticed in this biochemical reaction. However, I fail to see why we should look further than the mechanical effects, which, in my opinion, seem to explain everything. It is a conceded fact that in very unfavorable cases of tuberculosis antibodies can be demonstrated in the blood; but these same patients die of their disease, while in many favorable cases the presence of such bodies cannot be demonstrated, and yet these same patients recover. Taking now the fundamental idea in the production of a pneumothorax we agree that it is the absolute rest of the lung by the application of a gas splint, to all intents and purposes the same as a plaster cast on a tuberculous knee, that produces our results. Why then, when we substitute fluid for gas, should there be any

difference in the outcome? As a matter of fact, the presence of fluid slowly absorbed lengthens the intervals between the filling, which in itself is to be desired. However, we must admit that the complication is undesirable, highly disagreeable, even dangerous, and the slight advantages gained do not counterbalance the disadvantages.

Many authors mention the diminished absorption of nitrogen and a stiffening of the mediastinum, which, of course, would allow of the possibility of higher pressure without danger of a pushed over mediastinum and a disagreeable downward pressure on the abdomen. These high pressures even under such conditions are, however, to be discouraged. Added to this I have noticed in a few cases after absorption of the fluid a shrinkage of the affected side, which is no doubt due to pleural thickening and the formation of adhesions, together with a certain amount of fibrous deposits from the exudate. The one possible advantage to be gained from this, I believe, is the ultimate tying down of the diseased lung for life; in other words, we have established a continuous compression even after the absorption of the gas.

Now in regard to the treatment of these conditions. In the common serous exudate I believe interference is contraindicated as long as the effusion is producing no pressure effects or is showing no tendency to absorb and thus glue the pleural sur-

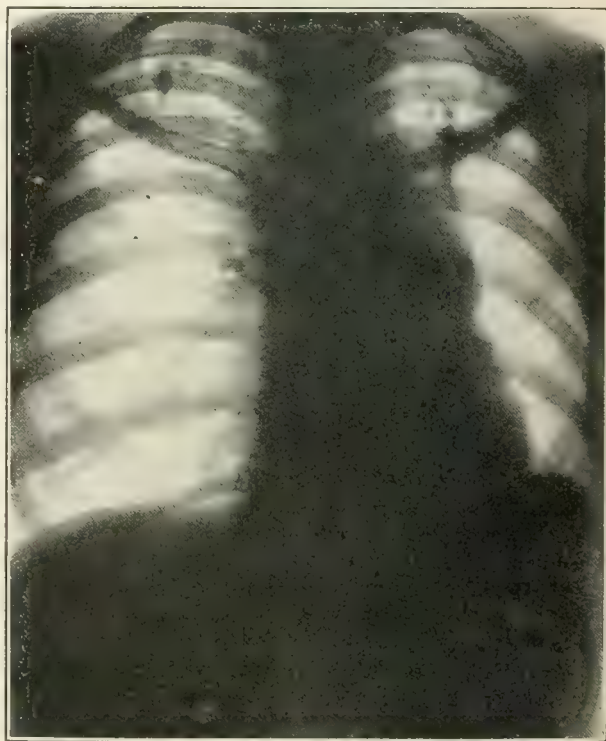


FIG. 15.—Good degree of compression. This patient showed rales throughout upper lobe of opposite lung.

faces together, when if pneumothorax is to be continued sufficient gas should be given to insure separation of the surfaces. The danger of repeated tapping lies in the chance of possible infection. Here we have an excellent culture media and a single virulent organism carried in on the needle would be

sufficient to produce an army of workers in a short space of time. The entire treatment can be summed up in one word—conservatism—with the exception of the mixed infection where radical surgical interference is indicated.

The ultimate outcome in all fluid cases, except

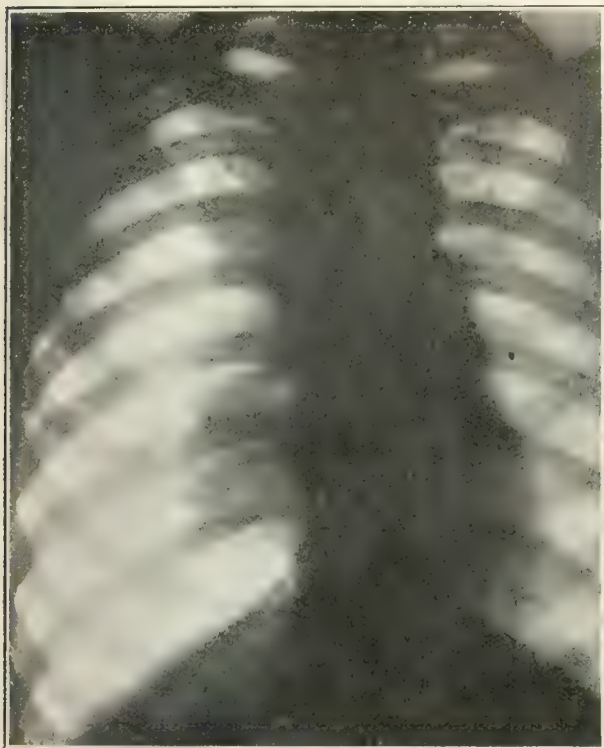


FIG. 16.—A well compressed lung.

mixed infection, I consider good, even though showing a purulent exudate containing only the tubercle bacillus. Of course the length of time and behavior of patients differ. I have seen large exudates give absolutely no symptom and small ones cause great annoyance. I have seen pus develop to such an extent that the pleural cavity was half filled with a dirty green fluid and the patient exhibit no fever or untoward symptoms of any kind. Then I have seen small amounts of pus call for frequent aspirations to relieve high pressure symptoms and high fever. There is no more fluid developed in a certain proportion of patients after two or three aspirations and they have an uninterrupted recovery, while a few have been repeatedly aspirated for months with no apparent change in their condition. Some of my pus cases have recovered perfectly, others, although still under treatment, are giving no cause for apprehension while the mixed infection cases have been drained, leaving a discharging sinus.

One of the mixed infection cases had the usual drainage which left an open sinus for a period of nine months. This was three years ago and for the last one and a half years he has been working in a clerical capacity, in the Southwest. The sinus healed perfectly at the end of this three years' period and has never given him a moment's trouble. In fact, he felt that with his excellent health he should be allowed to enter the army.

It is the consensus of opinion that many of these patients may be subject to exudates for various periods up to three years, and yet when the temperature returns to normal they can enjoy a fair degree of health, with the prospect of recovery. Serious as this complication may be viewed from an unprejudiced standpoint, we should not be deterred from the use of artificial pneumothorax where it seems to be indicated. The proportion of pus cases showing the tubercle bacillus is so small, and the proportion showing mixed infection pus so much smaller, that we can consider the complication a negligible quantity where compression is indicated.

Since the presentation of my exudate cases before the National Tuberculosis Association, two years ago, my records in percentage of fluids remain approximately the same. There have been no further mixed infection cases and only a few more pus cases, with a much larger number of patients operated upon. The percentage of such cases follows:

Percentage of fluids.....	28
Percentage of pus cases.....	10
Percentage showing sterile pus.....	7
Percentage showing mixed infection pus.....	2

In the cases showing mixed infection the condition was due to a spontaneous pneumothorax, and not from infection due to operative technic. Taking the patients under treatment for a year or more, the percentage of fluids will reach sixty-five. Also, if careful checking is done by the x ray, no doubt the

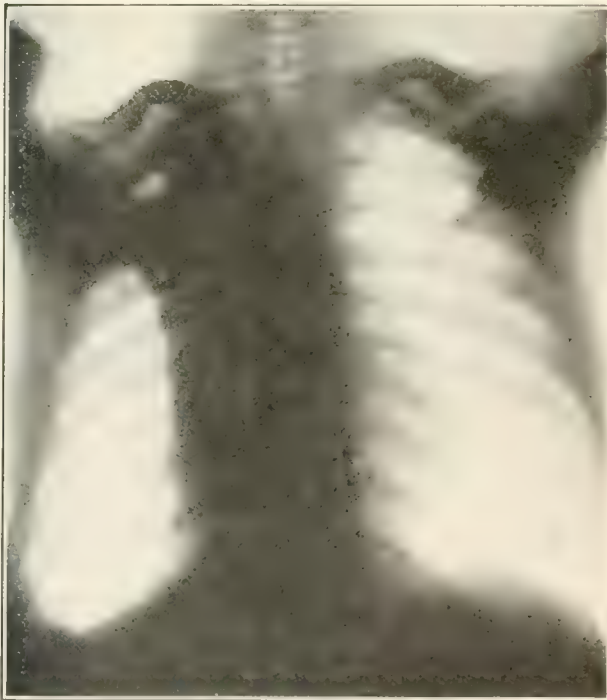


FIG. 17. Lateral compression with adhesion in upper lobe. This prevents complete collapse of cavity seen in radiograph.

smaller amounts of fluid will even raise this percentage. I feel that given sufficient time fluid will develop in the majority of gas patients.

In a careful search of foreign literature, in a series of 700 cases, purulent exudates developed in fifty-six, or eight per cent. Out of this number two showed mixed infection, or 0.28 per cent., leaving fifty-four with pus showing tubercle bacilli

alone, or a percentage of 7.71. In statistics taken from reports among American operators, the proportion of fluids in 557 cases was sixteen per cent., sterile pus three per cent., mixed infection pus .54 per cent.

Walter Holden and Mary Lapham give only the percentage of cases showing effusions. These are respectively 11.5 and twenty per cent. Holden cites one mixed infection due to spontaneous pneumothorax while Lapham mentions empyemas as a complication in her series. Gray states that he believes all cases show some fluid but reports only those in whom it can be easily demonstrated. J. Woods Price states that in their series of over 100 cases they have had about fifty per cent. effusions, some becoming purulent but none showing mixed infection.

Bonny reports three instances of pyopneumo-



FIG. 18.—Chest five years after discharge. Note marked fibrosis in upper, with good functioning tissue in base.

thorax resulting from a spontaneous rupture and states that he is convinced that the infection comes from within. This is also the opinion of Floyd of the Massachusetts General Hospital of Boston and Bruns, of the United States Army Sanatorium at Fort Bayard, N. M. Bruns further states that he believes that the infection is purely accidental and likely to happen to any operator, no matter how careful his technic. Webb believes that the infection can be from without or within, which, of course, must be granted until we have stronger proof than at present. Murphy and Kreuscher claim to have had no pleural effusions and state that if they should occur they would be due to causes other than the pneumothorax treatment.

Holden is convinced that the technic plays a very important rôle and is sure we would have fewer pus cases if we watched the administration of gas more closely, his criticism being that we are too

prone to run high pressures. To offset this argument I can say that it is a rare occasion in which I ever bring the pressure to more than neutral and yet I have had the average proportion of effusion cases.

Gray believes that nitrogen is sufficient cause for the effusions and deplors the frequent aspirations of such fluids, never interfering unless to relieve an embarrassed heart or opposite lung. He mentions the use of a blunt needle for the first operation on the infected lung. There can be no doubt that this point is wisely taken for one can easily see the grave possibility of infection after such puncture. Shortle believes in frequent aspiration of fluids and the refilling with gas in order to avoid a possible rapid absorption and gluing together of the pleural surfaces, thus prohibiting the further continuance of a pneumothorax. I believe there is a happy medium to follow and would advise that a careful watch be kept only interfering when there seems to be absorption of the fluid taking place. From my own experience and from having closely followed the literature, I believe that the infections with pus organisms and with the tubercle bacillus must be looked for from within. That technic plays an important rôle there can be no question, but when one adheres closely to the technic for major operations it seems hardly probable that the fault can lie there. On the other hand, if this were so, the effusions should, in the natural course of events, all become purulent, while we know that we encounter mixed infection only in a very small proportion of cases.

RESULTS.

The results in pneumothorax work must be considered from two angles—the immediate and the end. End results, of course, are the only ones worth while from the standpoint of both patient and physician, and these alone speak for the continued use of the method. The reports given at this time by numerous operators are based upon facts, and are no longer clinical impressions. There have been a sufficient number of men using the treatment, over a sufficient number of years, to make it possible to draw conclusions from a large number of patients. And those writers who have reported their work are uniformly agreed that the results obtained are far in excess of any hitherto published statistics, covering the same class of cases.

Most authorities are of the opinion that treatment must be kept up long enough to give nature an opportunity to form a firm fibrosis in the affected side. Unless this is done the lung will become active as soon as the compression is abandoned. Very few, if any, advocate a shorter period than one and a half to two years. Some even believe that at no time should the lung be allowed to resume its functions. However, a two year period should be long enough, and, in my experience those patients in whom the lung has been let out had attained perfect healing of the diseased area. Cases of far advanced tuberculosis, in whom the prognosis was practically hopeless and who have done well under treatment, should never be allowed to discontinue the fillings.

The ability of the gas lung to again resume its functions depends entirely upon how much original

trouble existed there. Many lungs in my series, in which there had been little disturbance of tissue, have resumed practically a normal respiration, and unless one knew the side that had received the compression it would be hard to determine this from an examination. On the other hand, when much tissue has been destroyed the fibrosis is extensive and these lungs are of little use in the function of respiration. Some seem to remain compressed to a greater or lesser degree, and slight deformity results from the contraction of the chest wall. This can be considered only in the light of a fortunate ending, for many of these same lungs might light up activity were they to reexpand.

The immediate results of the operation depend, of course, upon the amount of compression established. If one finds a free pleural space and the compression is complete marked improvement follows; cough is decreased, sputum lessened and the toxic symptoms subside almost at once. The patient notices a marked general improvement in his physical condition and there is a general feeling of well being. In a remarkably short space of time the patient is able to be up and about and enjoys much greater freedom than perhaps has been possible for months.

It is surprising how little dyspnea is encountered. Very few complain of shortness of breath and are able to move about in comparative comfort. Some of my patients play golf, while many are engaged in useful occupations without harmful effects. Very seldom does one see disturbances of the circulation. At the beginning of compression in left sided cases there may be an acceleration of the heart action from pressure of gas and the displacement of the heart to the right, but this soon subsides and the pulse becomes normal. Graetz has shown in his autopsy work that there is no noticeable hypertrophy of the right heart.

The factor that stands out more noticeably than any one thing is the extensive amount of connective tissue formation. This without question is the end result aimed at in the treatment of tuberculosis and, as Gekler puts it, the formation of this connective tissue is far greater in compression cases than in any treated by tuberculin, vaccines, and the usual routine methods in vogue in the average sanatoriums. Further, he states that one never sees these broad flat scars, indicating healed cavities, except in the operative cases. Here, again, the autopsy table furnished the final proof of the value of this method of treatment. When one encounters adhesions and only a small portion of the lung is compressed, naturally little good can result and the symptoms are not relieved. At times, by care and patience, a fair degree of compression can be established in these adhesion cases, which relieves the condition somewhat and ultimately a fair result, at least symptomatically, is obtained.

The question of end results bring up the query of whether or not these patients will remain cured, or if it is not probable that the disease will again light up when the treatments are discontinued and the lung allowed to expand. Here, again, let me quote Gekler, who was Brauer's assistant for one and a half years, and by reason of this can speak

from wide experience and observation. "I can only relate what I, myself, have seen, and say that in those cases where a satisfactory collapse was obtained, the permanent results, even in advanced and far advanced cases, are often as good as those obtained with incipient cases treated by nonsurgical means—in other words, clinical cure. I have known women patients to get married, after having recovered from tuberculosis by pneumothorax treatment, and even go through the ordeal of childbirth, which it seems to me is as good a test as we have. As Brauer's assistant I had opportunity to see and examine particularly all of his patients who reported for reexamination, and most of them were engaged in their usual vocations, only observing such precaution as any intelligent person would observe who was familiar, from personal experience, with a disease as treacherous as tuberculosis. One of these cured cases was an orderly in Brauer's clinic, and did quite as heavy manual labor as was exacted of other orderlies who had never been sick. It seems to me that these results speak for themselves."

Sachs, in a very exhaustive study of results, shows that in a collection of 1,108 cases 29.2 per cent. were improved, 10.8 per cent. were quiescent, 9.5 per cent were arrested and 1.4 per cent. were cured. The term cure here really spells nothing, for many arrested cases are as able to work and enjoy a good degree of health as the so called cures. 6.2 per cent. of these patients were working. These he terms immediate results as many were only recently discharged or still under treatment. Thus, to quote Sachs, the immediate beneficial result in the treatment of these 1,108 cases was mostly palliative in 29.2 per cent. and apparently durable in 21.7 per cent. In the European reports the palliative result was 31.2 per cent. and the durable results 25.9 per cent. The latter were patients discharged from six months to five years, while the former are for much shorter periods. As to the subsequent course of these cases Sachs believes it is a conservative estimate to attribute to durable results twelve per cent., while in more than double this number a palliative effect is produced. The sum total is a distinct increase in the chances of the advanced case which does not respond to the usual methods of treatment.

Murphy, the pioneer in the work of this country, makes the statement that thousands of cases could be collected from the literature, showing a complete symptomatic cure in many and a vast improvement in a great majority of patients. He and his associates sum up their results, and those obtained from a study of the literature, as follows:

1. The decline or disappearance of fever, showing a diminution or inhibition of absorption from the mixed as well as the tuberculous infection.
2. The diminution or disappearance of the expectoration.
3. The disappearance, partial or complete, of the bacilli in the sputum.
4. The gradual increase in weight.
5. The lessened frequency of hemorrhage.
6. The great general improvement of the patient and the short time in which these changes take place.

The work in the Murphy clinic is now being carried on by Kreuscher with very gratifying results

in a large proportion of cases. Floyd, who was one of the first to begin the compression, in this country, after its revival, very recently made the statement that where the treatment is carried out thoroughly it may be expected that about fifty per cent. of the cases will be either arrested or markedly improved.

The foregoing gives one a fair idea of the general results obtained from a study of the literature, both European and American. The results in my own work differs but little from the general averages, although somewhat higher than those collected by Sachs, covering a large number of patients.

The percentage for discharged patients is as follows:

Arrested	31 per cent.
Improved	13 per cent.
Stationary	9 per cent.
Progressive	3 per cent.
Dead	44 per cent.

Unless I call to your notice results in this same class of patients by the usual routine, these figures spell nothing. Therefore, I have elected to make comparisons and to that end have chosen average results, from the East and the West, for comparative purposes. I have looked over State sanatorium reports in addition to those of private institutions and averaged these for the East; and for the West I have averaged the reports of the three government institutions and private sanatoria. The average thus obtained shows in this type of case—in the East 4.5 per cent. arrests and in the West fifteen per cent. arrests. I have intentionally omitted comparison of the other results, inasmuch as restoration of economic usefulness is in reality the only phase worth consideration. To put it more graphically then, by means of artificial pneumothorax we have changed results in unfavorable types of tuberculosis from 4.5 per cent. arrests East and fifteen per cent. West to thirty-one per cent. arrests, making it seven times better from the Eastern standpoint and twice better from the Western. In other words, we have doubled the chances of the unfavorable consumptive, even under the most favorable climatic conditions.

These results should make possible the saving of many lives in the East who are unable to avail themselves of the luxury of climate and are forced, by necessity, to take their chances in less favorable localities.

Again let me state that by the introduction of artificial pneumothorax we have by far the greatest weapon against tuberculosis that has yet been given the unfortunate consumptive, and in the years to come I predict that this method of treatment will be the one in general use in all institutions caring for the tuberculous invalid. It is to be hoped that the few complications that today cause the majority of us to hesitate to enter chests with early lesions, will sometime be relics of the past, and that the procedure will be practised in incipient tuberculosis. If this time comes I am firmly convinced that the results will be far more gratifying than the countless victims of this disease or the hordes of physicians caring for the tuberculous ever dreamed possible.

(Permission to publish given by the Surgeon General, U. S. Army.)

INFLUENZA IN HORSES AND IN MAN.*

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Among the various procedures employed by epidemiology in the study of infections is investigation by analogy. Starting with what is known to occur in respect to the transmission of a disease among the lower animals, it is inferred that the same or nearly the same train of events may occur in a similar, but imperfectly known, disease in man. Certain difficulties have to be recognized and overcome in working out this method, but properly handled, it may yield excellent results. It has seemed to be worth while to apply this method of investigation to the subject of influenza. Fortunately for the purpose, a disease called influenza occurs among horses, and bears striking resemblance to influenza in man. In fact descriptions of influenza in horses and some of the circumstances under which it is transmitted, so closely resemble what is known of influenza in man as to suggest that the two diseases are identical. That they are not identical, and that neither may be transmuted into the other, are facts which have long been believed by epidemiologists and are now confirmed.

Economically, influenza is the most important disease of horses in temperate climates. The mortality among remounts has been many times greater from influenza than from all other diseases put together. It is estimated that over 25,000 horses purchased by the British Government in America and Canada, during two years of the war, died in those countries while awaiting shipment to Europe. In a circular issued January 12, 1918, by the Surgeon General of the United States Army to the veterinarians of remount depots, it was stated that the losses from influenza among American army horses amount to over \$100,000 a week. The disease spoken of as influenza in the horse has many other names. It is commonly called pinkeye, shipping fever, stable pneumonia, and bronchitis. By some, influenza is not believed to be a single disease, but a group of diseases. By others it is considered to be a definite entity, varying in its symptom complex at different times and with various horses. Infectious laryngitis and infectious pharyngitis seem to be independent diseases. Two forms of influenza are generally distinguished: catarrhal and pectoral.

Briefly, the symptoms, as stated in a recent publication of the United States Department of Agriculture (1), are sudden onset; fever in some cases preceded by chill; great physical prostration and depression of nervous force; sometimes injected mucous membranes, especially those of the eye, and loss of appetite. In uncomplicated cases the fever abates after about a week and there is a general restoration to health. Pneumonia is one of the frequent complications and is always serious. The death rate varies between two and seven per cent. The most usual form is the catarrhal type. The at-

*From the Division of Infectious Diseases and Laboratories, Office of the Surgeon General of the Army.

tack may last only two or three days; in other cases the course may extend to two weeks, in which event it takes the animal a long time to get well. Horses which have passed through this form of disease may be considered to have recovered two weeks after the disappearance of the fever. A graphic account of the lethargic condition characterizing the onset of the disease has been given by Hutyra and Mareck (2) from whose admirable work on the pathology of animals many of the facts here given are taken.

"The disease commences almost invariably with marked depression, dullness of sensibility, and capricious appetite. The animals stand with eyes half closed, ears drooped, supporting the head to the crib on the strap of the halter, sometimes standing in the stall, apathetic and in abnormal positions. They take the food offered them with hesitation, masticate it slowly and with frequent interruptions. They frequently do not swallow the bolus, but it lies in the mouth outside of the molars apparently forgotten. If urged to move, they walk lazily and with some difficulty; frequently the gait is staggering."

The body temperature is high from the first: 104 to 105. Here it remains for two to three days when, in the simple catarrhal form, it quickly subsides to normal. In the pneumonic form, the temperature remains high until after the regenerative changes in the lungs. There is sometimes urticaria. There is first a rough, dry and later a moist cough which comes on spasmodically. A small quantity of serous, and subsequently a more profuse, discharge of mucopurulent secretion escapes from the nose and is expelled in coughing. In the pectoral form the symptoms are more intense. The affection of the lungs is either lobar croupous pneumonia, or lobular bronchopneumonia. The definite differentiation of these forms is only in rare cases possible because the latter also has an acute development and a rapid extension. In many cases there is a saffron, or rust colored nasal discharge.

The diagnosis of influenza depends as much upon its epidemiological aspects as upon the symptoms. Law (3) bases it on the suddenness of the attack, its epizootic character, the numbers attacked in rapid succession and over a large area as compared with ordinary contagious pneumonia, the sudden and extreme prostration, the mildness of the average case, the congestion of the upper air passages, the water and discoloration of the eyes, and the history of the case. Points of interest in the history are the arrival of the infected horses within a few days from an infected place, or coming through such place, or the attack of new arrivals in a previously infected stable, or the known advance of the disease toward the place where the patients are located.

Statistics indicate that there have been pandemics of influenza since early times. Even before the Christian Era a severe epizootic, believed to have been influenza, is recorded as having occurred in Sicily. Again, in 1301, it spread over a considerable portion of Italy, causing a great loss among the war horses of Rome. In 1711 it followed the tracks of the great armies all over Europe produc-

ing immense losses. Other extensive outbreaks occurred at intervals from the early part of the nineteenth century to its close. One of the most interesting was the pandemic of 1870-73 which occurred in connection with the Franco-Prussian War. The most severe outbreak in America occurred in 1870-72. In 1901 a very severe outbreak occurred.

The progress of the epidemic of 1872-73 in America was traced by Doctor Law, from Toronto, Canada, until it had spread throughout the continent. It first appeared in Toronto in the last week of September. During the first two weeks of October it reached Niagara Falls and Buffalo in northern New York and had proceeded west as far as Detroit, Mich. In the third week of October it had reached Rochester, Syracuse, Albany, and New York city, and had appeared at Bangor, Me. After this the spread was much broader. The New England states were invaded and the disease passed southward as far as Pittsburgh, Philadelphia, and at length Baltimore, Richmond, and Norfolk. It traveled west as far as Chicago and Cleveland.

By the first week in November the Northwest saw it at Milwaukee and the South as far as Raleigh and Charleston. By the last week in November the extension had proceeded as far as Macon, Ga.; Jacksonville, Fla.; Montgomery, Ala.; Vicksburg, Miss.; New Orleans, La.; Galveston and Houston, Texas, and Little Rock, Ark. By the end of December it had gone as far west as Omaha, Vermillion, Dakota, and Central City, Colo. In January and February the infection spread more completely through the Southwest; in the West it had reached Wyoming, New Mexico, and Utah. In March and April it was in California and Mexico. By July it was in Guatemala. It is estimated that in this epidemic fully one million horses, asses, and mules in the United States were prostrated for one or two weeks.

The progress of the pandemic of 1872-73 among horses was as general but much slower than the progress of the recent pandemic of influenza among human beings. It was slower because the transportation of the horse from place to place was slower than the transportation of human beings. It was established that the disease was transmitted chiefly from horse to horse and was not due to cosmic or telluric influence. The pandemic followed the railways upon which the animals were transported. Important horse markets suffered sooner than smaller ones; those last to be affected were the remote places. The general travel of the disease, as of the horses which were sent to market, was eastward. Many instances have been cited by Law to show how the influenza moved from place to place as the horses moved, thus: in some regions in Pennsylvania, it followed valleys and in others canals; it followed the track of a circus which passed through an infected region in Santa Barbara County, Cal.; in one instance it followed a mule stage route; it reached Cuba by way of Havana where infected horses were landed.

The disease is believed to be transmitted by secretions of the respiratory tracts and by the feces of affected animals. The infective agent, as a rule, enters the body by food or water in some cases and

in others through the air passages. Indirect infection by the most varied objects occurs. These include contaminated food, straw, manure, stable utensils, cribs, pails, people who handle sick animals, blankets, clothing, and other objects with which they came in contact.

The dust of stables which contain, or have recently contained, infected horses is believed to be capable of transmitting the disease. Light, well ventilated buildings are the safest; dark, damp, and musty stables are the worst. It has been found that infection takes place in a stable in an irregular manner depending upon the currents of air which pass through the buildings. The virus appears to be exceedingly diffusible. This is shown by the following illustration which is taken from Law: On two successive mornings a four year old colt stood for about ten minutes at the open door, fully forty feet from the stalls of a stable in which two cases of influenza had broken out the day before; in six days the colt developed the disease. On the morning when the trouble in the colt was recognized it stood in an infirmary with a dozen horses that were being treated for various diseases. The colt was immediately isolated, but within one week two thirds of the other horses had become sick with disease.

It is obvious that infection may take place from a very early period in the attack. In fact, Hutyra and Mareck state that the disease is usually introduced into stables by animals in the incubation period or first stages. For this reason animals bought in exchanges are both likely to develop the disease and to transmit it to others. Among army horses the disease frequently breaks out after the introduction of remounts. Convalescing, and even recovered animals apparently may infect others.

It is possible that carriers exist since the continuous persistence of the disease in a stable after the animals have all recovered must be explained on the carrier basis or on the ground that the virus is capable of retaining its virulence for a very long time. There seems to be an association of place with the disease which is often the case where carriers exist in diseases of man.* Outbreaks are often confined to individual stables or townships or limited localities. The disease smoulders in large cities and breaks out from time to time, occasionally, to sweep a whole continent as it did in the great outbreak in Europe in 1882-83 and in America in 1872-73 and 1900-01.

The cause of influenza in horses is believed by some to be an ovoid bacterium somewhat smaller than that of chicken cholera. It is pigmented at the poles and clear in the central part. It is aerobic, nonliquefying, stains easily, grows well on gelatin and forms first transparent, and later opaque or milky, colonies. This bacillus, discovered by Lignieres, in the blood and exudate of patients, belongs to a group of germs which is peculiarly fatal to sheep, rabbits, chickens, and other animals. It includes the organisms of swine plague, the septicemic pneumoenteritis of sheep and the septicemia of rabbits and chickens. All members of this group cause some form of hemorrhagic septicemia.

Bacteriological research carried on by Raoul

Combe in 1915, 1916, and 1917 in France and communicated to the National Society of Agriculture, Paris, July, 1918, led him to believe that the cause of infectious pneumonia in horses was an organism closely related to the *Bacillus paratyphoid* B. This organism he called *Bacillus paratyphoid equinum*. A second organism, often associated with the first, was called *Bacillus* II. It is said that an Italian military veterinary bacteriologist, Matteo Carpano, has confirmed Combe's results.

Lieutenant Colonel Watkins-Pitchford, of the British Army Veterinary Corps, reported in July, 1917, after a year's study, that in his opinion the disease known as contagious pneumonia in horses and its generally associated primary catarrhal condition were not infectious nor directly transferable from one horse to another, except under certain conditions of experimental infection. In his judgment the controlling factor determining the establishment of the disease was a condition of lowered vitality of the mucous membrane of the respiratory tract which rendered possible the invasion of prevalent microorganisms. In this way collective outbreaks of a seemingly infectious nature became explicable on the grounds of a common exciting cause. Specific infection did not take place from horse to horse in good, well ventilated stables, nor was there any particular connection between cases and individual stalls. It was impossible to produce infection intentionally. Nosebags were kept upon horses with profuse nasal discharges and high temperature, and these nosebags were then used to contain the food of other horses without infection taking place.

Colonel Watkins-Pitchford's opinion was that equine pneumonia is for practical purposes of prevention and treatment an idiopathic disease. Its prevention was to be effected by the daily use of the thermometer for the detection of the critical times when the horses were especially susceptible, and by insuring periods of quiescence and observation at these times. Critical times were likely to occur when horses experienced decided changes of environment and habit, such as long journeys by rail or sea and changes from the quiet routine of civilian stables to the excitement of military life. These periods of susceptibility might last three weeks.

Bacteriological studies made in connection with the English investigation showed that there was a specific organism present in the blood and tissues called bacillus "X." This organism was capable of exerting a proteolytic, or tissue digestive, action which opened the way for the infective virus to enter. In many ways the bacillus "X" resembled *Bacillus subtilis* and it was thought to be one of a nearly allied group or perhaps a strain of *Bacillus subtilis* which in some way acquired pathogenic properties. The blood of animals suffering or recovering from, either the catarrhal condition or the pneumonia was capable of clumping or agglutinating this organism.

Experiments by Dieckerhoff (4) led them to believe that influenza may be transmitted to healthy animals by intravenous injection of the warm blood from infected horses. Further investigations indi-

cated that blood passed through porcelain filters might transmit the disease. As to immunity, one attack is believed to diminish susceptibility to infection for an indefinite time. Some horses pass every year through a slight attack. Certain predisposing causes need to be taken into consideration, since they have to do not only with the spread of the infection, but with the serious aspect of the cases which occur.

Colds, or in other words, catarrhal affections of the mucous membranes are said to be a predisposing cause. The name "shipping fever" has been given to influenza because of the fact that new horses in a locality, especially those from country districts, when brought together in stables for shipment, are practically certain to contract the disease. The mortality which, under ordinary circumstances is between two and seven per cent. is highest in horses worn out by fatigue after a long railroad journey, among fat horses out of condition and among horses which have been driven after they were sick.

Hutyra and Mareck say that under favorable conditions the loss in the catarrhal form of influenza hardly ever exceeds 0.5 to one per cent. while in the pectoral form it is never less than four to five per cent. and many reach sixteen per cent. With reference to the pneumonia complication, statistics may be quoted from the Prussian Army from 1889 to 1908. There were 9,462 cases of influenza reported of which 3,198 had pneumonia. Of these pneumonias 1,817 were on the right, and 1,780 on the left, side and 1,336 were on both sides. Pleurisy occurred in only a hundred cases.

The only measure of prevention which has been found wholly effective is strict isolation. Disinfection and great care in the cleansing, lighting and ventilation of stables are believed to be moderately useful. It is considered wise to guard against infected articles, and any article may be infected which was near the horse. All purchased animals which are carried in public conveyances, such as railroad cars or fed at a public yard or stable, should be quarantined at a considerable distance from other horses. The quarantined horses should be separated into groups and kept out of doors as much as practicable. In the opinion of Lieutenant Harsh of the United States Veterinary Corps (5), preventive inoculation has done little good in handling army horses at the remount station of Camp Sevier, S. C. Fresh air in open corrals with protection from rains and cold winds was the best preventive and curative treatment. The death rate as reported by him was 4.8 per cent. Complete isolation has repeatedly been shown to afford complete protection against influenzal infection. In 1870-72 it resulted in the immunity of Vancouver Island, Prince Edward Island, the whole of the West Indies except Cuba, Central and South America and isolated districts in Mexico.

Little is known concerning the prevalence of influenza among horses in the United States Army. Until Congress provided by legislation in 1918 for the organization of the Veterinary Corps, statistical records of disease among horses were not kept. According to the Bureau of Animal Industry, there has been less pneumonia and influenza among

horses during the year 1918 than for many years past. Officials of the bureau say that there was no disease of any kind known to be especially prevalent among domestic animals before the outbreak of the influenza pandemic of 1918 among human beings, nor has there been any subsequently.

Upon application to the United States Bureau of Animal Industry, information has been furnished as to the number of horses received, cases and deaths from influenza and other statistical facts reported at nineteen of the great horse markets in the United States. Some of the records cover the entire year. From the figures given, rates have been calculated in order to show the relative prevalence of influenza at the different points and during the months for which the figures are available. In some instances horses sent from one station to another in the list are included in the tabulations, in which event there is a duplication, but this is not believed to introduce a serious error.

Justification for considering that new cases of influenza should be referred alone to new horses lies in the belief that fully ninety-five per cent. of the attacks are among horses recently received from the country. Practically all the newly arrived horses and country horses are almost alone susceptible. When duplication exists, it is in favor of lower rates than would otherwise occur for the reason that the number of horses is thus made too large, where the cases of sickness remain the same. It is said that if a horse has an attack of influenza, he is not liable to a second attack.

The statistics give record of 583,915 horses, 7,471 cases of influenza and 1,132 deaths. This indicates that influenza is not only a common disease but a very fatal one. There was a great deal of difference in the prevalence at the nineteen stations. Some places seem to have had over ten times as much sickness as others. Among the stations for which the records are most complete, Indianapolis had the least and Chicago usually the most influenza. There was considerable at Denver. Among the eight places where the statistics cover the entire year, or nearly that period, Chicago had the most uniform rate; the National Stock Yards, East St. Louis, came next and Omaha third. The rate was highest at Chicago in July; at East St. Louis in February and March, and at Omaha in October and November.

Excessively high rates occurred at Chicago in June, July, and August without any reason for it being visible in the records unless usually large shipments in May and June account for the facts. There was another but a relatively slight increase in September, October and November. An Autumn increase occurred at Omaha, Nashville and Atlanta. These fall increases in 1918 were not beyond what might be expected in any year.

Turning now to deaths, Chicago again led in uniformity. The death rate was somewhat higher than usual in July and August. Influenza seems to have been epizootic there during the summer. No similar outbreak occurred at any other point during these months. At Atlanta the rate was higher than usual during September, October, and November. At Nashville the rate was particularly high in

September, at East St. Louis and Omaha in October. In January and February it had been much higher at Chicago, Atlanta, and elsewhere.

Taking the records as a whole, there is nothing to indicate that any general epizootic of influenza occurred among horses during the year 1918 corresponding to, or connectable with the pandemic of influenza among human beings. The disease called influenza in the horse does not seem to have been particularly epizootic. Apparently it might become so if any large number of susceptible horses was to become exposed to it. But the disease seems to be so infectious that each horse which has not had it contracts it immediately upon exposure, thereby acquiring immunity and so eliminating the possibility that any large number of susceptible animals can occur in any place.

The data obtained from the Bureau of Animal Industry together with the morbidity and mortality rates calculated from these data have been tabulated, but are too extensive to be recorded here. The records of four of the principal shipping points chosen because of the apparent completeness of their returns have been selected and are herewith given: The deaths include all deaths resulting from influenza and its complications and sequelæ. The rates are calculated as so many per 1,000 living per year, this being the customary manner in which sick rates and death rates are calculated for soldiers in the United States Army.

TABLES OF CASES AND DEATHS FROM INFLUENZA
AMONG HORSES AT FOUR OF THE PRINCIPAL
SHIPPING POINTS IN THE UNITED STATES.

SHIPPING POINT—CHICAGO, ILL.					
Month and year.	Number horses received.	Number new cases.	Cases per 1,000 annually.	Number of deaths.	Deaths per 1,000 annually.
January, 1918...	7,908	431	747.5	83	154.5
February, 1918...	4,849	102	278.2	53	154.2
March, 1918...	6,062	79	189.7	15	35.3
April, 1918...	3,166	42	121.4	7	32.0
May, 1918...	1,934	60	174.2	5	14.1
June, 1918...	4,866	132	360.0	6	17.2
July, 1918...	2,977	265	1,075.4	12	89.8
August, 1918...	2,081	112	484.9	10	49.6
September, 1918...	2,651	31	168.1	1	4.3
October, 1918...	4,475	139	343.4	6	17.8
November, 1918...	4,021	197	566.5	36	107.5
December, 1918...	2,518	82	425.4	25	140.3

SHIPPING POINT—ATLANTA, GA.					
Month and year.	Number horses received.	Number new cases.	Cases per 1,000 annually.	Number of deaths.	Deaths per 1,000 annually.
March, 1918...	989	6	105.1	7	84.0
April, 1918...	1,387	7	28.3	4	24.8
May, 1918...	105	0	0	0	0
June, 1918...	229	0	0	1	51.6
July, 1918...	2,683	0	0	0	0
August, 1918...	3,653	5	19.5	4	15.2
September, 1918...	4,122	53	166.5	17	60.1
October, 1918...	8,776	128	203.6	58	41.2
November, 1918...	7,639	90	167.4	31	59.1

SHIPPING POINT—KANSAS CITY, KANSAS.					
Month and year.	Number horses received.	Number new cases.	Cases per 1,000 annually.	Number of deaths.	Deaths per 1,000 annually.
November, 1917...	11,299	145	185.3	11	16.2
December, 1917...	12,765	242	111.2	27	30.6
January, 1918...	14,127	255	260.4	29	29.9
February, 1918...	11,688	135	168.2	29	36.1
March, 1918...	11,544	80	100.0	8	10.1
April, 1918...	2,196	18	98.4	4	22.4
May, 1918...	2,359	0	0	0	0
June, 1918...	1,828	0	0	0	0
September, 1918...	10,273	68	96.1	2	2.5
October, 1918...	12,401	113	131.2	6	6.8
November, 1918...	7,644	79	145.8	5	8.6
December, 1918...	4,564	21	66.5	2	5.2

SHIPPING POINT—EAST ST. LOUIS, ILLINOIS (NATIONAL STOCK YARDS).					
Month and year.	Number horses received.	Number new cases.	Cases per 1,000 annually.	Number of deaths.	Deaths per 1,000 annually.
January, 1918...	42,143	434	150.0	86	27.9
February, 1918...	31,071	587	255.5	93	41.0
March, 1918...	28,010	494	255.5	67	33.8
April, 1918...	7,121	121	249.5	38	77.7
May, 1918...	5,201	39	112.8	10	27.2
June, 1918...	6,035	31	74.9	5	10.8
July, 1918...	8,943	54	87.6	4	5.1
August, 1918...	20,574	127	89.4	29	18.0
September, 1918...	31,522	117	54.1	33	14.4
October, 1918...	30,183	292	139.4	70	32.7
November, 1918...	24,819	207	121.4	24	13.1
December, 1918...	15,558	210	221.6	24	22.0

SUMMARY.

The most suggestive result of this study lies in the fact that predisposing influences play a most important part in the production of serious influenza among horses. It would seem that predisposing factors should receive more attention in the study of influenza in man.

Among the subjects of most interest in detail, are the following:

There are two types of influenza in the horse, one of these is present at all seasons and all places where horses are brought together in considerable numbers. This form is limited in spread. It would appear that with proper care, its severity, particularly in relation to the frequent pneumonia complication, may be modified. It is probably produced by a virus which passes from horse to horse by the air and by dust. It gains a foothold most readily among horses which are brought to the cities from the country and among horses whose normal regimen has been much disturbed.

This first type of influenza is to be guarded against especially in its grave manifestations by watching the horses carefully at critical periods such as those which follow changes of environment. Much value attaches to observations of the horse's temperature as a means of detecting impending illness. Rise of temperature indicates either the disease in its earliest stages or a condition of hyper-susceptibility to the influenza.

The other type of influenza is the virulent pandemic form. It occurs with explosive violence wherever it is introduced and passes from one point to another with the rapidity with which the horses themselves move. It is capable of sweeping an entire continent and is never localized except for a brief period of time. This form of influenza can only be prevented by strict and absolute isolation. So far as the endemic form of influenza is concerned, predisposing conditions are probably of as much importance as the infective virus itself. These predisposing conditions include excitement due to marked changes in surroundings, the nervous stress accompanying journeys by rail and boat and irregularities, and especially insufficiency of food.

Owing to the striking parallelism between influenza in horses and influenza in man it would seem probable that a more thorough knowledge of the disease in horses would yield facts of great value. It is important that an extensive study of this question be made, not only for this reason, but because of the great prevalence of the disease among horses and the heavy economic loss which attaches thereto. Probably it would be profitable to study both the endemic and epidemic form of influenza in horses.

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INFLUENZA.

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This report and the suggestions submitted are based on a series of 998 cases of influenza, 197 cases of pneumonia with a total of thirty-three deaths. The first series of forty-seven cases of influenza and six cases of pneumonia with no deaths were treated, in Chickasha, in the early part of the fall of 1918. The second series of 225 cases of influenza and twenty-four cases of pneumonia and fifteen deaths were treated and observed, while acting as assistant surgeon United States Public Health Service, during the epidemic of influenza, in the State of Oklahoma. The third series of 158 cases of influenza and forty-one cases of pneumonia and twelve deaths were treated and observed, while in the United States Public Health Service. The fourth series of 250 cases of influenza and sixty-four cases of pneumonia and two deaths were treated, personally, while in the same service. The fifth series of 318 cases of influenza and sixty-two cases of pneumonia and four deaths were treated, personally, in Chickasha, after my return from this service. In the first, fourth, and fifth series of 615 cases of influenza and 132 cases of pneumonia and six deaths serotherapy was used, in all the cases in which it was felt that this form of treatment was indicated.

The second and third series of 383 cases of influenza and sixty-five cases of pneumonia and twenty-seven deaths had practically no serotherapy used, in any form. For, in the towns, in which these cases occurred, there was no serum available, and the resident physicians did not take kindly to the suggestion of their use.

Among the cases treated, personally, there were ten pregnant women, from two to six months in pregnancy. Of these ten patients, eight had pneumonia, following influenza, and all of these eight miscarried. The other two, escaping pneumonia, went to full term and have healthy babies. One or more doses of serum were given to all of these patients, and only one death occurred.

The form of serotherapy used, in the uncomplicated cases of influenza, was the mixed infection phylacogen combined with the pneumonia phylacogen or the influenza serobacterin combined with the pneumonia serobacterin. The form of serotherapy used, in all the serious cases of influenza, as well as in all cases of pneumonia, following influenza, was the polyvalent antistreptococcic serum. When this serum could not be obtained, the diphtheria antitoxin or normal horse serum was used.

One thousand, one hundred and eighty-two prophylactic doses of mixed infection phylacogen, combined with the pneumonia phylacogen, or the influenza serobacterin, combined with the pneumonia serobacterin, were used by me during this epidemic. Where prophylactic injections were used, only two cases, of influenza, and no pneumonia, developed and both of these cases were mild.

In the serotherapy treatment, of this series of influenza and pneumonia cases, personally treated, 583 doses of the influenza serobacterin, combined

with the pneumonia serobacterin; 414 doses of the phylacogens; 196 doses of the antistreptococcic serum polyvalent; twenty-one doses of 5,000 units of antitoxin and seven doses of normal horse serum were given. At the beginning of the epidemic, we found a mixed infection existing, of a more or less virulent type, with which we had to contend.

The influenza bacillus, pneumococcus, Streptococcus hemolyticus and Streptococcus viridans and other microorganisms were demonstrated, in nearly every case, and in all the serious cases, of influenza, and those having the concomitant complications, the predominant microorganism found was the streptococcus.

The results obtained in the series of cases treated personally with this form of serotherapy, both as prophylactic and curative measures, demonstrates that there was a definite mixed infection, variable in virulency and toxicity.

Beyond peradventure, this epidemic of influenza and the concomitant complications, was brought from Europe, by those who had either had an attack themselves and had recovered, or had come in contact with influenza patients and in these ways had become carriers. These two varieties of carriers, mixing with the people in this country, spread the epidemic far and wide.

My observation, during this epidemic, has convinced me that all persons contracting influenza had a lowered resistance. Even if in apparently good health, a careful search would find a definite cause. If there had not been loss of sleep, chilling, exhaustion, insufficient feeding, etc., there was a definite history of a chronic focal infection, as a predisposing cause. The principal chronic focal infections observed, in this series of cases, were either diseased tonsils; diseased teeth; diseased prostates or diseased antrums and sinuses. In fact, there was not a serious case, or one with serious complications, which came under observation, but what had a definite history of a chronic focal infection.

We feel that the serious complications and fatal terminations were frequently if not always due to influenza being superimposed upon a serious chronic focal infection. Many, if not all, of the sequelæ, following this epidemic, will be found in persons having some chronic focal infection. The eradication of these chronic foci is the treatment to be first considered in these cases.

We must, also, remember that hypoleucocytosis or leucopenia was common and present in nearly all the cases in this epidemic and that this hypoleucocytosis was followed by a nonspecific decrease in phagocytic activity of the leucocytes. This condition, having developed, not only tended to increase the severity of the infection but also predisposed to the development of many sequelæ.

It is only natural that we should have had many varied forms or types during this epidemic. There were varied environments and degrees of susceptibility of those contracting the disease; the Streptococcus viridans usually has a peculiar fondness or affinity for the heart and kidneys, while the Streptococcus hemolyticus usually chooses the lungs, liver or spleen for its habitat, and the difference in the

virulence of the various microorganisms found gives us an explanation for the different forms or types.

In discussing the different forms or types seen during this epidemic we are disposed to describe the characteristics of the cases rather than confine ourselves to the general classification, as usually given, of respiratory, gastrointestinal, nervous and toxic types. The most numerous type of cases were those with rise of temperature and a catarrhal inflammation of the eyes, nose, throat, pharynx, tonsils, and bronchi. These cases, with the infection apparently localized in the upper portion of the body, did not give us much trouble and were of a transitory nature.

A class of cases, with rise of temperature, chilly sensations, of an indefinite nature, malaise and headache, were not accompanied by any complications and were only sick for a short time. Another class of cases, with rise of temperature, pains and aching confined to the limbs, back and thorax, usually had the pain emphasized at the end of the sternum. These cases, also, only lasted a few days and had no complications.

Some patients, with rise of temperature and a localized bronchitis or pneumonia developing in a few hours, had a bloody or prune juice colored sputum appearing very early and only the small bronchi were involved. These responded very promptly to treatment and gave no particular trouble.

On the other hand there were patients, with pneumonia, of a more frequently lobular than lobar type, where the process extended from the original lesion in a frequent, irregular, and rapid manner. These had a marked early pain along the sternum and a severe congestion, also hemorrhage from the nose and bronchi. Good results were obtained from prompt treatment if seen early.

The patients, with rise of temperature, profound prostration and a severe depression, nearly always had some of the concomitant complications and were very difficult to treat. So often in patients with either an involvement of the central nervous system, a myocardial weakness or acidosis, or all three conditions, we found a very low leucocyte count, which nearly always meant a grave prognosis, especially in those cases with a serious chronic focal infection. A differentiation was often difficult in the patients, with an involvement of the central nervous system, having meningitic symptoms. Early diagnosis and prompt treatment saved many of these patients.

The pneumonia patients with pain entirely referred to the abdomen and frequently classical partial picture of appendicitis were very deceptive. Here good results were obtained with the serotherapy treatment.

Rapid distention of the abdomen, accompanied by vomiting and abdominal pain, in which these symptoms were marked, severe and persistent, was observed in patients with acute influenzal, catarrhal gastritis, or colitis. Treatment was difficult and not always successful. Exacerbations of temperature, lung signs of continued dullness, copious expectoration and anemia, continuing longer than usual, were observed in some cases of *Streptococcus hemolyticus* infection and could easily have been mistaken for empyema or miliary tuberculosis.

Bronchopneumonia, with an active pulmonary edema, associated with cyanosis and signs of pulmonary suffocation, showed rapid blood changes in many of these patients as well as a destruction of the red cells. Surely vasomotor paralysis played an important role and interfered with the treatment. That there was a damaged condition of the capillary vascular system was demonstrated by the abundance of hemorrhages occurring in the cases of influenza and complications. In the respiratory tract, lungs, mucous membranes of the stomach, intestines, nose, pelvis of the kidneys, and different serous membranes, hemorrhages often occurred.

Severe local lesions, rather than generalized infections, were responsible for the fatal terminations. Although it was possible to recover the *Streptococcus* and other microorganisms, in some cases, from the blood, lungs, or spleen, yet the postmortem findings showed the extensive local lesions. We agree with the different descriptions of the postmortem findings in the lungs. Almost any portion could be involved, small spots or whole lobes; yet usually free from extensive necrotic areas.

Unlike previous influenza epidemics, the ages of those usually affected were from sixteen to forty-five years. The old and very young were nearly always treated very kindly and complications were usually absent in the two extremes of ages.

As the temperature during this epidemic was very variable there were many serious complications, with a low temperature, not recognized until too late for any material benefit to be derived from any treatment.

The complications seen during this epidemic were varied and, in fact, hardly any part of the body or any organ was overlooked by this mixed infection. Bronchopneumonia, as well as being the most frequent complication, was also the most fatal.

The clinical signs of influenza bronchopneumonia were not at all classical or constant. Usually a rise in temperature, after a normal one, was the first sign and if pain was present, it might be in any location, frequently in the abdomen. Any portion of the lung was likely to be involved, though most frequently, the lower part of the lobe was affected first. The pulse rate, usually high, was extremely variable. A classical chill was seldom observed. The course of development was usually gradual and the sputum became blood tinged or prunejuice colored within the first forty-eight hours and was not abundant. Insomnia was very persistent and hard to overcome or relieve. When there was any fluid in the lungs it was usually of a serous or bloody nature and an abscess of the lungs was not often found. Menorrhagia was the rule in all the cases in this series, even if the menstruation had just been completed.

Incoordination, fainting, and muscular contractions, especially in the limbs, were common and the mental conditions, particularly in the serious cases, ranged from one of an apathetic nature to active delirium.

A variable train of symptoms would be included as a description of the so-called influenza memory. The headache observed was from a congestive type to an involvement of the whole brain and its cover-

ings; severe and throbbing to that of a dull character. Loss of taste and hearing were observed occasionally. Optic and facial nerve involvement were frequent enough to mention. Marked ringing in the ears and isolated palsies as well as hoarseness, with weakness in swallowing were noted frequently.

Supraorbital and infraorbital neuralgias and multiple neuritis, especially in the lower limbs, gave some patients quite a little trouble. Fatigue, so-called goose bumps, urticaria, formication, reddish mottling of the skin and irregular erythemas were observed in many cases. Transitory, as well as more persistent, insanity occurred, in a few cases, particularly where there were chronic focal infections of long standing. Cyanosis was not frequent, except in severe cases; sweating not usual; jaundice observed occasionally; while epistaxis was very frequent and often very persistent. Lumpjaw, so-called by the author, or involvement of the submaxillary glands was seen often; involvement of the antrum was found in only one case, for which an abscessed tooth was probably the predisposing cause.

Involvement of the frontal sinuses was a common and troublesome condition found in many cases. Not one case of typical otitis media, as a complication, was seen in this series of cases. Mastoiditis was only observed in three cases and in all of these patients there was a previous chronic otitis media. Superficial infections were common, particularly an involvement of the scalp, axilla, and sacral regions.

Excision of the tonsils cleaned up many carriers of the *Streptococcus hemolyticus* and helped to limit the spread of the epidemic. Prophylactic doses of the phylacogens, mentioned, or the influenza serobacterin, combined with the pneumonia serobacterin, were more potent than sprays, gargles, or the wearing of masks. Sprays were usually too irritating and the ordinary mask, as worn, was a sham and a placebo. Serums, phylacogens and serobacterins were more efficient than the vaccines, for, with the vaccines the negative phase does not develop until three to five days. In as virulent an infection as this epidemic, frequent and prompt therapy is indicated and the only one of any avail. The importance of carriers in the spread of this epidemic is not yet fully appreciated.

The treatment *par excellence* was the use of both the prophylactic and curative doses of the serums, phylacogens, and serobacterins combined with absolute rest in bed; thorough elimination regularly; the ingestion of fluids in as large quantities as possible; liquid yet nourishing diet; enemata of alkaline mixtures, as well as alkalies, by mouth, for the purpose of preventing and overcoming acidosis; relaxation and sleep for the patient, regularly, even if an opiate was necessary, and any other symptomatic treatment that each individual case demanded.

A New Sign of Hereditary Syphilis in Children. D. Tanturri (*La Pediatria*, January, 1919) describes a sign which he considers pathognomonic of hereditary lues, namely a serration or saw edge condition of the arch of the soft palate and of the sides of the uvula. There is no change in the color of the mucous membrane and the condition is always bilateral.

PREVENTION AND TREATMENT OF SEASICKNESS AND ALLIED CONDITIONS.

BY NATHAN ROSEWATER, Ph. G., M. D.,
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Nausea, vertigo, hiccough, belching of gas, gurgling in the bowels, flatulence, constipation, and diarrhea form a large share of the daily varied and distressing symptoms calling for help from the gastroenterologist. If I have felt myself unusually successful in correcting these conditions in most of my cases I attribute it not a little to drugs and diet but mostly to the great helpfulness of my abdominal plaster (strapping) bandage. It lifts and anchors the relaxed muscularly weak and flabby abdominal walls and viscera, restoring the normal tone of these organs, with their delicate stretched nerves and bloodvessels, subjected to unequal drags, pull, pressure, and strain. Through its application and support the peristaltic force of the intestines is augmented and better drainage of the gastrointestinal contents is secured. Thus with this simple bandage, vomiting of pregnancy, of whooping cough, and of many other causes, has been readily overcome.

In 1903, on a voyage to Europe, I tried it on myself and two lady passengers. None of us vomited even in very rough weather, but once when the boat pitched very roughly all of us were nauseated. No medication was tried. I was therefore very much interested in Dr. Leonard Corning's contribution (1) to this subject. Corning induced nausea and vertigo experimentally by rapidly rotating a chair on which he placed his human subjects and then administered various drugs to them. He later selected such of the drugs as had prevented these sensations, administered them to himself and gave them to others while seasick, meeting with success in most of the cases. He first gave opium with hyoscine to obtund the central nervous system and resorcin to obtund the mucous membrane of the stomach. The effect lasting three to four hours. This was followed by morphine or opium together with atropine, cocaine, nitroglycerine, and strychnine to be given every three to four hours to maintain the effect on the brain, the stomach and the circulation. Most of these drugs cannot be administered except by a physician or competent nurse, so that excellent as is this treatment it is too often impractical because during rough weather the sudden demand from large numbers of sufferers for nurses and doctors cannot be supplied. Whether the origin of the phenomena of seasickness is from the brain or periphery, or a combination of both, nausea and vomiting are powerful motor manifestations of a reversal of the strong rhythmic motions of peristalsis.

Corning's experiments to overcome seasickness show that he was obliged not alone to obtund the central nervous system and the peripheral nerves in the gastric mucosa but also to use nitroglycerine and strychnine for the vasomotor and cardiac mechanism, and whatever the exciting cause, the sensorium and periphery had to be kept obtunded every three to four hours. It is not due to the presence of food in the stomach nor due to an oversensitive-

ness of the gastric mucosa, for nausea and vomiting, occur when the stomach is empty, while the same stomach fatigued from vomiting may hold food an hour later without discomfort. We know that in routine practice, often after there is an arrest of peristalsis of the intestines, nausea occurs followed by belching of gas and later even by vomiting. These are, I take it, expressions of a more or less partial or complete arrest of onward movement of stomach or bowel contents which require catharsis or an enema in order to reestablish the normal efficient peristaltic action whereupon the antiperistaltic results, such as symptoms of nausea, dizziness, belching, or vomiting cease (2).

Based upon the above observations and experiences, when my brother, the late Dr. Marcus Rosenwasser, and his family went on a trip to Europe in 1905, I tried several plans to overcome seasickness. The abdominal plaster bandage was not tried because it was deemed not practical on a large scale. An abdominal belt was given to some of the party to wear and the medication suggested by Doctor Corning was tried by the doctor himself, who was very susceptible to violent attacks of *mal de mer*. His criticism was that medication by mouth was not practical because during the nausea a pill or other medicine would tend to hasten vomiting, so that as soon as attempt is made to swallow it is quickly forced back, as he had repeatedly experienced. To obviate this I sent him some of the centrally obtunding medication in suppository form but this he too condemned as both disgusting and impractical for most travelers. Hypodermic medication we also regarded as impractical, requiring a nurse or doctor.

Not long after these attempts I was called upon by a client who had been a victim of severe seasickness, but was compelled by urgent business to go to Europe. Taking advantage of my brother's criticism, I decided to treat the patient fully one or two days before sailing by forestalling the nausea and vomiting and by emptying the bowels and maintaining a constant preponderance of peristalsis to prevent the overbalancing of the peristaltic forces by those of antiperistalsis, and to keep that preponderance up during the trip. He was to continue the medication regularly daily, preferably an hour before meals, so that the tone of the peristaltic waves would be augmented before each meal (since the greatest tendency to antiperistalsis would be after the stomach was full). Accordingly he was given a tablet of aloin, belladonna, and strychnine each night for two nights before going abroad, also one tablet of one sixtieth grain of strychnine sulphate and one of 1/200 grain atropine sulphate one hour before meals three times a day.

The boat experienced the worst storm in thirty years. Even the sailors were seasick but my client was able to walk the deck perfectly serene. His return trip was rough but again he was unaffected and in fine spirits.

I have since then given the treatment to a number of others with perfect results in every case. Some traveled over both oceans. I have given it to those suffering from carsickness, also beginning one or two nights before traveling, with equally good results. One lady refuses to go on pleasure

trips with her husband unless provided with the tablets. The atropine and strychnine need not be separately given if the laxative tablet with belladonna and strychnine is reduced in strength so that it can be taken an hour before meals without too much cathartic effect.

Not requiring hypodermic medication or obtunding drugs it is especially at the present time valuable because every soldier can be entrusted with its use—without fear of overdose. It does not require to be repeated so often, perhaps once or twice, at most three times daily. Coming back from overseas its effects in varying ways can be noted by medical officers and reported. A milder cathartic may answer for children. The youngest I have treated was about eleven or twelve years old. The dose is one half of that for the adult.

This treatment does not prevent cases of apparent seasickness but which are due to other causes, although those who start on a trip healthy are less likely to suddenly be stricken by an acute appendicitis, hernia, volvulus, meningitis, uremia, or any other acute condition, so that failure with this treatment would leave only a few exceptions such as these for the ship surgeon's care. If there are failures, they may occur where there are rectal fissures causing reflex nausea, etc.

SUMMARY.

1. To prevent seasickness or carsickness treatment should be begun preferably one or two days or at least a few hours before sailing or traveling and should be continued during the trip so that nausea, dizziness, and vomiting may be prevented.
2. By increasing the normal, but often insufficient peristaltic force of stomach and bowels with drugs such as aloin, belladonna, and strychnine and thereby preventing antiperistaltic forces overpowering the normal peristalsis a simple and practical method is offered to prevent or correct seasickness and carsickness, which has thus far met with perfect success.
3. The prevention and cure of seasickness by obtunding drugs is not practical or advisable.
4. No time like the present may ever again be offered to try this method on a large scale, under army discipline and medical supervision.

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609 OSBORN BUILDING.

Immunization against Scarlet Fever.—G. Di Cristina and R. Pastore (*La Pediatria*, January, 1919) in a further report verify the claims made by Di Cristina in 1916 that the epidermal cells of scarlet fever cases contain a substance which reacts specifically with the serum of active, convalescent, and cured cases of the disease. A serovaccine was prepared by inoculating horses and this when injected into a large series of children conferred a seemingly complete immunity. The immunity was proof against the very closest contact with infected cases even sleeping in the same bed in forty cases.

THE FLEET SURGEON.

His Duties, His Responsibilities and His Status in the United States Navy.

By CASWELL A. MAYO, Ph. M.,
New York.

Leading the fleet of dreadnoughts that steamed into the harbor of New York, amid the applause of steam whistles, sirens and church bells which welcomed home our battle fleet from the training station at Guantanamo last week was the superdreadnought *Pennsylvania* flying the blue ensign with the four stars of Admiral Henry T. Mayo, commander in chief, United States Atlantic Fleet.

With the Admiral came his staff, for wherever the Admiral may go on duty his staff goes with him. He may transfer his flag to any ship he chooses, but wherever he goes officially his staff follows. This staff numbers about fourteen commissioned and warrant officers and several chief petty officers and usually includes representatives of the line, engineers, marines, and medical departments with rank ranging from captain to warrant officer.

The fleet surgeon of the Atlantic Fleet, Captain F. E. McCulloch, M. C., U. S. Navy, took his medical degree at the University of California in 1894, and entered the navy as an assistant surgeon in 1898. He has seen service in all the seven seas and from the tropic to the frigid zone. He has served in hospitals, at navy yards, at the Naval Medical School in Washington, and at the office of the Surgeon General of the Navy. He is equally at home in Hankow, at the Golden Horn and at Mare Island. He wrote the chapters on first aid and emergency surgery, on hygiene and sanitation, on pharmacy and on materia medica of the *Handy Book of the Hospital Corps* of the navy and with it all remains the modest, unassuming, interesting and typical American gentleman. He is good to look at, better to talk with and better still to listen to when, after an excellent dinner in the wardroom, he relaxes in the privacy of his own stateroom.

That wardroom dinner is a thing for a shore-going civilian to recall with pleasure. There was gold lace galore among the forty officers seated along the table. The silver eagles of the naval captains, equal in rank to a colonel in the army, shone on the shoulders of half a dozen. There were "four stripers" and any number of "three stripers." Even the chaplain of the fleet wore the eagles of a colonel, while the major of marines looked almost boyish with his trim uniform and alert carriage.

Officers below the rank of lieutenant did not "rate" the wardroom on the *Pennsylvania*, but dined in the junior officers' mess. On the other hand the captain of the ship dined in solitary grandeur, for this is the "law of the navy."

Singularly the first lieutenant was himself a physician, a distinguished oculist from Detroit, Doctor Lundy, who had come in at the beginning of hostilities from the naval militia and found himself thoroughly at home as line officer with the rank of lieutenant commander. The first lieutenant of a naval vessel is the "material officer."

Still further aft was the Admiral's cabin where

Admiral Henry T. Mayo dined with only his chief of staff for company.

Occasionally the captain dines in the wardroom but the admiral never. The divinity that doth hedge a king has nothing on that which hedges an admiral on his flagship.

While the admiral commands the fleet he is not directly in command of his flag ship. He and his staff are official guests of the ship. They are provided with staterooms, ward room and galley service but they have nothing to do directly with the routine of the ship. The admiral through his executive officer issues his orders to the commander of the flag ship precisely as though he were not on the same vessel. The admiral's signals are issued from the after signal station which is provided with a complete set of signals, flags, semaphores, etc., entirely independent of those provided for the captain of the ship itself. When at sea the orders of the admiral are given from his signal station by wig wag or the semaphore by day, and by Ardois signals at night, to all the ships of the squadron including the flag ship. The commander of the flag ship receives these orders through his own signal station in the forward part of the same vessel and makes his acknowledgment by signal just as though the signal had been sent from a vessel miles away.

They make their senior officers quite comfortable on the *Pennsylvania*, though the juniors are fairly crowded in war times. Captain McCulloch had for his own use a stateroom with closets, a berth, running water, a desk and a round port hole giving light. The air is supplied by a well planned system of artificial ventilation which provides an ample supply of fresh, warmed air and draws off the vitiated air.

Here at his ease Captain McCulloch outlined the duties of the fleet surgeon. In the higher ranks of the staff corps the duties are generally confined principally to inspection. The fleet surgeon does not practise medicine personally except under most unusual conditions. It is his province to see that there are others to do this and to see that they do it properly and with the due exercise of professional judgment and skill.

The surgeon of the fleet accompanied by his pharmacist makes frequent visits of inspection to all the ships of the fleet. On boarding a vessel for this purpose the fleet surgeon meets the officer in command, or the executive officer, and with him, makes a tour of the entire vessel paying particular attention to the sanitary conditions of the kitchens, the refrigerators, the bath rooms, and the toilets. He has a keen eye for disorder or dirt which, on the ship more than elsewhere means "matter out of place" and he is quick to detect the results of any dereliction.

From time to time the fleet surgeon sends to the commanding officers of ships under his jurisdiction questionnaires as long as the moral law regarding the health and sanitation of his command. These sometime contain as many as 150 questions which bring out clearly the points which need particular attention from the medical inspector's point of

view. These questionnaires are drawn up by the fleet surgeon and changed from time to time as he deems necessary. While the fleet surgeon is making his general tour of inspection, his pharmacist, who came aboard with him, will be making a careful inspection of the medical and surgical supplies, the surgical and dental instruments, the dispensary, and the sick bay, as the ship's hospital is termed. He will compare the amount of narcotic drugs on hand with the records to make sure that every grain is accounted for in accordance with the provisions of the Harrison narcotic law and he will examine the sick records to see that they have been kept accurately and in accordance with the naval requirements. He reports the result of his inspection to the fleet surgeon and after returning to the flagship draws up at his direction a report of the results of the inspection.

The fleet surgeon must take the initiative in combating any outbreak of disease such as the influenza and must issue instructions promptly for the guidance of all the surgeons of the entire fleet. He must have foresight to prevent such diseases getting a foothold, as prevention of disease is the most important of his duties. The fleet surgeon must, if occasion warrant, bring formal charges against any officer of the medical department under him whom he may detect in any professional misdoings or dereliction.

He also acts as an instructor, as do all superior officers from time to time. To this end he calls conferences of the surgeons of the several ships in the squadron or at the base where he happens to be and with them discusses questions of hygiene, sanitation, administration, treatment, and prophylaxis. At such conferences the fleet pharmacist acts as recorder or secretary, making notes of the proceedings which he later presents to the fleet surgeon for his approval before they become part of the official records. The preparation and preservation of these official records form an important part of the duties of the fleet surgeon in which he is aided by the fleet pharmacist. These records embrace: 1, All orders for the fleet received from the Surgeon General of the Navy with copies of the acknowledgment thereof; 2, all orders received from the admiral; 3, all orders issued by the fleet surgeon with acknowledgments; 4, copies of reports of all boards of medical survey; 5, copies of all reports received from the ship surgeons under him, duplicates of which he forwards to the Surgeon General's Office in Washington for permanent records, etc. The preparation and care of all these papers involve a great deal of clerical work, all of which is done by the fleet pharmacist.

As will be seen from this summary the duties of the fleet surgeon are largely administrative. Practically his only purely professional duties are as physician to the admiral whose health is his special care. The admiral consults him (or the ship's surgeon) whenever he feels the need of medical advice, but without waiting to be asked the fleet surgeon keeps an eye on the admiral's physical condition in an unobtrusive way. If the flagship should be in action the fleet surgeon keeps near the admiral, for it might be that it would become necessary to act

either in his personal capacity as a surgeon or as an officer. If the admiral or any of his staff should be wounded the fleet surgeon would be at hand to give immediate attention as a surgeon. If any of the ships of the fleet should find themselves in need of additional medical assistance he would issue the necessary orders to supply that need with the consent of the admiral's chief of staff.

Reference has been made to ship inspection by the fleet surgeon. Such an inspection of a battleship is a task of some magnitude and embraces a visit to and a careful inspection of every part of the ship including even the fire room to make sure that the health of the stokers is properly looked after. All the health records of the vessel are carefully scrutinized to make sure that they are kept strictly in accordance with the regulations and other regulations concerning everything and every possible occurrence which might happen on shipboard.

The social life of the fleet surgeon makes considerable demands both upon his time and his purse. The *Pennsylvania* convoyed the President's ship, the *George Washington*, on his recent trip to France. This involved various ceremonial functions on arrival in France which were participated by all the flag officers.

On arrival at Brest the admiral made a formal visit of courtesy to the senior French admiral on his flagship. On this visit he was accompanied by the members of his staff, including the fleet surgeon. This visit was formally returned by the French admiral and his staff and the fleet surgeon took part in the reception of the visitors, which of course, included the French fleet surgeon. Similar ceremonies were observed with regard to the British admiral who happened to be in the harbor. Admiral Mayo invited the French and British admirals to dine with him and was dined in turn by them. These state dinners were participated in only by the admirals themselves and the chiefs of their respective staffs.

The wardroom officers of the flagship gave a dinner to the wardroom officers of the French flagship and to the British flagship, who reciprocated. In all these social functions the fleet surgeon took a part and also paid his part; for the expenses of these social functions are borne by the officers individually notwithstanding the fact that these are strictly official in character, and are governed by the most rigid official etiquette. Foreign governments provide special funds for these official entertainments, but in the United States Navy the individual officers must pay the expenses of these official functions out of their own purses, though the admiral does have an appropriation for the purpose.

Assignment to duty as fleet surgeon is usually for the term of two years, as are most naval assignments, and is the most desirable assignment possible afloat. On completing such an assignment the fleet surgeon may be assigned to any shore duty commensurate with his rank, and rarely has an opportunity to go to sea again, as he will probably by the conclusion of his tour of duty, have completed his thirty years of service at sea which is all that can be required of any officer.

Editorial Notes and Comments

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NEW YORK, SATURDAY, APRIL 26, 1919.

TYPHOID VACCINES A POSSIBLE FACTOR IN APPENDICITIS.

In view of the mortality statistics it is impossible to exaggerate the importance of early operation in appendicitis. Where operations are performed within the first twelve hours after the onset the danger is practically nil under the hands of a competent surgeon. This is conceded by all, but the delay comes not so much from an indisposition to operate as from failure to make an early diagnosis. There is a tendency to overlook the fact that the pain is observed first in the stomach and not in the region of the appendix; that the pain in the region of the appendix only manifests itself late in the course of the disease and that the pain precedes the nausea, which in cases of prompt operation, may not occur until after the operation has been performed. The increase in temperature is not of great importance, as it may or may not be present, though a slight increase is usually observed. Leucocytosis is a positive symptom, but the findings may be rendered misleading by the presence of leucopenia before the onset of the disease.

The absence of leucocytosis in many cases of appendicitis in which there was well established inflammatory conditions of the appendix led Lieutenant Colonel Hugh McKenna [*Surgery, Gynecology, and Obstetrics*, March, 1919], while chief of the surgical service at Camp Pike, to examine the blood of two hundred soldiers, appar-

ently in good health, but all of whom had received triple typhoid vaccine injections. Forty per cent. of the blood specimens showed a count of 7,000 white cells or less. This low blood count would be misleading to the surgeon, as a count of 9,000 to 10,000 in such a patient would mean a relative leucocytosis, which, as stated above, is an important point in the diagnosis.

Colonel McKenna has begun a study of the possible relationship between inoculation with triple typhoid vaccine and the onset of appendicitis, and the data so far collected, covering fifty cases, show that in a majority of cases a marked reaction follows the inoculation with the triple typhoid vaccine, and that this reaction seems to be a predisposing factor in causing an attack of appendicitis, particularly in the case of patients with a previous history of that disease. It is suggested that this reaction possibly causes some pathological change in the lymphoid tissues of the body, as many patients show an acute adenopathy in various parts of the anatomy, while some manifest marked tenderness in the McBurney region. Colonel McKenna specifically warns the reader against construing his remarks as indicating that he is opposed to immunization against typhoid and paratyphoid fever. He does suggest, however, that the reaction with its incidental dangers might be avoided by giving the vaccines in five or six inoculations instead of in three. It would be interesting to compare the effects of the ordinary aqueous vaccine with that of the lipid vaccine in this connection.

Colonel McKenna's experience in the management of suppurative appendicitis with rupture leads him to the conclusion that except in a very small proportion of cases with advanced abscess formations, where the wall is so formed that further manipulation would allow free pus to run into the open cavity, the appendix can be taken out successfully, and should be removed, rather than depend on drainage alone, and instructing the patient to return for operation in case of a recurrence of the trouble. The unremoved appendix is very apt to produce inflammatory disturbances. With the field well packed off with gauze pads and a line of cleavage to the appendix discovered, the author says there is no reason why the surgeon may not gently remove a necrotic appendix without additional risk to the patient. The outcome depends upon the intelligent and painstaking methods followed in the operation.

A QUANTITATIVE PHYSICAL MEASURE OF CONDUCT.

The psychologist owes a constantly increasing debt to the investigator who works with the more easily observable material of the physical sciences. But the ways of the two fields of investigation are found more and more to coincide. The practical facing of medical problems, where mental and physical are continually bound to meet, urges the recognition of the value of the newer pathways of thought and research which bring these two spheres together. Much distinguished work has been done recently in explaining mental or psychic activity and states in terms of the organic and of organic changes, which indicate the varying aspects and strivings of the mental life. These all furnish fresh illumination to explain human behavior and to suggest and establish further therapeutic possibilities upon a broadening basis. A recent contribution, simple in its statement but wide in its practical suggestiveness, lies in one of the late monographs in experimental biology [Jacques Loeb: *Forced Movements, Tropisms and Animal Conduct*, J. B. Lippincott Company]. This is a study of several well recognized tropisms, which in the conduct of both animal and plant life have been given in the past a teleological and anthropomorphic interpretation. Fancy has stepped in and supplied fictitious motives or reasons to replace the ignorance of the actual physical or chemical processes involved. Or, in other words, it has been overlooked that definite and inevitable laws are at work to cause these types of reaction as definite results of determining conditions which may be discovered and acted upon.

The author starts with the symmetry of animal forms, a phenomenon which makes it fairly easy to discover the alteration of movement in animals when this symmetry is interfered with, as well as to study the character of the movements which ordinarily tend to preserve this symmetry. Thus he derives the principle of forced movements upon which he understands all behavior to depend. Galvanotropism is one illustration of this. Heliotropism and its opposite, negative heliotropism, are not indications of a fondness for light as Lubbock and others have thought, but, whether in plants or in animals, they express an orientation depending upon physicochemical reactions in the tissues. A carefully conducted quantitative study of these phenomena under varying conditions leads to the conclusion that any form of normal conduct is always the result of a series of forced move-

ments. These are the determinants of all conduct and not present merely when it is necessary to restore a normal position or condition. Other forms of tropism serve to support this theory, as geotropism, stereotropism, chemotropism. Some of these are observed to be active, for example, in the sexual behavior of certain forms. Some fish, male and female, deposit their sexual cells under the influence of a stereotropism, which is due probably to the existence of certain hormones. Heliotropism as well as stereotropism is evident among ants and other insects, and even a pigeon under observation evinced sexual behavior under the influence of stereotropism. The writer briefly suggests the farreaching possibility of this tropism theory, when there is added the action of the hormones, which falls under chemotropism, to explain all human conduct as well as that of lower forms. It would be necessary then to include memory images also as definite orienting influences. If this is so the problems of psychiatry become more definitely founded and more definitely practical. Memory images or psychological factors are thus considered along with the physicochemical ones and behavior is readjusted through both pathways.

THE DOCTOR ON THE STAGE.

The principal character in "Tea for Three," one of the brightest and most sparkling plays now running on Broadway, is a doctor. He is a clever, society doctor, rather frivolous, but with a knowledge of psychology which enables him to dominate the situation.

"Why don't you buck up and get a real practice? You're a good doctor, aren't you?" asks Doris. "Excellent!" says the doctor. "But the world is full of two kinds of people—those who have something the matter with them and won't see a doctor and those who have nothing the matter with them and who are always running to them. I seem to attract the latter class, mostly women, and when I tell them they are quite all right, they become indignant and hurry to another physician, who pronounces them neurotic, prescribes some pink pills, charges \$50, and they go home quite happily indisposed. Medicine is full of buncombe, and I simply won't bunk." But he does apply his knowledge of psychology to a happy solution of the eternal triangle.

In "The Invisible Foe" the family physician, who plays a secondary but important rôle, confesses that he is not prepared to deny the possibility of the spirit after death influencing the thought and action of those left behind. A doc-

tor also plays the leading part in "The Net," a melodramatic reminder of the "East Lynne" type of drama. This doctor makes deductions in the manner of Sherlock Holmes. Nor are these the only doctors on the boards at the moment, for a clever doctor is one of "The Three Wise Fools," and "Home Again" has both the good and the bad doctor, the quack and the family physician.

While the plays named introduce the doctor himself they are not the only ones in which psychology plays an important part and in which the physician will find interesting material for study. The psychology of "Dear Brutus," Barrie's masterpiece, of Tolstoi's "Redemption," and of Du Maurier's "Peter Ibbetsen" have been made the subjects of interesting articles by Dr. Smith Ely Jelliffe in the columns of the NEW YORK MEDICAL JOURNAL. "The Eyes of Youth" furnishes an interesting study to the psychiatrist and the new Italian play, "The Jest," affords an excellent illustration of the brother conflict. The moving pictures have also made notable use of the doctor and his work in "Annie de Luxe" and in "The Woman and the Doctor," by Mary Roberts Rinehart, which were produced a year or so ago.

Since the play of the moment may be taken as reflecting the life and thought of the people, the frequent appearance of the doctor on the boards and on the screen, and the serious and dignified rôle usually assigned him, may be taken as an indication of the growing appreciation by the general public of the importance of the part played by the doctor in real life.

THE CAUSE OF PELLAGRA.

The origin of pellagra has given rise to somewhat wide differences of opinion among the many investigators who have made a study of the subject. For long it was believed to be a disease due to defective diet, or, rather, to the consumption of food which contained toxic material, as, for instance, spoiled corn. In Spain, it was termed *mal de misere* because it was mostly among poverty stricken people, and it has been prevalent generally in countries in which nutritious food was scarce. Thus up to the time of the discovery of the vitamine elements in food, pellagra was regarded as induced by a toxic substance in the diet. However, after it had been shown by Funk that avian beriberi was caused by rice from which the pericarp had been removed by polishing, and from which he had isolated an ash free nitrogenous substance to which he gave the name of vitamin, views as to the causation of beriberi under-

went a change. Eijkman, Pol, Fraser, and Stanton, Chamberlain and Vedder not only found in Funk's discovery a strong vindication of the theories they had long held in regard to beriberi, but attention was directed to other diseases which in their manifestations bore resemblance to beriberi. Investigations into scurvy and pellagra were instituted, and by some investigators the conclusion was, perhaps, prematurely reached that, like beriberi, the causation of scurvy and pellagra was a lack of the vitamine element in the diet. In fact, they were what is now known as deficiency diseases.

While further investigations, especially those in this country conducted under the auspices of the Public Health Service, seem to substantiate the validity of such deductions, the view, at any rate, that pellagra is a deficiency disease, has not been received with unanimous acclamation by those who have made a close study of the question in Europe. Indeed, in Italy, where pellagra has been and still is remarkably prevalent, the theory that it is owing to a deficiency of vitamine content is scouted by many Italian investigators. Dr. L. W. Sambon (*Lancet*, July 11, 1914) is of the opinion that it does not result from an exclusive use of spoiled corn. He ignores the deficiency theory, but believes that inoculation of the virus by the bite of the simulium fly is responsible for the condition.

Professors Alessandrini and Scala (*Contributo Nuovo Etiologie Patogenesi della Pellagra*, 1914) in their report to the Royal Academy of Medicine at Rome under the direction of the Commission on Pellagra, lay down two fundamental conclusions, 1, that pellagra is not dependent on a corn diet; and, 2, that it is a disease strictly localized and limited to areas where water is used which has been exclusively in contact with a clay soil. The effect of silica on the organism is to cause a retention of salts, whence there ensues, first, excessive fixation in the tissues, and, subsequently, liberation of mineral acids, also excessive, which produce the pathological lesions destructive of pellagra. The opinions of European scientific men who have made researches into the causation of pellagra are, as a rule, that the disease is of toxic origin directly or indirectly.

In a *Report on Charitable Institutions in Antigua* for 1917, Dr. J. C. McPherson invites attention to the increasing prevalence of pellagra in that island (*Tropical Diseases Bulletin*, 1918, Vol. 12.). The increase has been especially marked in the Central Lunatic Asylum. He considers there is

reason to suspect that in the asylum and its vicinity an infective agent is present, as the increase in the disease can hardly be accounted for by food deficiency alone. Moreover, the diet scale has been the same for about ten years and many of the pellagrins do not appear to have had the disease before or at the time of admission. On the whole, the deficiency theory of the causation of pellagra, although it may be severely, almost destructively criticised in many points, appears to have most to recommend it.

HEALTH AND THE HARBOR STRIKE.

It is difficult to foresee the ramifications of any great social movement. The New York harbor strike, for instance, which has had such a disturbing effect upon the commercial life of the city, has indirectly affected health conditions. Owing to the strike, the commissioner of street cleaning has been compelled to use many of his street sweepers for handling garbage. This has left the streets unswept to such an extent that the commissioner of health has become much concerned lest the health of the community be affected by it. Both the commissioner of health and the commissioner of street cleaning have, however, given the *NEW YORK MEDICAL JOURNAL* direct assurance that these conditions are not being overlooked and that every effort is being made to restore the force of the street cleaning department to its normal status so that the health of the city may not be affected by the accumulation of dust in the streets.

News Items.

Change of Address.—Dr. Maximilian Lewson, to 338 West Eighty-fourth Street, New York.

Personal.—Dr. Elbert M. Somers, of Brooklyn, announces that he has completed his service with the Red Cross as superintendent of a hospital in France and has resumed practice at 33 Lefferts Place.

Major General Merritte W. Ireland, surgeon general, U. S. Army, was the guest of honor at a reception given by the Medical Club of Philadelphia, Friday evening, April 18th.

Dr. William W. Keen, major, Medical Corps, U. S. Army, has been elected to honorary membership in the Medical Club of Philadelphia.

Vaccination of State Hospital Patients.—Pneumonia vaccine has been administered to one half the inmates of the thirteen civil State hospitals which necessitated the vaccination of approximately nineteen thousand patients. This should prove to be an excellent demonstration of the value of the vaccine under the condition which it was used. Developments will be watched with interest by the hospital physicians, as well as by the medical profession, as pneumonia is a serious problem in large institutions.

Influenza Deaths in State Hospitals.—During the recent epidemic of influenza in the New York State Hospitals 590 deaths have been recorded. From the latter part of September, 1918, to January 15, 1919, 5,148 cases of influenza occurred in fifteen civil State hospitals. The deaths included a number of officers and employees as well as patients.

Housing Appropriation for Defectives.—An attempt to relieve the congestion in institutions for the insane and in getting more accommodations for the feeble-minded is made in the annual appropriation bill which has been passed by the Legislature and signed by the Governor. A total of \$2,456,000 has been appropriated for the housing of defectives and insane.

National Association for the Study and Education of Exceptional Children.—The annual business meeting of this association will be held at the Hotel McAlpin, New York, on Wednesday, April 30th. In conjunction therewith will be a conservation conference on child resources at three p. m., at which leading physicians, psychologists, educators, and social service workers will discuss problems relating to child welfare.

New Tuberculosis Hospital.—One hundred and fifty thousand dollars has been appropriated by the Board of Supervisors of Herkimer County for a new county tuberculosis hospital. Herkimer is the thirty-sixth county in New York State which maintains a county hospital or which has made provision for the care of tuberculous patients. Plans have been improved for a sixty-two bed hospital and the actual construction work will be started soon.

The New Bronx Hospital.—Sixty thousand dollars has been raised for the new Bronx Hospital at Fulton Avenue and 169th Street and ground was broken Sunday, April 20th. The total amount needed is \$100,000. Among the speakers at the ceremony were Dr. J. Lewis Amster, former health commissioner; Dr. A. A. Berg and Dr. H. J. Epstein, of Mount Sinai Hospital. The new building will contain operating rooms, reception ward, and laboratories. The Hospital Society owns the site and the two buildings now standing on it, the larger of which will contain wards with about 100 beds, and the smaller building will become the nurses' home and dispensary.

Medical Society of the County of New York.—A stated meeting of the society will be held Monday evening, April 28th, in Hosack Hall, New York Academy of Medicine, under the presidency of Dr. Charles Howard Peck. After the transaction of routine business, the following papers will be read: The Schick Test and Immunization of Children Against Diphtheria, by Dr. William H. Park, director of laboratories of the Department of Health of the City of New York; The Irritable Heart in General Practice Compared with the Irritable Heart of Soldiers, by Dr. Selian Neuhof, which will be discussed by Dr. Alexander Lambert, Dr. Albert E. Cohn, Dr. Foster Kennedy, and Captain Bertrand Smith; The Infection of Streptococcus Viridans, by Dr. Heinrich F. Wolf, which will be discussed by Dr. George R. Elliot and Dr. Emanuel Libmann.

Malaria in the United States.—The United States Public Health Service estimates that over 7,000,000 people in the United States are infected with malaria. Estimates prepared by the service indicate that in the South the ravages of typhoid fever, tuberculosis, hookworm, and pellagra all together, are not as serious as from malaria.

United States Casualties in Russia.—Since landing on the Archangel front last September, the Americans have suffered 528 casualties; of these, 196 were fatalities consisting of 187 men and nine officers. Forty-three American soldiers are missing. Decorations for gallantry have been awarded by General Pershing to three men of the 337th Ambulance Company.

Report of the Health Officer for the Port of New York.—During the fiscal year there were 5,161 vessels inspected, 102,296 passengers and 304,065 crew examined, making a total of 406,361 persons examined during the year. There were 1,195 vessels fumigated. The gross receipts amounted to \$320,181 and expenditures to \$319,680.29. The commissioner of health of New York city as usual rendered valuable aid to this department in the inspection of vessels lying at wharves with reference to their compliance with the rat guard regulations. This department received as usual the reports of the health commissioner's sanitary police relative to the position of the vessels on the water front and the general sanitary conduct of each vessel.

Distinguished Service Medals for Medical Officers.—General Pershing has cabled that he has made the following awards to officers in the Medical Corps of the Army:

Colonel Ernest G. Bingham, M. C., U. S. Army, for rendering exceptionally meritorious and distinguished services as chief surgeon of the Paris District during the second battle of the Marne.

Colonel Fred T. Murphy, M. C., U. S. Army, of St. Louis, Mo., who gave most valuable assistance to the men of the American Expeditionary Forces as director of Base Hospital No. 21, France and as supervisor of the evacuation of the sick and wounded of the First Army and later as director of medicine and surgery of the American Red Cross.

Colonel Arnold D. Tuttle, M. C., U. S. Army, who served in the capacity of assistant to the chief surgeon and later as a member of the general staff of the American Expeditionary Forces.

Lieutenant Colonel Joseph M. Flint, M. C., U. S. Army, who acted as commanding officer of Mobile Hospital No. 39, at Aulnois-sous-Vertuzey, France, which he organized and put into operation, it being the first of its kind to be used for the American Army.

Lieutenant Colonel Burton J. Lee, M. C., U. S. Army, for distinguished services as surgical consultant attached to the Second Division with which he served continuously at the front, caring for the treatment and evacuation of the casualties.

Lieutenant Charles H. Peck, M. C., U. S. Army, who organized and became director of Base Hospital No. 15 at the front, and later attained the position of senior consultant in general surgery for the American Expeditionary Forces.

Meetings of Local Medical Societies.—The following medical societies will meet in New York during the coming week:

THURSDAY, May 1st.—New York Academy of Medicine (stated meeting); Brooklyn Surgical Society.

FRIDAY, May 2d.—New York Academy of Medicine (Section in Surgery); New York Microscopical Society; Practitioners' Society of New York; Alumni Association of Roosevelt Hospital (annual); Gynecological Society, Brooklyn.

SATURDAY, May 3d.—Benjamin Rush Medical Society.

Philadelphia Medical Societies.—The following medical societies will meet in Philadelphia during the coming week:

MONDAY, April 28th.—Genitourinary Society; North Branch of the County Medical Society.

TUESDAY, April 29th.—Babies' Welfare Association; Medicolegal Society.

WEDNESDAY, April 30th.—Northern Medical Association.

THURSDAY, May 1st.—Obstetrical Society.

FRIDAY, May 2d.—Kensington Branch, County Medical Society; Physicians' Motor Club (board of directors).

Harvard Medical Society.—The only meeting this season of the Harvard Medical Society of New York city will be a dinner given at the Harvard Club, New York, on Saturday evening, April 26th, to welcome the members of the society who were in the medical services of the army and navy during the war. These members are as follows: Colonel George E. Brewer, Lieutenant Colonel Howard Lilienthal, Lieutenant Colonel Edward W. Pinkham, Lieutenant Colonel Lucius A. Salisbury, Lieutenant Colonel John B. Walker, Lieutenant Commander Edward M. Foote, Major Fred H. Albee, Major W. Sohler Bryant, Major H. C. deV. Cornwell, Major Edward K. Dunham, Major Reynold Webb Wilcox, Lieutenant John A. MacIsaac, Captain C. Perley Gray, Captain Edward S. Gushee, Captain Lee S. Shoninger, Lieutenant Carl H. Fornell, First Lieutenant Cleon W. Symonds, Dr. Richard Frothingham. Major H. C. deV. Cornwell is president of this society, Dr. Byron C. Darling, vice-president, and Dr. Isaac Hartshorne, secretary.

Fraudulent Advertising in Foreign Language Newspapers.—The following resolution was passed by the Medical Society of the County of New York at a meeting, held on April 14th:

WHEREAS, The counsel of the Medical Society of the County of New York made an extensive examination and survey of the medical advertisements for a given time that appeared in the foreign language newspapers published in the county of New York, as well as in the English language newspapers, and prepared a complete list of the names of registered physicians whose advertisements appeared therein, and

WHEREAS, Most of the papers published in the English language in said county have cooperated with this society in the suppression of fraudulent medical advertisements, and

WHEREAS, It is desirable in the interests of public health that the public should not be misled or victimized by false or misleading medical advertisements, and

WHEREAS, The Department of Health of the City of New York has, from time to time, called upon the counsel of this society for cooperation in the suppression of such types of medical advertisements.

Be it Resolved, That the Medical Society of the County of New York, through its counsel, render such assistance as is possible to the Department of Health of the City of New York and to the other duly constituted authorities in said city, to suppress by proper proceedings such medical advertisements and to prosecute those against whom legal evidence may be found, who by means of such advertisements, may be guilty of fraud or other illegal conduct.

Miscellany from Home and Foreign Journals

Surgical Affections in Early Life.—Kirrison (*Bulletin de l'Académie de médecine*, January 28, 1919) points out the advantages from the standpoints of diagnosis and treatment, of establishing a distinction between early childhood, from birth up to five years; late childhood, from five to thirteen years, and adolescence, from thirteen to fifteen years. Malformations and retropharyngeal and lateropharyngeal abscesses are comprised in the surgical pathology of the first two years of life. Evacuation of blood stained material from the anus in a previously healthy, breast fed child less than two years of age, coupled with signs of intestinal obstruction, indicates intussusception. In late childhood, on the other hand, this condition is rare. Appendicitis, while not infrequent among children of five years or older, is very exceptional in the first two years of life. Strangulated hernia is far more common in infants than is generally supposed. The author saw, in the course of fourteen years, 118 operated cases in children less than five years of age; three were aged one month or less. The mortality was but 3.5 per cent. Dislocations are uncommon in childhood, yet elbow dislocation is an important lesion in late childhood. In early childhood no luxations are met with save that of the head of the radius. Epiphyseal separation is likewise rare in this period, though common in late childhood and adolescence. Fractures of the bones of the upper extremity are far less frequent in early childhood than later, and the chief fracture in this period is that of the thigh, whereas in late childhood the most frequent fractures of the lower extremity are those of the tibia. Thigh fracture in early childhood is due to sudden muscular contraction, and an almost constant sign of it is effusion in the knee joint without the latter having participated in the traumatism. Osteomyelitis also commonly attacks the femur in early childhood, whereas in late childhood and adolescence the tibia is much oftener involved. Osteomyelitis of the femur in young children is apt to be overlooked for a considerable time because of the thickness of the overlying tissues. Again, whereas in late childhood the causative microorganism is usually the staphylococcus, the streptococcus is usually found in the newborn or young children. Tuberculosis of the large joints is rare in the first two years of life; the tuberculous lesions occurring in this period are superficial and disseminated, tuberculous gummas, cervical adenitis, diffuse lesions of the facial or cranial bones, and spina ventosa. Tuberculosis of the genital organs also belongs to early childhood, as do likewise the three great forms of visceral cancer met with in the young, viz., cancer of the eye or retinal glioma, cancer of the testicle, and cancer of the kidney. Scoliosis, genu valgum, coxa vara, and valgus flat foot or tarsalgia make their appearance in adolescence. Where a valgus flat foot with contracture is encountered in a child four or five years of age, tuberculosis of the tarsal bones rather than ordinary tarsalgia should be suspected.

Segmental Bone Grafts.—Mauclaire (*Bulletin de l'Académie de médecine*, January 28, 1919) points out that, to operate under proper conditions, several months must be permitted to elapse between the injury and the attempt at transplantation. If the wound has suppurated, one must wait until the operative field has become aseptic, viz., for at least six months. The author fashions a transplant with a pointed extremity and introduces the latter into the marrow cavity from above downward. Not even the gloved hand should come in contact with the transplant, which should be handled only with forceps. The writer was able to collect from the literature 148 cases of segmental bone transplantation for war injuries. Nearly all were autoplasmic, and successful results were obtained in seventy-two; doubtless not all the failures had, however, been recorded. Personal experience comprised twenty-three cases, with successful results in seven. These were bad cases with marked attenuation of the skin and fibrous involvement of the operative field. Often a preliminary Italian graft would be advisable in order to provide healthy skin to cover the transplant. In one instance Mauclaire was able to keep under observation for two years a case of extensive bone transplantation for loss of a portion of the tibia. At the end of this period the transplant was still regular in shape, living, and free of osteoporosis; it had, however, undergone marked hypertrophy. It is difficult at present to decide between segmental transplants in their various modalities and osteoperiosteal grafts for repair of bone losses. As primary suture of war wounds comes increasingly into vogue, the indications for segmental bone transplantation are likely to become more and more frequent.

Deaths During and Following Operations.—E. M. Sanders (*American Journal of Surgery*, April, 1919) states that on account of the ordeal attending the occurrence of death during the administration of a general anesthetic the attendants are so disconcerted that it is almost impossible to collect data to be used for future investigations. From the material available two conclusions have been reached: The crusade against chloroform should be carried on; the administration of gas should be left to the expert. Everything else is more or less unsettled. Anesthesia deaths seldom occur in the practice of noted surgeons. The larger proportion of anesthetics are administered outside of hospitals and in small institutions. A tentative estimate is given that there is about one anesthesia death in every thousand administrations. Statistics more favorable than these have been gathered, but the figures were compiled from the records of the best institutions. It is thought that the anesthesia death rate is increasing. The causes of death given are: First, the anesthetists are less skillful—and more careless, for the importance of anesthesia is minimized. Second, many drugs and mixtures are employed, and there has been no standardization for general anesthesia.

Third, the increase in the hazardous risks taken by the surgeon. Fourth, the employment of untrained administrators by indifferent or careless surgeons. The responsibility is either with the anesthetist or surgeon. If the anesthetist selects the anesthetic and uses it upon his own initiative he should be held accountable. If the anesthesia is satisfactory and the surgeon causes a loss of an excess quantity of blood or adds a fatal shock by training and bad technic the responsibility is his.

When every precaution has been employed to investigate and judge the patient's condition, and death occurs on the table under ideal anesthesia during the progress of a well planned and skillfully performed operation, the accident may be classed as unavoidable and the anesthetist and surgeon should not be censured. The responsibility may be definitely placed in nearly all cases with little doubt as to the cause of death when the patient dies of 1, shock; 2, primary or secondary hemorrhage; 3, an overdose of the drug paralyzing the higher centres; 4, under dose of the drug where fibrillation or paralysis of the heart occurs; 5, acute dilatation; 6, acapnia; 7, postoperative pneumonia; 8, acidosis. In order to better the situation it is suggested that: First, consultation between the surgeon and anesthetist in every case. Second, the safest drugs must be used, considering each individual patient and the training of the anesthetist. Third, careful preparation of the patient. Fourth, greater precautions should be used in the selection of doubtful heart cases; the Katzenstein test for the functional capacity of the heart is recommended. This test is of particular value in goitre or where myocardial degeneration is suspected. Fifth, strict attention should be given to the purity of the agent employed by the anesthetist. It is considered dangerous to use ether which forms snow on the wick, or freezes on the cone, or chloroform which has undergone changes. Sixth, the technic of administration is a vital issue in the prevention of death, both primary and secondary.

All anesthetic agents, general or local, are more or less dangerous. The ideal agent and method has not been discovered. It is important to employ an anesthetist whose education is well grounded on a scientific foundation. During partial anesthesia chloroform and other anesthetic agents are especially dangerous. Cardiac fibrillation and paralysis are most likely to occur at this time. It is not safe to get the patient under by concentrating the vapor above the safety margin as it quickly injures the lung epithelium. Intermittent administration of a drug is dangerous. Any concentration of ether vapor which produces coughing, as the patient goes under, is dangerous. A warning is given to the anesthetist concerning his responsibility in allowing patients to struggle for breath through mucus and misplaced tongues. These may bring about an exaggerated negative pressure, producing an edema of the lungs, with an excessive flow of fluid into the alveolar cavity, reducing tissue resistance and inviting the onset of coagulation. The bodily temperature should be maintained at all times in order to avoid these complications. Full breathing should be encouraged and ether should not be given when

it is contraindicated. Postoperative lung complications are divided into three classes: a, those directly dependent upon the narcosis and resulting from inhalation or aspiration of septic material; b, hypostatic pneumonia, depending upon feebleness of circulation; c, definite pulmonary emboli. Seventh, more attention should be paid to the mental condition of the patient. The psychological atmosphere cannot be overestimated. Eighth, particular attention should be paid to the value of blood pressure where serious surgery is being done. It is very important to be able to recognize the danger signals early in their appearance. In order to help clarify the situation it is recommended that all deaths be carefully recorded so that a definite collection of data may be built in order that we may draw conclusions in the future.

Local Anesthesia in Children.—R. E. Farr (*Interstate Medical Journal*, February, 1919) reports seventy-seven cases in children operated upon under local anesthesia in only seven of which was it necessary to add inhalation anesthesia. Preliminary hypnotics have been tried, but little benefit is to be expected from their use. Complete infiltration is done before beginning, and Farr considers it an error in technic when it becomes necessary to inject the deeper layers after the incision has been made. The next most important point is the avoidance of pain in making the infiltration. This is done by making all secondary wheals from beneath and by making subdermal rather than intradermal injections for the anesthesia of the skin. Whereas in adults the needle may precede the outflow of the novocaine which is the anesthetic employed, in children the fluid should advance into the tissues just ahead of the point of the needle. The psychic element is not so important as in adults, and less restraint is necessary in the administration of local than general anesthesia. The margin of safety of novocaine over general anesthetics is as great in children as in adults.

The Influence of Ether Anesthesia on the Pressor Effect of Epinephrine.—Peyton Rous and George W. Wilson (*The Journal of Experimental Medicine*, February, 1919) state that when ether is given to rabbits in a degree sufficient for operative procedures, minute doses of epinephrine arouse almost no response, while the response to larger doses is not particularly affected. The response to small doses of epinephrine was also markedly influenced by hemorrhages lowering blood pressure. A diminished pressure rise was always observed, with the amount of diminution directly proportional to the lowering of the pressure consequent on the blood loss. Animals, even exsanguinated, never completely failed to respond to ten doses of epinephrine (0.5 c. c. of a 1:100,000 dilution), though the response was often sluggish and prolonged, similar to that observed in animals heavily anesthetized by ether. In animals rendered plethoric by repeated small transfusions, the response to small doses of epinephrine lessens in proportion as the blood pressure is increased by the plethora. Neither ether anesthesia nor hemorrhage have any appreciable effect on the response to larger doses of epinephrine.

General Procaine Anesthesia by Lumbar Injection.—Riche (*Bulletin de l'Académie de médecine*, January 21, 1919) reports the results of his attempts to secure a satisfactory general anesthesia by injection of procaine solution into the subarachnoid space in the lumbar region. The proper dose was found to be 0.01 gram for every five kilograms of body weight, or, 0.14 gram for an adult of the average weight of seventy kilograms. This amount is never to be exceeded. An eight per cent. solution of the French procaine preparation—syncaine—was used, without addition of adrenalin or strychnine. The injection was made in lateral decubitus, after removal of ten to twenty-five mls of spinal fluid, according to the pressure and the weight of the subject. The injection was administered very slowly, viz., at the rate of 0.01 gram per minute, and in quarter mil amounts at a time, with immediate withdrawal of a little spinal fluid into the syringe after each partial injection. Fifty operations have been performed by the author on the head, neck, chest, and upper extremities by this procedure. The injections were always made in the first or the second lumbar interspace. There were ten per cent. of failures, but no mortality nor alarming effect. In four cases there was noted a state of seminarcoisis; in three, temporary respiratory difficulty. In about thirty per cent. of cases there were attempts at vomiting which, however, soon passed off and did not interfere with the operation; simultaneously there was some slowing of the pulse, which, however, remained regular and fairly strong. The analgesia involved the entire body, from os calcis to vertex. A few patients had slight headache on succeeding days, and two had bilious vomiting. The author deems his mode of procedure a marked improvement as regards safety over the methods of Jonnesco and Le Fillâtre, and thinks it may hold its own with inhalation or regional anesthesia in operations on the head, neck, thorax, and upper limbs, where local anesthetics is inapplicable.

Cancer of the Tongue.—D'Arcy Power (*British Journal of Surgery*, January, 1919) stated that cancer of the tongue presented several points that made it a topic worthy of special consideration. It was almost entirely a human disease, in spite of the fact that the tongues on many animals were more liable to injury than the human tongue. Cancer of the tongue was always primary and of the squamous cell type. It is unknown in children and rare in young people, but becomes frequent between the ages of forty and sixty. It is common in men and uncommon in women. In men it usually ends in death within eighteen months while in women it runs an erratic course. The three factors which are supposed to influence the formation of cancer of the tongue are syphilis, tobacco, and the consumption of alcohol in the form of spirits. There is some doubt as to alcohol being a direct etiological factor. The rapid increase in the incidence of cancer of the tongue within historical times is attributed to two causes; the first predisposing the second exciting. The predisposing cause is the degenerative change which takes place as the result of infection by the spirocheta, the change being accentuated by the lapse of years and the indulgence

in alcohol. The form of alcohol taken does not seem to matter and it is the quantity and not the quality which matters. The exciting cause is local irritation. The most effective local irritant is tobacco, although pyorrhea and carious teeth often act as minor exciting causes. The exciting cause may act for long periods of time, but will not produce cancer, except in the rarest instances without the long continued action of the predisposing cause, syphilis. It is predicted that if women continue to use tobacco, there will be an increase in the cancer curve for women which will begin about 1950. The statement is also made that the best method of preventing this increase is by the thorough and systematic treatment of syphilis in its initial stages.

The Diagnosis and Prognosis of Cerebral Neoplasms.—Jacobson (*Therapie der Gegenwart*, May, 1918) states that the difficulty in diagnosis, when there are distinct symptoms of brain tumor, caused by a cerebral growth is due to the fact that other morbid conditions which produce an increase of the intracerebral pressure may very well set up a symptomatological picture almost identical or even exactly that of a new growth of the brain. Of special differential diagnostic import are hydrocephalus, cerebral syphilis and brain abscess. In most instances death from a brain tumor is a "true cerebral death," the patient dying in deep coma with paralysis of the heart or respiration, even in cases of unquestioned cerebral tumor. The writer is not of the opinion that a subject with a cerebral neoplasm is foredoomed; although death is the most frequent outcome, it is not of necessity absolutely inevitable.

Cost of Cancer in Norway.—F. G. Gade (*Journal of Cancer Research*, April, 1919) has attempted to calculate the economic loss to Norway occasioned by deaths from carcinoma and sarcoma. He has taken the mortality statistics from 1902 to 1911, which include 22,093 deaths from malignant tumors, and he has also used the figures of A. N. Kiaer of the Norwegian Statistical State Bureau, who in 1912 determined the capital values of individual lives at various ages, by discounting the probable income during the remainder of life. The article is an interesting piece of statistical work, the result of which shows the total yearly economic loss in Norway through cancerous diseases at the present time is about \$2,680,000.

Congenital Pulmonary Syphilis.—A. F. Canelli (*La Pediatria*, January, 1919) from a review of the literature and from personal observation concludes as follows: Lung syphilis is common in children and is usually congenital, and usually made out only at necropsy. The usual route of infection is through the portal vein and portal system. Its principal forms are gumma, bronchiectasis, and pneumonia. Syphilitic pneumonia is divided into interstitial epithelial (or desquamative), fibrosclerotic, and adenomatous. The name "white pneumonia" strictly speaking belongs to the epithelial form. There is probably no connection between luetic pneumonia and syphilis of the spleen, but there is with other pneumonic processes especially tuberculous.

Preventive Treatment of Venereal Disease.—

Archdall Reid and P. Hamilton Boyden (*Lancet*, February 8, 1919) record the inefficiency of the so called early treatment, or disinfection after the subject has returned to his barracks. The plan of having the man carry with him the disinfectant so that he can apply it properly immediately after possible exposure was therefore tried. Each man was carefully instructed in the rationale of the procedure and upon request was provided with an ounce of a 1:1,000 solution of potassium permanganate and a small cotton swab. Permanganate was selected because of its being the most readily obtainable disinfectant, so that a man could secure some if he were exposed when unprovided. The effectiveness of this form of prophylaxis was proved by the fact that among 20,000 men passing through the station where it was put into practice only six cases of gonorrhea and one of syphilis developed in a period of over a year. Only one of the men in whom gonorrhea developed had treatment, an hour after exposure; the only man in whom syphilis developed had a long prepuce and tender glans and therefore could not apply early treatment, and, as he carried no permanganate with him, did not attempt prophylaxis. In another series of observations, extending over eighteen months, and covering all the men passing through barracks accommodating 2,000 men, in not a single man who practised the prophylaxis with potassium permanganate did venereal infection develop.

Deformities of the Nose Resulting from Syphilis.—

William Wesley Carter (*Medical Record*, February 22, 1919). Syphilitic deformities of the nose are characteristic and constitute a distinct class, the prognosis and treatment of which differ so widely from those of all other deformities that their separate consideration is necessary. The results secured by older methods have been so unsatisfactory that the interest in these unfortunates has waned and they have, to a large extent, been neglected. In syphilitic cases the chief points to be considered are: the pathology of the disease, the grave metabolic and nutritional disturbances, the amount of scar tissue present, the fact that bone and cartilage are the tissues chiefly involved and the poor state of health in which these patients are usually found. Because of these circumstances and the fact that in the tertiary stage of this disease the bones are especially vulnerable, bone transplantation is distinctly contraindicated, while the making of flaps and shifting of the tissues cannot be safely done, before the disease is under control. Docter Carter prefers to have the patient under observation for at least two months before the operation; during this time the medical, dietary and hygienic conditions are looked after. In the meantime the environment, from an artistic point of view, the local conditions and the deformity itself are studied and the plan of procedure carefully mapped out. Where he has been able to properly conduct the preliminary preparation of the patient, he has secured excellent results by combining with bone transplantation the use of flaps and the subcutaneous shifting of the tissues. Some of the cases have been very difficult.

Treatment of Eczema of the Eye.—Wessely (*Archiv für Augenheilkunde*, Band 82) studied the severer forms of eczema of the eye and advised the use of calcium chloride in the form of ten centigram tablets, at the dose of ten daily or if larger daily doses are indicated the following formula of the Children's Clinic at Göttingen may be ordered:

Calcium lact. sicc.	10 gram.
Liq. ammon. anis.	2 gram.
Gummi arab.	1 gram.
Sacharin q. s.	
Aq. dest. ad.	100 c.c.

Ten cubic centimetres from four to six times a day. Tribasic calcium phosphate may be ordered, simply dissolved in water.

Chemotherapy in Cutaneous Tuberculosis.—

H. J. Gauvain (*Lancet*, March 15, 1919) cites some work by investigators on the continent in which attempts were made to employ certain copper salts in the treatment of tuberculosis, and in which it was shown that such salts had a highly specific affinity for the tubercle bacilli. He then records two cases of cutaneous tuberculosis which he has treated with the local application of a new picric brass paste developed by Dr. H. A. Ellis. Both of the cases had resisted the usual forms of treatment for long periods of time. One, involving a large portion of the foot, was rapidly and completely healed under the application of the paste; the other, a case of extensive lupus of the cheek, responded most favorably, but at the time of writing had not been completely cured. The paste promptly attacked and destroyed the tuberculous tissue in both cases and exerted no action whatever on the surrounding non-tuberculous tissues. The application of the paste did not cause any local pain or irritation and it seemed to be devoid of all toxic effects.

Molybdeno-Tungsten Arc in Suppurative Lesions.—

B. Michell Young (*Lancet*, January 18, 1919) selected chiefly cases with lesions of considerable duration and showing little or no improvement from various methods of treatment to test the value of exposure to the ultraviolet rays of the molybdeno-tungsten arc. The exposure was usually for a period of three minutes at a distance of fifty centimetres from the arc. The wounds were dressed with gauze dampened with sterile water or normal saline to eliminate other sources of benefit. It was found that among the acute lesions thus treated carbuncles, large areas of inflamed skin, frost bites and generalized sores responded well, healing more rapidly than by other methods of treatment. Ulcers of the heels and toes required more exposures, depending upon the length of time they had been indolent, but when the effects had once been produced the process of repair progressed steadily. In cases which did not respond to the three minute exposure the time was increased up to the production of erythema in the surrounding tissues or of activity in the sores. Cases of bubo, treated from the outset, after incision, with daily exposures healed in eight days, leaving very narrow, linear scars. Erythema of the surrounding skin developed easily in some patients of the fair type, but tolerance was soon produced by increasing the distance from the light or by the interposition of the quartz globe.

Picric Brass Preparations in the Treatment of Lupus.—Henry A. Ellis (*Lancet*, March 15, 1919) records his elaboration of a brass paste composed of eighty-six per cent. of basic copper and fourteen per cent. of basic zinc, and states that its use for a number of years gave good results in the treatment of eczema of the chronic, intractable type, but that many difficulties had to be overcome before it could be applied successfully to the various tuberculous skin lesions. The application of this paste had no effect on ordinary ulcerated areas or on the normal nasal mucosa, but it proved highly specific in its destructive effect on tuberculous lesions. This paste was suitable for application to the more superficial tuberculous lesions while the deeper ones could not be reached by it. The copper and zinc compound was then prepared in a fluid medium and the product called brass oil. This compound rapidly destroyed the deeper lesions, but it was found to have a decided tendency to light up distant foci and to produce constitutional disturbances. The addition to it of trinitrophenol, or picric acid was found to control this latter effect quite well, while the preparation still remained devoid of effect upon nontuberculous tissues. It has been used with marked success in the treatment of many varieties of tuberculous skin lesions, although it has been proved that the compound does not destroy the tubercle bacillus in culture media. The brass paste or oil is applied under gauze every two or three days; painted on the lesions; or, in cases of scrofuloderma, it is applied under a dressing in the form of a thick collar.

The Hysterical Element in Organic Nervous Disease and Injury of the Central Nervous System.—Arthur F. Hurst and J. L. M. Symms (*Lancet*, March 8, 1919) say that there are few symptoms caused by organic disease which are not liable to be aggravated and perpetuated by suggestion, so that in almost every case of organic disease it is necessary to look for the hysterical element and remove it by psychotherapy. Thus hysterical factors may account for a large proportion of the disability in a patient with such definite signs of organic disease that one might readily consider it justifiable to regard the whole of the impairment of function as due to organic changes. Thus in a case of early disseminated sclerosis various evidences of organic disease of the pyramidal tracts may be present quite early and before any loss of function due to the lesions. The patient's observation of slight disturbance in gait may, however, act as a suggestion and a paraplegia may develop as a purely hysterical manifestation. This can be shown to be the case not infrequently by the immediate cure of the paraplegia by psychotherapy and counter suggestion. Analogous hysterical disabilities not infrequently develop in cases with early tabes, in early Friedreich's ataxia, and in all the forms of traumatic injury to the central nervous system. The occurrence of such hysterical symptoms not infrequently makes the exact diagnosis and the prognosis matters of considerable difficulty, and it is not usually possible to recognize even the existence of a hysterical element in the presence of definite symptoms of an organic lesion, except by the

patient's response to counter suggestion, psychotherapy and reeducation. It is the common association of the hysterical factors which accounts for the remarkable periods of remission seen in many forms of organic disease of the central nervous system, and the frequent striking results in tabes which are obtained almost immediately by Frenkel's method of treatment are almost certainly to be explained on the basis of the removal of the hysterical elements of the disability. The development of hysterical disabilities in patients who are recovering well from acute traumatic lesions not infrequently results in an apparently paradoxical increase in the original disability, occurring simultaneously with indisputable physical signs of return of structural integrity. A number of cases is cited to illustrate the contentions advanced, and especial emphasis is laid upon the necessity, in every case of real or apparent organic disease or lesion of the central nervous system, of determining the presence or absence of an hysterical factor by trying appropriate treatment for the removal of all hysterical symptoms.

Analysis of Cases of Tetanus in the Army.—S. L. Cummins and H. Graeme Gibson (*Lancet*, March 1, 1919) continue the plan previously adopted for the analysis of the cases of this infection among the British troops and present the results for the period from November 1, 1916, to December 31, 1917. During this period 376 cases occurred, with 252 deaths and 124 recoveries, giving a mortality of sixty-seven per cent. Thirteen of the deaths, however, were from other causes than tetanus. During the period under study the incidence of tetanus per thousand military casualties showed a fairly steady decrease. The causes of the cases were divided as follows: Battle casualties, 291 cases; trench feet, twenty-four cases; accidents and other causes, forty-eight; cases among German prisoners of war, thirteen. The mortality rate differed in the different groups, having been 65.6 per cent. among the battle casualties, slightly higher among the prisoners, 87.5 per cent. in the trench foot group, and only fifty-four per cent. in the cases due to various accidents. The mortality was also decidedly higher among the cases with wounds of the extremities than among those of the trunk, and the case incidence showed a similar disposition. The average incubation period was slightly over thirteen days with a range of eighteen hours to 180 days as the extreme limits. The peak of the curve of the incubation periods fell on the seventh day after injury. There was a close connection between the length of the incubation period and the case mortality; incubation of less than ten days giving a mortality of about seventy per cent.; from eleven to twenty-one days, a mortality of sixty-eight per cent., and over twenty-one days, a mortality of forty-nine per cent. These figures are the totals for the present series of cases. The influence of the administration of tetanus antitoxin was studied with reference to the size of the dose and the mode of administration. From the beginning of the use of a prophylactic dose of 1,000 to 1,500 units, in place of 500 units, the case incidence and the case mortality both showed a marked decline from the earlier figures. Of the various modes of administration of antitoxin for therapeutic

purposes the combination of intramuscular with one of the other methods gave the lowest mortality, while the intrathecal route gave the highest mortality. There are certain fallacies in these deductions, however, especially the fact that probably the intrathecal method was not generally practised in cases which were not specially severe and threatening. The evidence, so far as it can be determined, points to the fact that the size of the dose is of great importance and it is suggested that the doses commonly given are still too small to give the best results which the use of the antitoxin is capable of yielding.

Postoperative Parotitis.—John B. Deaver (*Annals of Surgery*, February, 1919) notes that secondary parotitis, occurring after operation, though not unknown in early surgery, has only received attention since the general application of abdominal surgery has been practised. It is not a frequent phenomenon but an interesting one. It occurs more frequently after operations upon the genitalia, especially in the female. The cases which occurred may be attributed either to peculiarities of the pathology encountered, to local conditions, or to postoperative wound infection. The parotid gland is more susceptible to inflammation than the other large salivary glands. This is explained to some extent by the anatomical relation of the buccal orifices of the excretory ducts of the gland. Another explanation for the frequency with which the parotid gland is attacked by inflammatory processes is the physiological reason of the absence in the parotid secretion of mucin, which by its presence in the other glands acts as a bactericidal agent. But there is some doubt expressed as to the active bactericidal powers of mucin.

Postoperative parotitis is divided into three groups: metastatic, occurring only in pyemic conditions; ascending parotitis due to ascending infection by way of the excretory ducts; and traumatic, the result either of direct pressure on the parotid gland or the forcible manipulation of the jaw by the anesthetist during operation. Infection may be carried to the gland by way of the lymphatics from diseases of the neighboring structures, by way of the blood stream, and by way of the excretory duct of the gland. The latter route is considered a plausible one since the mouth harbors numerous bacteria to the increased virulence of which, especially staphylococcus infection may be due. The process of ascending infection is due to choking of the gland by debris containing microorganisms which are the same as are obtained from cultures of the gland, its pus, the orifice of Stenson's duct, and the oral cavity. The majority of cases of parotitis have occurred after severely infected conditions, perforating gastric ulcer being the most frequent operative condition which has been followed by secondary parotitis. The theory that dryness of the mouth is a contributing factor finds little support. The withdrawal of food by mouth with the consequent absence of oral secretion has also been assigned as a cause for the phenomenon. The cases which have occurred under these conditions would lend some support to the theory of the bactericidal action of mucin. The question deserves additional study.

Detoxicated Vaccines.—David Thomson (*Lancet*, March 8, 1919) points out that it is difficult, if not generally impossible, to produce antibodies against bacterial endotoxins, while the presence of such endotoxins in the bacterial bodies renders the administration of adequate doses of vaccines difficult and often quite impossible. The author has experimented and worked out a method for the detoxification of bacteria by removal of their endotoxins and finds that vaccines so prepared can be given in enormous doses without reaction or harm, while such large doses prove quite effective in stimulating the formation of agglutinins, precipitins, and other antibacterial substances, even against organisms which have hitherto been regarded as not yielding such antibodies in appreciable amounts. Thus a detoxified gonococcus vaccine could be given in doses of 2,500 up to 10,000 million organisms without any toxic symptoms and in man such doses gave rise to a high grade of immunity reaction in the blood serum. The method of preparing detoxicated vaccines and more detailed investigations of their properties and value will be published elsewhere.

Spirochetes in the Blood in Trench Fever.—Alfred C. Coles (*Lancet*, March 8, 1919) records the discovery in three cases of trench fever of typical spirochetes in films made from the blood during the earliest stages of the acute illness. The spirochetes are rare and are usually very difficult to find. They stain faintly with Giemsa's stain and they seem to vary somewhat in their morphology. The disease has long been regarded as probably of spirochetal origin, but it has not been possible to demonstrate the organisms in the blood. It is well known that even in cases of florid syphilis the spirochetes in the blood are apparently so rare that their discovery is usually a matter of great difficulty. The fact that the virus of trench fever has been shown to pass certain filtering candles does not exclude its being a spirochete, for Noguchi has shown that the spirochetes of Weil's disease will pass a Berkefeld V candle. Coles does not pretend that the organisms he has found in these three cases are the true casual agents of trench fever, but merely records his discovery for what it may prove to be worth.

Blood Changes Following Transfusion.—John G. Huck (*Bulletin of the Johns Hopkins Hospital*, March, 1919) studied the effects of transfusion in seven cases of pernicious anemia, two of idiopathic purpura, four of benzol poisoning, five of secondary anemia, and two of Banti's disease. Usually, immediately following transfusion, there was an increase in the red cell count, and in many instances this marked increase was quite out of proportion to the volume of blood introduced, for example, in one case after a transfusion of 500 c. c., the count rose from 880,000 to 1,488,000. This Huck believes indicates a rapid redistribution of blood following the injection. Sometimes this increase continued for twenty-four hours; at other times it fell shortly and then rose again slightly. The changes in hemoglobin were not parallel to those of the red count; the hemoglobin usually showed a uniform rise reaching the maximum about twenty-four hours after transfusion. Generally there was also an increase in the leucocytes.

Proceedings of National and Local Societies

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting Held October 21, 1918.

The President, Dr. EDWARD E. CORNWALL, of Brooklyn,
in the Chair.

Rectocolonic Conditions and Operations.—

Dr. SAMUEL G. GANT delivered an address on this subject which was illustrated by moving pictures. He recalled an incident that occurred eighteen years ago at a meeting of prominent proctologists, when he was almost ejected from a medical society for advocating local anesthesia in rectal operations. He was in a position today to state that it was good practice in ninety-five per cent. of his cases. He did not believe that local anesthesia would ever be advisable, however, in abdominal operations. It would always be unreliable in such work on account of the difficulties arising from complications. Regarding rectal work, he used it in ninety to ninety-five per cent. of his cases, but not in all classes of operations, for certain types were absolutely unfit. For instance, no man would attempt to use it in removing a malignant growth or a large, benign growth of the rectum, or a deep perirectal abscess, or for deep burrowing fistulas; but for polyps, ordinary fistulas, hemorrhoids, and in operations for constipation and widening of the rectum it was entirely effective, and the physician who did not perfect himself in the technic of local anesthesia was not entitled to do rectal work, for it was very simple.

The speaker had used all kinds of solutions for this work and had relied more on pressure than on the solution. When he advocated this some years ago he reported 500 cases, but had since found that the injection of water caused more pain than eucaine solution. In recent years he had restricted the solution to one eighth or one tenth per cent.; that was the strongest he used. Eucaine could be used year after year and was absolutely reliable. With novocaine, one half or two per cent., anesthesia was slow, but with one eighth or one tenth eucaine the effect was prompt. The anesthetic was never effective unless properly administered. With eucaine there were no aftereffects and one could use a quart as well as an ounce as far as these were concerned.

Local anesthesia had many advantages that were seldom remembered. There were no hemorrhages such as formerly occurred with general anesthesia. One disadvantage of general anesthesia was that the patient was required to go to a hospital overnight, was purged, and after the operation was kept in the hospital ten days longer than if local anesthesia had been used. Another point in favor of local anesthesia was that the patients could have a regular diet. This of course referred to minor operations, for fistulas, etc.

If operation was done on a patient with liquid feces, the patient would have an action of the bowels after the operation and the soft feces not only got into the wound and caused irritation but

it was almost impossible to clean it out. Moreover the patient was in great pain. After a while when the pain subsided and the soft movement was repeated, the pain recommenced. The patient had six or eight movements, none of which was competent. On the other hand if the bowels were bound up by medication or diet, a hard action followed, that caused so much pain the patient was afraid to eat. The only thing the speaker did to control the feces was to have the patient take a swallow or so of mineral water the night before so as to have the feces solid but not hard. The patient was allowed to eat what he pleased. He left the hospital in a few days and went about his work; he did not go through a starvation process, and he came to the office to be dressed. These patients stayed in the hospital one, two, or three days, or perhaps a week. As soon as they could come to the office they left the hospital. They got well more quickly if they were at home instead of in a hospital and the healing time was not shortened by the patient being confined to bed.

Doctor Gant said that there was no reason why any rectocolonic disease should not be diagnosed today, for with the palpating finger and the various mechanical facilities, protoscope, sigmoidoscope, etc., one could detect anything abnormal. Ninety per cent. of all rectal diseases were in the lower rectum; the only one found in the upper rectum was carcinoma. A little caution, however, should be exercised in making an examination, working the finger in slowly for an inch or two. Putting the finger in roughly caused the sphincter and levator ani to contract; but by inserting it gently any patient's rectum could be entered with very little difficulty or pain.

Quinine and urea was not a reliable agent for rectal work. Operation with quinine and urea could be done but it would be done very much quicker with eucaine which was not so apt to cause a slough as did carbolic acid. Three deaths had resulted from the use of carbolic acid injections, every one of these three patients having died from edema of the lungs. External hemorrhoids should not be injected with carbolic acid for a slough formed in the skin. The condition that followed a carbolic acid injection was shown in one of the reels. The same man who made the injection that caused this had fatalities in two patients in one month with that method. The use of carbolic acid today was absolutely unnecessary. It was very much better to use quinine and urea for internal hemorrhoids, but not for external hemorrhoids which should not be injected at all. The more numerous and the larger the hemorrhoids, the easier they were to operate upon under local anesthesia.

Hemorrhage almost never occurred from a fissure operation done with local anesthesia. It ordinarily was due to the patient having had ether with resulting vomiting and straining. The chief insurance against hemorrhage was to apply a pad and over it a bandage in the operating room, ex-

aming it immediately the patient was back in bed and seeing that it was properly adjusted.

In regard to the preparation of patients it had been found best to put the patient in the recumbent posture or on the left side. All fistulas, except those deep in the tissues, could be operated upon with local anesthesia.

The main reason why incontinence and granulations followed fistula operations was packing instead of draining the wound. The sphincter ani should be cut. The edges of the cut should be gently separated. Cutting the sphincter did not cause any bad aftereffects, but the way the cut was handled sometimes did. The sphincter muscle should not be dilated before it was cut. The anesthetic must be kept between the fistula and the skin. Whether novocaine or eucaine was used, if it got out through an opening or a needle puncture there would not be full anesthesia. That was one reason why a large drain was preferable to a small one. A small needle was not necessarily preferable; it was not the size of the needle that hurt the patient. The only thing that hurt was the initial entry. One nurse would give a patient a hypodermic and cause excruciating pain; and another would hardly hurt the patient at all. It was all in the manner of doing it, but the skin must be penetrated. By going in through one layer and putting in one drop, and following that by going completely through the skin, any amount desired could be used. The sphincter muscle could be injected all around.

A rectocolonic condition frequently very badly treated by many was diarrhea. There were different types of diarrhea. There was a neurogenic or psychic diarrhea. If a man had a bad scare or mental worry one might expect this result. There was diarrhea due to the liver, etc. Many of these types did not come from any lesion in the colon in the beginning, but if not corrected eventually they produced irritation in the colon, for the feces rushed through only partly digested. There were many types of chronic colitis. Many patient were relieved by dieting, but ulcers were not to be cured by this means. With chronic ulceration of the colon, rest and medication, improved the general condition, but the chronic ulceration still remained. But in spite of a regular diet and proper medication, eventually there was a recurrence of the diarrhea, unless perhaps irrigation cleared up the pathological condition. It was difficult, however, for a colonic tube to reach the colon. Putting it up three feet did not reach the entire length of the colon. It was only an expert who could get the tube through—but once the colon was ulcerated it did not make much difference. There were many types of colitis. Formerly it was called dysentery. That term should be discarded and the different types defined. Extensive ulcerations that occurred in the bowels were not caused by foreign germs, tubercle bacilli, etc. The germs of these pathogenic organisms set up ulcers that were limited and the process was then carried on by mixed infection of the organisms already in the intestine.

For ileocolitis, the operation advised some years ago could be done. One could irrigate by passing the catheter through the ileocecal valve. If there

were pus and blood, a strong solution of nitrate of silver, say twenty grains to a quart of water, could first be used; that would almost immediately arrest the bleeding, and then a milder solution, or three or four per cent. of balsam of Peru, or boric acid, could be used. The patient should be irrigated in different postures so that the solution touched all sides and the irrigation should be kept up as long as the diarrhea continued.

Then followed, with informal description, moving pictures illustrating the technic of anorectal operations under local anesthesia, and sigmoidopexy for invagination causing colonic stasis were shown and described by Doctor Gant.

Dr. ROBERT T. MORRIS quoted a West Virginia mountaineer who said that "The best thing for snake bite is whiskey, but you have got to use it right, and in order to use it right you have to have it in you when you're bit." In order to do this rectal work easily, one would have to be a Doctor Gant when he did it, or closely adhere to his principles. The psychology of the patient who responded to suggestion had a great deal to do with success, and there was no doubt that the firm, convincing manner in which Doctor Gant persuaded his patients to believe that it would be all wrong to have any pain, all right to remain undisturbed, had its results in his work. That was not said lightly, either. There was a great deal in the manner in which the doctor presented the matter to a patient who had to have an operation performed in this sensitive area. Any one who had seen Doctor Gant do this work knew that there was no question about the ease and efficiency of his use of local anesthesia. Doctor Morris said that he had seen others attempt it and bungle, causing the patient a great deal of suffering. Consequently what appeared to be a very simple technic meant, as Doctor Gant would doubtless admit, a great deal of practice, and was apt to require a great deal of experimentation before acquiring the skill in performing what seemed in Doctor Gant's hands a very simple method. As he performed it, patients arose from the table with just the smile which was depicted in the pictures.

Regarding the solution of eucaine. Doctor Morris said that he had used one per cent. novocaine himself for local anesthesia, and was very glad to hear Doctor Gant's decided statement from his extensive experience, that one eighth of one per cent. eucaine would be quite as effective. The question of liquid or solid feces after an operation for hemorrhoids was a matter of a great deal of consequence, and Doctor Morris agreed with Doctor Gant that it was better for the patient to have a natural movement in a natural way, provided he had been in the habit of having regular daily movements, and that it was better for the fecal mass not to be too hard or too soft. In regard to the matter of not dilating the sphincter in advance of operations for hemorrhoids, Doctor Morris considered that if the sphincter were dilated there was much less danger of secondary complications from disturbances of the bladder. Some patients had these distressing complications; and certainly if the sphincter was dilated one avoided a great deal of the muscle spasm which was bound to occur at the

site of the recent cut. This muscle spasm would sometimes come on in advance of the movement because of the patient's fear of the pain; whereas with a dilated sphincter this spasm would be avoided.

The question of sloughing from the use of carbolic acid injections was very important. Doctor Morris said that he had also seen two cases of abscess of the lungs which would ordinarily have passed as pneumonia conditions, and the etiology would not have been suspected excepting that getting the history of the cases it was found that the patients had had hemorrhoids and had been operated upon with carbolic injections. It was therefore only fair to believe that many cases of fatal embolism had not been traced to their origin, carbolic acid treatment of hemorrhoids. In regard to quinine and urea hydrochloride, all know that it had caused sloughing at times, yet Doctor Morris had used it quite often for local anesthesia, taking care to spread it very widely as it was injected. In cases of old chronic arthritis of the knee joint, for instance, the tissues were tense with interstitial infiltrates and the joint very painful and sensitive. If the fibrous tissues were injected properly with quinine and urea hydrochloride and if boroglyceride and glycerin solution were injected within the capsule, the patient would start off with comfort and retain it for days or weeks in some cases. It would be interesting to know whether the danger of sloughing from this method existed where this local anesthetic was spread widely by massage in the tissues.

Dr. JEROME M. LYNCH could not subscribe to all that Doctor Gant had said. Local anesthesia was very valuable in rectal work, but in fistulas, except where straight and not complicated, one had better use a general anesthetic. Operation for fistula was difficult. In those cases where there was a complication, a general anesthetic was preferable and one could then make sure of dissecting out all the complications.

Dr. MARTIN L. BODKIN complimented Doctor Gant upon the character of his work but thought it was almost impossible for others of less experience, meaning those only occasionally doing work of this kind, to procure such results. It would be interesting if Doctor Gant would make more explicit the classification of his ligature operation under local anesthesia as it would seem that there were cases where of necessity one must employ a general anesthetic. In his experience the objection to the ligature method was that the patient could not get about quickly enough afterward, leaving out the question of danger; while with the employment of the carbolic acid method or the galvanic cautery operation the patient usually walked about in a few days. The latter operation was performed with the cautery point used for cauterizing the turbinated bones of the nose. The objection to this procedure was that, chiefly because of the edema following cauterization, only one or two hemorrhoids could be destroyed at a time. The white area produced by the injection of any fluid into firm tissue was always a guide as to complete anesthesia. Every one had his choice in regard to the use of local anesthetics but in his opinion hemorrhoids which

were large and numerous and fistulas which involved the deeper tissues required a general anesthetic.

In regard to cutting the sphincter muscle, in Doctor Bodkin's experience incontinence always followed this procedure, because the muscle was incomplete at the scar. The external sphincter could be cut and the effect would be only partial, only temporary incontinence following. Sigmoidopexy was advisable for prolapse of the rectum in children and old people. Debilitated, aged, and rachitic children seemed to suffer mostly and the operation was especially suited to them because of its short duration and excellent results. Patients suffering from invagination of the rectum, complete rectal prolapse of the so-called third degree, or a complete prolapse of the second degree, both presenting a very large mass externally, were most suitable for this operation. A sigmoidopexy was as safe and certain a cure for rectal prolapse as a fixation operation for a prolapsed uterus.

Dr. JOHN H. BRANTH said that local anesthesia should be applied much oftener, especially in those operations where the outer tissues of the body were concerned. The proper anesthesia by a solution of cocaine was induced by infiltration with internal pressure in the tissues, which could be brought about by very dilute solutions, so weak indeed, that one might think it pure water. A small crystal of cocaine, like one of granulated sugar, and about double the quantity of eucaïne on the point of a penknife, in half a wineglass of sterile water, formed a solution which should be injected with a long needle, pushing the point in gradually as the poison was forced in. By this means anesthesia was complete in a few seconds. In anesthesia by cocaine and eucaïne the tissues were infiltrated to the extent of internal pressure—ballooned. The tissues would then turn white, anemic, and the operator could see the field unobscured by blood. Of course there might be from this ballooning effect some difficulty in fitting the wound edges, but the skilful surgeon would be able to make the needed allowance. The deaths, from cocaine injection, reported in the medical press, had all followed the use of the four per cent. and ten per cent. solutions. Everyone knew how painful it was to reduce a large, protruding, acutely inflamed hemorrhoid where the sac walls were not very thick. Introducing alongside the tumor a cylindrical high vacuum tube and connecting this with a high tension high frequency apparatus, in a few minutes would reduce the tumor and cause it almost without aid to slip into the rectum. However, such electric treatment proved permanently helpful only where the hemorrhoidal tumor was far from a chronic condition. Yet it was well to resort to this means to reduce the tumor with a view to gain room in this contracted space for operative procedure, when this room was needed.

Doctor Gant, referring to Doctor Morris's remarks about divulsion of the sphincter muscle, said he had formerly used the procedure but had discarded it on account of changed technic. After a cut, he had formerly ligated, until he found that when catgut was wet it acted like a piece of rope. By cutting the skin and ligating the muscle, one did not get any of the sphincter muscle. He was now

convinced that the real trouble was in the levator ani. Formerly he used quinine urea very often and the patient did not have any pain for twenty-four or forty-eight hours; but if used beneath the skin sloughing was apt to result, and it might continue for several weeks. He had explicitly stated that one should never operate on a fistula that went directly down into the tissue, but only a very small percentage did that. Most of them were superficial, not more than an inch deep, and could be operated upon in five or ten minutes without any pain. Regarding electricity for hemorrhoids, Doctor Gant said that he disagreed with Doctor Branch. It would not stop the bleeding. It gives temporary relief, but if the hemorrhoid was a large one would later have to do a radical operation. Mention had been made of the internal sphincter; the internal sphincter muscle of the rectum was formed by circular fibres. Every day he operated upon fistulæ of different types, and cut the internal sphincter and the levator and muscle without any trouble resulting; and there was never any incontinence afterward.

Stated Meeting, Held November 18, 1918.

The President, Dr. EDWARD E. CORNWALL, Brooklyn, in the Chair.

End Results of Tuberculin Treatment in Chronic Pulmonary Tuberculosis.—Dr. HENRY L. SHIVELY stated that it was now twenty-eight years since the announcement of the discovery of tuberculin by Robert Koch in 1890, and out of the mass of conflicting evidence as to the status of this much debated therapeutic agent there had crystallized an opinion, favorable on the whole to its value in selected cases, based upon experience in sanatoria and private practice, by many observers in widely different fields of clinical medicine. If the extravagant hopes were dismissed that were entertained soon after the announcement of its discovery, its reckless administration in large doses, and its careless use in incompetent hands, it was apparent from the beginning that in tuberculin lay a remedy equally potent for good or evil. But was not this equally true of digitalis, strychnine, arsenic and other powerful drugs of demonstrated value? Tuberculin was today in general use in all well conducted sanatoria, and there was a substantial agreement among sanatorium physicians that patients who had received tuberculin treatment were less likely to relapse after arrest of their disease, that they more readily regained working efficiency, they more frequently lost their bacilli, and their restoration to health was more permanent after a period of years than that of patients under similar conditions and in similar stages of the disease who did not receive specific treatment. The fact that surgical tuberculosis involving bones and joints, tuberculosis of the eye, lesions of the skin, such as lupus, favorable changes in which were more readily appreciable than in tuberculosis of internal organs, very generally showed striking improvement under tuberculin. These effects of visible local lesions would cause it to be considered not improbable a priori that similar favorable results might be expected in the lungs.

In reviewing the recent literature of tuberculin one was struck by the favorable testimony of the

ophthalmologist, the orthopedic surgeon and the dermatologist, who had an opportunity to actually see in local tuberculous lesions of their special fields the striking effects of tuberculin treatment. The laryngologist was more skeptical as to the good effects of tuberculin and this he attributed to the fact that the secondary tuberculous lesions he usually saw in the larynx were so often terminal complications of advanced disease in the lungs. These cases were wholly unsuited for tuberculin treatment. In cases of tuberculous adenitis of the cervical and axillary glands often causing disfiguring deformity, the effects of tuberculin administration were also often brilliant and plainly evident. It should be remembered that tuberculin, which in itself had no direct curative properties, was in no respect like diphtheria antitoxin or therapeutic vaccines, but was an active immunizing agent dependent for its useful effects upon its power to stimulate the production of antibodies, protective substances produced within the body itself, which rendered its tissues unfavorable to the growth of tubercle bacilli or perhaps directly inhibited their pathological effects.

It was apparent, then, that for the production of good results from the administration of tuberculin it was necessary that there should not be too great a depression of the normal physiological functions, a fact that at once removed from the scope of possible tuberculin treatment a large class of cases. Patients with severe mixed infection or with grave complications—such as nephritis or diabetes; cases of acute miliary tuberculosis; rapidly advancing cases of pulmonary tuberculosis with areas of softening and recent cavities; and advanced laryngeal cases; patients with organic heart disease, with broken compensation and suppurating sinuses with amyloid visceral changes could not be expected to react favorably to tuberculin. On the other hand, many incipient and early favorable cases did sufficiently well with the ordinary dietetic and hygienic treatment under the strict medical supervision of their mode of life, which could usually be best obtained in a well conducted sanatorium.

Whenever it was possible Doctor Shively sent his tuberculosis patients to a sanatorium with the expectation in many cases not of a definite cure, but that the patient would become familiar with and learn by precept and example the principles to be followed in the long, hard fight he was to make to get well and keep well. The patient who had been to a sanatorium was always a better patient: he was more amenable to discipline, he realized the formidable nature of his disease and he was better equipped to cooperate with his physician in overcoming it. Relatively few patients, however, could remain at the sanatorium long enough to obtain a definite arrest or cure and it was among these discharged sanatorium patients who had been educated and trained in the antituberculous life that the tuberculin treatment was especially indicated to maintain the improvement that they had made, and in some cases complete their cure. In general the special field for tuberculin administration was that class of cases having good resistance, without fever, who had attained a fair degree of improvement with the ordinary dietetic and hygienic treatment at home

or in the sanatorium but who failed to go "over the top" and attain an arrest or cure of their disease. It was in these cases that one often saw results which could be regarded as brilliant by the most conservative clinician. A cautiously increased course of tuberculin therapy would often impart the necessary impetus to cause the patient to lose his bacilli and attain a definite arrest.

Eight years ago at the Presbyterian Hospital and in his practice, the speaker began to select cases for tuberculin administration, chiefly among patients who had received previously the advantage of sanatorium treatment, but who had failed to attain a cure. It was evident that this class of cases offered a severer and fairer test of the value of tuberculin than patients who coincidentally with removal to the country, in an adequate sanatorium environment, received the tuberculin together with rest, a proper diet, freedom from care, and change of climate. It seemed reasonable to assume that after patients had for periods of time varying from one to two years the usual dietetic and hygienic treatment, and then with everything going on as before except the addition of tuberculin, showed a quick response and a definite favorable change, that the improvement was attributable to the tuberculin and the tuberculin alone. Doctor Shively first used Koch's old tuberculin, but for seven years had employed exclusively the bacillen emulsion, which he believed to be the best therapeutic preparation, as it contained not only the extractive of Koch's old tuberculin but also all the substance of the bacillary bodies; and was to be preferred in every case to tuberculin from which the alleged injurious substances were claimed to have been removed. The chemistry of the tubercle bacillus and its derivatives was not sufficiently familiar for one to be able to remove the reaction producing substances without impairing its therapeutic value. The whole subject of tuberculin administration had been invested with a too elaborate technic and had discouraged the general profession from the trial of a simple method of treatment which was full of potential benefit for many patients. Sahli, Weicker, and Koch himself urged that tuberculin should not be limited exclusively to sanatoria and the practice of specialists but should be used more extensively by general practitioners of medicine. The time had certainly arrived when every tuberculosis clinic should have its tuberculin class. The well established principles of treatment now generally followed, the proper selection of cases, the not too rapid increase in dose, and the sedulous avoidance of reactions surely were not difficult to achieve, and there was no reason why any well trained physician who was capable of administering vaccines or diphtheria antitoxin was not also competent, with the exercise of good judgment and the necessary patience, to give tuberculin treatment. While care should be taken to avoid too large or too rapidly increased doses, much time might be lost by beginning with or continuing too long excessively minute and meticulous doses. It was quite probable that doses of 1/10,000,000 or even 1/1,000,000 of a gram, as sometimes employed, were practically as inert as water. With an adult he had usually em-

ployed a beginning dose of 1/10,000 to 1/5,000 cubic centimetres of bacillen emulsion as it came from the laboratory, and he had never seen a reaction or unfavorable symptom of any kind with this beginning dose. The proper dilutions were made with sterile normal salt solution with one half per cent. phenol as a preservative.

Beside the regular routine effects which in favorable cases were gradually obtained from tuberculin over a long period of time and which were perhaps not very striking, but which were after all of great importance to the patient who might thereby attain an arrest of his disease, there were the occasional spectacular results, all too few in number, but which every one who had much to do with tuberculin saw at times. He had selected a number of such cases for brief citation from his case records.

Doctor Shively hereupon presented the protocols of twelve cases of chronic pulmonary tuberculosis treated with tuberculin for varying lengths of time. The cases before treatment presented various degrees of ill health. When last seen, all patients, five after one to three years, and seven after five to eight years, were in conditions of good health. He did not cite these cases as illustrations of what would often be seen in the administration of tuberculin, but if the treatment were more extensively used in suitable cases, he had no doubt that more of these exceptionally favorable results would be obtained, for it was impossible without trial to say what patients would respond well to the stimulus of the injections, just as it was equally impossible to say why tuberculosis in some cases ran a rapid and fatally progressive course, terminating in a few months, and in others continued over a long period of years with relatively slight impairment of the health. In administering tuberculin one was dealing with an unknown reaction which could not be predicted in advance, but which must be gradually determined by cautious and careful study for each individual patient. The mysterious factors of what, for want of a better term, was called the patient's resistance, were an important element, and it was certainly true that in many cases this could be developed and strengthened by immunizing doses of tuberculin.

In the past eight years he had treated with tuberculin fifty-seven cases which had continued under observation for periods varying from one to seven years after the conclusion of their treatment. Of these, twenty-eight were markedly benefited, fifteen having had a definite arrest of their disease. Nineteen others received benefit to a less extent; in six no effect whatever could be attributed to the treatment. Twelve patients had died, nine from the ordinary progress of their disease, one from intercurrent lobar pneumonia, and two from spontaneous pneumothorax. In perhaps half of the patients who subsequently died there had been improvement in symptoms which could be fairly attributed to the tuberculin administration and it was believed their lives were prolonged and made more comfortable. In no case could the treatment be considered to have had an influence in determining the fatal issue. Of the fifty-seven cases reported thirty-eight

had positive sputum, nineteen at no time had bacilli present. Of the complications to be noted there were six patients who had well marked tuberculous laryngitis, there was one with tuberculous peritonitis in whom the ascites disappeared without recurrence, one with tuberculosis of the wrist joint, who made a perfect recovery without deformity or impairment of joint function. In six patients the cervical glands were conspicuously enlarged, sufficiently so as to constitute a disfiguring deformity. In all these glandular cases the influence of tuberculin treatment was favorable in effecting a marked reduction in the size of the glands. There was one patient who had been previously treated for a tuberculous iritis, and in one patient bacilli were found in an excised tonsil. In only one of the throat cases could any good effects be seen from the tuberculin; in this case a tuberculous ulcer healed and the patient gained thirty-nine and one half pounds. Twenty-four of the cases here reported had received sanatorium treatment.

Dr. ROBERT T. MORRIS was gratified to hear Doctor Shively corroborate a point that he had maintained for years in regard to tuberculosis of the neck glands in children. One of the commonest operations performed was the removal of these tuberculous glands, but by the method of treatment by hyperemia plus tuberculin, operation was unnecessary excepting where the glands had broken down. Patients with surgical tuberculosis of the peritoneum, of joints, indeed of any part of the body, who were commonly discharged by the surgeon after his part had been performed, required in addition all the treatment given to patients with tuberculosis of the lungs. Excellent results were to be gained with Koch's old tuberculin. Patients under twenty years of age with tuberculosis of the joints would respond very well indeed to tuberculin treatment, plus hyperemia and general tuberculosis treatment. There was no longer reason to assume that when patients were fully adult one must do operative work; it would be better to depend upon conservative measures in bone and joint tuberculosis.

Doctor SHIVELY replied that the patient was forty-six years of age and had been a patient at the Trudeau Sanitarium at Saranac sixteen years ago, her disease dating back some twenty years. She had a strong family history of tuberculosis. Two courses of tuberculin had previously been given with benefit. There were two cavities in the left lung, one at the apex, the other in the lower lobe, in addition to active tuberculous arthritis of the left wrist, but throughout she had maintained a fair state of general health. She was the only patient to whom tuberculin and artificial pneumothorax were given at the same time, and certainly derived a great deal of benefit from both. There was no deformity or impairment of function in the wrist joint. A few other cases of tuberculous arthritis complicating pulmonary disease had done well under tuberculin. It was very gratifying to have Doctor Morris' testimony from the surgical point of view, and to know that some surgeons are using tuberculin.

(To be concluded.)

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Practical Physiological Chemistry. A Book Designed for Use in Courses in Practical Physiological Chemistry in Schools of Medicine and of Science. By PHILIP B. HAWK, M. S., Ph. D., Professor of Physiological Chemistry and Toxicology in the Jefferson Medical College of Philadelphia. Sixth Edition, Revised and Enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co., 1918. Pp. xiv-660. (Price, \$3.50.)

This sixth edition of Hawk's *Practical Physiological Chemistry* has been carefully revised and presents features which bring it well up to date. It, of course, emphasizes the practical laboratory side of physiological chemistry and, as is well known, gives complete and detailed laboratory instruction in experiments, preparations, examinations, tests, technic, etc. In point of size alone, the book shows considerable growth, as compared with the previous edition, while in the presentation of fresh data and the newest technic a real advance is noted. A new chapter on acidosis has been introduced; chapters on metabolism, blood analysis, gastric digestion, quantitative analysis of urine have been extensively revised and enlarged; what is known on the subject of growth is included, being treated experimentally. The author indicates two changes as radical: the substitution of Van Slyke's procedure for all former methods for the determination of acetone bodies in urine, and the elimination of all methods for the determination of urea except those based upon the use of urease. Hawk's illustrations, line, halftone, and color, are excellent; his diagrams are clear and carefully constructed. In this edition he has added many new ones, including those showing curds of human and cow's milk at different stages of digestion, pentosazones prepared from urine in a reported case, growth curves of albino rats on different diets, curves showing psychical and chemical stimulation of gastric juice, the Van Slyke carbon dioxide apparatus, the Fridericia apparatus, Kober's nephelometer-colorimeter, and Bergeim's intragastric conductance apparatus.

Clinical Medicine for Nurses. By PAUL H. RINGER, A. B., M. D., Member of the Staff of the Asheville Mission Hospital, Asheville, N. C., and of Biltmore Hospital, Biltmore, N. C. Illustrated. Philadelphia: F. A. Davis Company, 1918. Pp. viii-286. (Price, \$2.)

The author of this book felt impelled to collect in book form his lectures to nurses. He says he does not think that "the nurse's mind should be burdened with their description and significance in detail," i. e., bacteriology and pathology of diseases, but that she should have in this concrete form, the main points in treatment which she would be expected to observe and interpret. The material seems to be carefully and sensibly selected and well presented. A few chapters deal with general topics, as food and nutrition, blood, blood pressure, circulation, the urine, immunity, and the rest of the book covers one by one the main points in pathology. The discussions are brief and simply put, being taken up under etiology, symptoms, course of the

disease, and treatment. What he gives here are those points in which a pupil nurse should be instructed, and he need have no fear, which he expresses in his preface, of offending any one's theories of treatment in his presentation of principles.

Quarterly Medical Clinics. A Series of Consecutive Clinical Demonstrations and Lectures by FRANK SMITHIES, M.D., F.A.C.P.; Associate Professor of Medicine, School of Medicine, University of Illinois; Gastroenterologist to Augustana Hospital, Chicago; Formerly Gastroenterologist at the Mayo Clinic, etc. Illustrated. St. Louis: Medicine and Surgery Publishing Company, Inc., 1919. Pp. 188. (Price, \$2.)

This new "Clinics" is the product of the author himself and it is planned to issue a volume every three months, to include the presentation of the important cases shown at the author's clinic in the Augustana Hospital. The volume is made up of the detailed histories, physical examinations, special examinations, diagnosis, and methods of treatment of individual cases, thereby differing from other volumes of "Clinics" in being essentially an attempt to commit to print the various clinical aspects of the practice of medicine as taught to senior medical students. The fifteen cases presented in this first issue are well studied; the presentation in each case is systematic, clear, and succinct; and the volume should form a valuable asset to the advanced medical student, since it enables him closely to visualize individual cases and tends to mold his processes of thought in the analysis of cases in such a way as to make his practice thorough and his diagnoses accurate.

Pensions, and the Principles of Their Evaluation. By LLEWELLYN J. LLEWELLYN, M.B. (Lond.); Late Temp. Member, Appeals Tribunal Ministry of Pensions; Senior Physician and Governor, Royal Mineral Water Hospital, Bath; and A. BASSETT JONES, M. B. (Lond.); Temporary Captain, R. A. M. C.; Military Orthopaedic Hospital, Whitechurch; Late Temporary Honorable Lieutenant R. A. M. C., Welsh Hospital, Netley. With a Section on Pensions in Relation to the Eye by W. M. BEAUMONT, Acting Ophthalmic Surgeon to the Bath War Hospital, etc. London: William Heinemann, Ltd., 1919. Pp. xxvii-702. (Price, 30s. net.)

The authors of this extensive volume, covering 700 pages, have succeeded in the difficult task of the classification and analysis of pensions. The historical aspect is discussed, beginning with the initial grants of land to soldiers. In every case, the shortcomings as well as the beneficial aspects of the various pension laws, down through the feudal system and the Elizabethan statuette, have been frankly portrayed. The growth of the pension system, the reforms which have taken place, the interrelationship which they bear to the various departments of state are analyzed. In addition to this, the provisions for treatment and training and the description of the various hospitals and the work which they accomplished is taken up with the bearing they have on the pension system. A minute analysis is made of the various relations of the functions which are caused by the numberless injuries which have been the effect of the war. These are systematized and schematized with carefully explained charts. A special section on pensions in relation to the eye, written by W. M. Beaumont has been incorporated into the volume. With the close

of the war, it is appropriate that we have a scientific analytical classification of the approximate values of the various parts of the human being. It may seem heartless to adopt a classification based upon the percentage grades of incapacity or the more intricate grades of sensibility, but we are confronted with the economic helplessness of our returned warriors and so have no alternative. We must face this obligation and the aid that can be derived from a work compiled by these eminent physicians should be indeed welcomed. The earning capacity of an individual has not been the basis of grading pensions; a physiological standard has been adopted. In certain chapters, tables have been appended giving the average assessment for particular regions as laid down by French, German, Austrian, and other Continental tribunals. This volume should prove to be extremely helpful to medical referees, people interested in insurance, pensions, and workman's compensation, as well as to members of the legal profession, and to political and social students.

Births, Marriages, and Deaths.

Died.

APPEL.—In Philadelphia, Pa., on Wednesday, April 9th, Dr. Albert A. Appel, of Haddon Heights, N. J., aged forty-two years.

BROWN.—In Chico, Cal., on Tuesday, April 1st, Dr. Robert S. Brown, of Stirling City, Cal.

CARDEZA.—In Brooklyn, N. Y., on Tuesday, April 15th, Dr. John Devoe Martinez Cardeza, aged seventy-two years.

COLE.—In Silver Creek, N. Y., on Tuesday, April 8th, Dr. William Wesley Cole, aged sixty years.

COMBS.—In Afton, Tenn., on Saturday, March 29th, Dr. Charles G. Combs, aged fifty-nine years.

GIBLIN.—In Dorchester, Mass., on Sunday, April 13th, Dr. Francis J. Giblin, aged fifty-one years.

GUTHRIE.—In Bloomington, Ill., on Monday, April 7th, Dr. William E. Guthrie, aged sixty-two years.

HARRIS.—In New York, N. Y., on Sunday, April 13th, Dr. James W. Harris, aged seventy-two years.

HASKELL.—In Bangor, Me., on Sunday, April 13th, Dr. Pearl Tenney Haskell, aged sixty-seven years.

HURLEY.—In Elizabeth, N. J., on Tuesday, April 15th, Dr. William J. Hurley, aged sixty years.

HYLAND.—In Utica, N. Y., on Friday, April 11th, Dr. Edward M. Hyland, aged sixty years.

KIMBALL.—In New York, N. Y., on Friday, April 18th, Dr. Reuel Baker Kimball, aged sixty-four years.

KIRKLAND.—In Brighton, England, on Thursday, April 10th, Dr. Norton Harkness Kirkland, of New Haven, Conn., aged fifty-eight years.

LANE.—In Buffalo, N. Y., on Wednesday, April 9th, Dr. William Henry Lane, aged forty-two years.

MARTIN.—In Chicago, Ill., on Monday, April 14th, Dr. James W. Martin, of New York, N. Y.

MELTON.—In Decatur, Ill., on Friday, March 28th, Dr. William A. Melton, Jr., of Warrensburg, Ill., aged fifty-six years.

NEWHOUSE.—In Chesterfield, Ind., on Tuesday, April 8th, Dr. John T. Newhouse, aged seventy-two years.

NUTTING.—In Boston, Mass., on Saturday, March 29th, Dr. Newell Curtis Nutting, of Meredith, N. H., aged fifty-nine years.

O'BRIEN.—In Philadelphia, Pa., on Friday, April 11th, Dr. Bryan O'Brien, aged seventy-eight years.

POINDEXTER.—In Benton, Ill., on Tuesday, April 1st, Dr. Randall E. Poindexter, aged fifty-seven years.

SCALES.—In New Brighton, S. I., on Monday, April 14th, Dr. Jefferson Scales, aged seventy-one years.

STEELE.—In Chattanooga, Tenn., on Thursday, April 3d, Dr. Newton C. Steele, aged seventy years.

WILSON.—In Philadelphia, Pa., on Wednesday, April 16th, Dr. H. Augustus Wilson, aged sixty-five years.

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Original Communications

EARLY RECOGNITION OF CARCINOMA OF THE STOMACH.*

BY JOHN B. DEEVER, M. D.,
Philadelphia.

Cancer of the stomach, as I need hardly tell you, is perhaps the most insidious or at least one of the most insidious diseases we have to deal with and one in which early diagnosis is so desirable and yet so rarely made. We all know the more common clinical picture of more or less advanced carcinoma. I say the more common because the picture varies so that we can hardly speak of a typical picture of cancer of the stomach.

The clinical history in a large proportion of cases reads something like this: Man between fifty and sixty years of age, always in good health until two or three, or perhaps seven or eight months ago, when he began to notice a loss of appetite, a feeling of heaviness and epigastric fullness, and sour eructations after meals. Later on there was occasional vomiting, increasing in frequency of late, with food remnants in the vomitus; loss of weight and strength, increasing aversion to food especially to meat; constipation or sometimes unaccountable diarrhea. Gastric analysis at this time probably shows anacidity, retention (twelve hours), or low free and total hydrochloric acid and some lactic acid, numerous Boas-Oppler bacilli; altered blood positive to benzidine and guaiac. Physical examination of the abdomen shows active peristalsis, no abdominal tenderness, no mass palpable.

The patient will, in all likelihood, have tried home remedies without avail and then, taking alarm at the loss of weight and general weakness, will go to his doctor, who in nine cases out of ten diagnoses indigestion, chronic gastritis, catarrh of the stomach, liver complaint, etc. Then there begin various kinds of treatment, some of which impress the patient by their mysteriousness, and his pocketbook by their costliness, but none of which make any impression upon his ailment. And finally he is brought to the surgeon when operation offers about fifteen to twenty per cent. instead of about two to three per cent. mortality if it had been done early when the condition was probably still benign.

There is no denying that we are "up against it" in these cases since the absence of a constant and

reliable test for early cancer is one of the things that belongs to the future, let us hope not too remote future. But at the same time this lack is the strongest factor that should induce the medical man to consult with the surgeon as soon as he is confronted with a patient at the so-called cancer age (thirty-five to forty-five years), who suddenly complains of the train of symptoms briefly enumerated above. If the patient has waited too long before consulting the doctor he has only himself to blame; but it is the doctor's responsibility if he makes matters worse by still further delay. I recently read an article where an internist, with commendable candor, confessed to 100 per cent. mortality in medically treated gastric cancer. Think of this, when the operative mortality of exploratory laparotomy is practically negligible, to say nothing of the more or less lasting benefits of operation. Not only this, but the more early cancers we actually see, the more are we going to be in a position to improve the chances of making an early diagnosis and at the same time brighten the prognosis of cancer of the stomach.

One of the frequent findings at operation (or postmortem) in this type of gastric cancer is the evidence of healed ulceration. Smithies describes it as the "tabloid" type which in a few weeks or months runs the entire gamut of injurious changes to the lining of the stomach, local or general gastritis, ulceration, cancer; so that the diagnosis made by the doctor is not so far out because his patient is having one or the other manifestation in very rapid succession. He is wrong only in treating symptoms without getting at the underlying cause. By far the greatest number of cases, however, give a history of digestive disturbance extending over a more or less, usually more, prolonged period of years and which if taken in time need never have developed cancer. The clinical history of these cases is generally that of gastric ulcer—periodical attacks of dyspepsia, with generally good health between attacks, although in some the disturbance is continuous with more or less acute exacerbations.

If the cancer becomes engrafted on ulcer of atypical type where the history could be construed as chronic appendicitis, chronic cholecystitis, or chronic pancreatitis, it will be impossible to make an early diagnosis. The only salvation offered these patients is in opening the abdomen, inspecting and feeling. The next nearest approach to a diag-

*Read before combined meeting, Mt. Sinai Hospital Clinical Society and Southeast Branch of the Philadelphia County Medical Society, March 27, 1919.

nosis is undoubtedly by means of the x ray or fluoroscope, done of course by a skillful röntgenologist, but even so his findings may be none other than distortion of the duodenum, a shadow in the gall-bladder region, delayed passage of the bismuth meal, or the presence of adhesions. This type of case should without question be treated medically, but medical treatment should not be persisted in if the condition does not yield promptly to remedies and give reasonable evidence of permanent cure. It has been my experience and doubtless yours, that the men in the profession who follow their patients to the operating amphitheatre and there witness the exposures brought about by the knife, realize this. The gastroenterologist, who is unacquainted with living pathology and trusts to his diagnosis by the stomach tube, duodenal bucket, chemical analysis, and x ray, is he who dooms his patient to an early grave; or, to say the least, precipitates chronic invalidism and makes the case less favorable for the surgeon to achieve the desired result.

Of course we all know that not every type of gastric ulcer develops cancer, in fact a certain percentage heal and a certain much greater number are benign. But nevertheless judging from large series of cases it seems that almost one half, and by some writers it is claimed more than one half, of gastric cancers have followed on ulcers. It is therefore largely upon the early recognition and treatment of gastric ulcers that the treatment of early carcinoma depends.

We are apt to place a good deal of reliance on gastric analysis in the diagnosis of cancer, but in early carcinoma there is no actual rule as to the acidity of the stomach contents. High acidity is very often noted in gastric ulcer which, acting as an irritant, particularly on the edges of the ulcer, produces changes in the glandular cells, probably the first step in carcinomatous proliferation. High acidity therefore is not necessarily ruled out in the diagnosis of incipient carcinoma of the stomach, nor even in developed cancer, especially when located on the anterior wall of the stomach, involving the greater curvature where it is likely to cause only slight disturbance of motor function. On the other hand, hypochlorhydria or even the absence of hydrochloric acid, which is generally considered pathognomonic of cancer of the stomach, is associated with about thirty per cent. of cases of gall-stone disease and also with about the same percentage of other conditions which lead to loss of weight and strength, such as pancreatitis, diabetes, renal calculus, etc., so that a low hydrochloric acid or the absence of hydrochloric acid furnishes evidence but no proof of cancer. The presence of lactic acid and of the Boas-Oppler bacillus are generally regarded as unmistakable evidence of cancer, but here again we cannot say that they are proof positive, since lactic acid is frequently, and the Boas-Oppler bacillus occasionally associated with benign stenosis with dilatation of the stomach. When the case has advanced to the stage of permitting recovery of the Boas-Oppler bacillus, surgery promises little or nothing, and certainly not much in the way of eradication of the disease even by radical surgery.

The detection of pus by the microscope and the

presence of occult blood may be of diagnostic value, but they are not always demonstrable in early cancer. All the various tests that have been devised, such as the glycytryptophan, or the tryptophan test; blood and serum tests, skin reaction, and so on through the whole list, may or may not be useful as confirmatory evidence, but none of them have, upon careful study, proved specific in the diagnosis of early cancer. The same is true of x ray and fluoroscopic evidence. Their importance rests on their demonstration of a surgical condition in the stomach, but not on their power of differentiating the condition.

What is there then on which we can depend for detecting early carcinoma of the stomach? Quite frankly, we may say, nothing positive; but the most reliable sources of information in the last analysis are first, the history and next, exploration. In a few words, a patient in middle life (forty to sixty years of age, giving a history typical of gastric ulcer, or one who has always enjoyed good health until about a year or six months ago, and now complains of gastric symptoms, epigastric pain, with more or less rigidity, progressive loss of weight, strength, appetite, with or without vomiting, with more or less motor insufficiency, hydrochloric acid increased, moderately diminished or entirely wanting, lactic acid and Boas-Oppler bacillus present or absent, justifies a tentative diagnosis of cancer. The x ray in such cases will probably show some changes in the outlines of the stomach and anomalies in the peristaltic waves, but laparotomy and the pathological laboratory will give definite information and upon the evidence thus obtained the surgeon will proceed to act, giving his patient a promissory note for relief if not for a permanent cure.

What William J. Mayo wrote in 1904 holds good today in spite of the advances made since then in diagnostic methods. He said: "In an early exploratory incision we have the one diagnostic resource which is reliable, and which must be resorted to in a large majority of cases before a surgical diagnosis can be made. Without it the truth is but slowly established at the expense of progressive hopeless involvement. Exploration can be safely accomplished through a small incision and with a short time of disability. It is said that the patient will not submit to an abdominal incision upon suspicion. Herein we do the intelligence of the public an injustice; we have seldom been refused the opportunity, when the matter has been fairly and candidly laid before the patient and his friends. The plea for delay has more often come from the attending physician."

I could hardly have found a more convincing illustration of the truth of the foregoing paragraph than the patient who forms the starting point of this discussion; and how in the last analysis laparotomy is the one reliable diagnostic resource at our disposal. The patient was brought to the author by a member of one of the societies under whose auspices the meeting was held and who had requested the choice of a topic of medical as well as surgical interest.

CASE.—L. K., male, aged fifty-six years, has been

in good health, up to about two months ago, since which time he has been complaining of constant pain in the right upper abdomen; the pain shows no particular relation to meals nor the kind of food taken. He has been losing in weight and his appetite is poor, there being a distaste for food in general. Bowels constipated. The patient is a fairly well developed anemic looking male. Skin dry and wrinkled, tongue coated, teeth poor, marked pyorrhea. Chest: many inspiratory râles, prolongation of expiration; hyperresonant to percussion. Abdomen, flaccid, liver palpable below the costal margin. Succussion splash over stomach. Vague mass palpable in right upper quadrant. Slight upper right rectus rigidity. No tenderness. Peristalsis normal. Rectal examination negative. Blood pressure 106-90. From the general appearance of the patient, his age and his history, we suspected carcinoma and sent him to the hospital for observation for a few days. Gastric analysis showed: test meal, slight retention, marked hypochlorhydria. Occult blood positive to benzidine and guaiac. No Boas-Oppler bacilli. X ray shows a diffuse shadow in the gallbladder region. No abnormalities of stomach or duodenum.

At operation the following condition was found: A mass of adhesions surrounding the pylorus, the pancreas, duodenum and gallbladder; a chronic ulcer on the posterior wall of the pyloric end of the stomach, which had almost perforated, was lying on the head of the pancreas, adherent to it and to the gallbladder. After separating the adhesions a pylorotomy was with difficulty done. The gallbladder, which had become implicated in the entangled alliance, was then separated from the duodenum and removed, the cystic duct divided with the cautery and the duodenum closed and sutured to the head of the pancreas. This was followed by a posterior gastroenterostomy (the jejunum being turned from right to left). A chronically inflamed appendix was removed and the stump cauterized and inverted; the wound was closed, with one drainage tube to the gallbladder fossa. The pathological report reads: Incipient scirrhous carcinoma. Further comment seems unnecessary.

DIAGNOSIS OF GASTRODUODENAL ULCER.*

By ANTHONY BASSLER, M. D.,
New York,

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The diagnosis of ulcer of the stomach and the duodenum is one of the easiest and at the same time one of the most difficult to make. It might sound like a Hibernicism, but the diagnosis of ulcer is made too often and not made often enough. To express it best, one may take four groups of men, general practitioners, gastroenterologists, surgeons, and laymen, and sitting down with ten cases of suspected ulcer that were in the hands of each, the array of facts would be about as follows: General

practitioners would diagnose correctly in half of the cases and be wrong in the second half. Of course some men would have a greater proportion one way or the other, but in the long run, only fifty per cent. of the diagnoses would be accurate. With some gastroenterologists there is an even greater diversity. There is one man in this city who according to statements made by patients and medical men, has made an accurate diagnosis in every case we saw. In the last two years there have been nineteen cases in which I arrived at the same opinion as he did. Of course that does not acquit either of us, because I may have been wrong myself. Thirteen of these patients were operated upon and all had ulcer. There is another surgeon, quite as prominent, who has diagnosed ulcer in seventeen cases I have seen, either definite or suspected, in which ulcer was present in three of the eleven patients operated upon, and I doubt that it was present in the remaining six. There is another specialist who never seems to be definite in any case; in nine of his suspected cases no patient had ulcer in my opinion; three were operated upon for other conditions in the abdomen and none had ulcer. A surgeon rarely makes a definite diagnosis, and when he does he is wrong as many times as he is right. Finally when laymen come to you suspecting that they have an ulcer, they are always wrong. Thus it may be seen that it is far from easy to make an accurate diagnosis in gastroduodenal ulcer, but it is possible with care, time, and a considerable amount of work. The most important of the many points to be considered are as follows:

History.—The classical syndrome of duodenal ulcer, as expressed by Moynihan, is quite accurate and dependable. However, the characteristic three or four hour postmeal pain, relieved by eating or taking of alkalies, and the remission history, may be due to ulcer in the pyloric end of the stomach. The pain is variously described as burning, boring, lancinating, steady and dull in character, and generally localized in the epigastric region or at the costal edge of the left side. It may extend posteriorly and even radiate into the back and chest. It has relation to meals, their size and quality, coming on at once or more or less late after them, the patient being less distressed when the stomach has been empty for some hours. Lesser types of pain (more on the distress order) quite classical in the time after meals way, may be due to some gallbladder condition or marked status of gastric hyperacidity. Another type of case that may closely simulate this syndrome, in which cramps are the feature in the pain or distress, is that due to chronic appendicitis where there is a reflex gastrospasm, pyloric in location or a true pylorospasm.

Now when it comes to hemorrhage, it may be said it is classic in duodenal ulcer when it shows as a melena without vomiting in a case in which there is or has been the duodenal ulcer syndrome. But hemorrhage as a symptom of gastric ulcer in which it occurs as a distinct hematemesis is frequently not due to gastric ulcer, but more often to cirrhosis of the liver, toxic effects upon the gastric glandularis, cancer, splenic or appendicular conditions, etc. It is surprising when vomiting of blood is present that

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ulcer is immediately thought of, when it should be the last thing to be thought of. Of course I am not referring to blood streaks in vomitus or the sero-sanguinous vomitus of the classical ulcer case in the young girl. Then another thing in this connection; so many diagnoses of ulcer are made by the finding of fresh blood in test meals. Please remember that to be significant it must be more or less digested, showing that it had been in the stomach for some time and not the fresh type due only to the trauma of the stomach tube. However, blood in ulcer is always arterial, never venous, usually is intermittent, and the best test for it is the appearance of it and not the too sensitive ones, but the microscopic or guaiac tests instead, if there is any doubt.

Vomiting, which is supposed to be present in seventy per cent. of gastric ulcer cases, is not present in duodenal ulcer. In gastric ulcer, it is significant when it occurs with pain preceding it, the pain ceasing after the vomiting. In recent ulcers the vomitus consists of food slightly digested. In the average chronic ulcer no difference from normal is observable—unless pyloric stenosis exists, in which instance it may be voluminous, brownish buff colored, high in acidity (concentration acidity) and also containing sulphurated hydrogen gas, perhaps enough to give it a fetid odor. Such contents of stomach or extracted test meals on standing in a fermentation tube, of the kind I have recommended, for twenty-four hours will show more than the usual small bubble of gas, it sometimes being as high as twenty per cent. When the gas is beyond normal, but distinctive, it, as well as the contents of the tube, should be examined for ammonia, which if increased beyond normal, has significance in the diagnosis of ulcer as well as malignant disease.

The posterior spinal tender area, first suggested by Boas, is frequently not found. Even when it is present it is found in so many neurotic individuals and pathological gallbladder cases that its significance to me is almost worthless.

Of the general symptoms less must be said. Whereas one patient will show anemia, weakness, and loss of weight, the next will be most robust. There are so many stomach and corporeal conditions that will cause these three, together with pyrosis, eructations of gas and fluid and the other colloquial symptoms of indigestion, that these in themselves and alone are not important. The stomach is a very talkative organ and more times talks when the trouble is extragastric than when actual trouble occurs. In this it is not the stomach that talks but the sympathetic plexuses which happen to be in back of the stomach, so the stomach gets the credit for it. The anatomical association has been a good thing for some of our gastroenterologists, and that is the reason why a stomach specialist should be a good internist primarily, and not view only a stomach, but that organ the last in the examination. Of course nervousness, constipation, a little nausea, slight thirst, perhaps a degree of temperature, a little leucocytosis, etc., is found in ulcer, but not more often than in other conditions.

We come now to the objective symptoms. The front and back tenderness have been mentioned. A sharply localized tenderness at or near the

median line (left or right) is suggestive of the ulcer being in the pyloric region. In duodenal ulcer only about a third of the cases have tenderness on pressure over the duodenum, which when present is only on deep pressure and rarely sharp. Care must be taken here because gallbladder conditions are liable to give tenderness in the same location, but its intensification is generally on pressure upwards instead of downwards, and the median fissure of the liver is an anatomical differentiation point. I have seen three cases of ulcer of the anterior stomach wall in which an exudate due to peritoneal irritation was palpable.

In ulcer of the anterior wall, lesser curvature and duodenum, when the examination is made by a good roentgenologist, it may be most valuable in making or confirming a diagnosis. But most of the ulcers are at the posterior wall, and in these, mistakes of omission or negative findings commonly occur. The most definite x ray finding is an ulcer pit that retains barium or bismuth after the stomach is emptied. Since the commoner use of barium instead of the bismuth salts, this lodgement is less often seen than formerly, and for that reason when I suspect ulcer I resort to the bismuth contrast meal instead of the barium sulphate. By this local lodgement one can sometimes make a diagnosis of ulcers of the posterior or anterior walls, not possible otherwise. By serial roentgenology the persistence of a lesser curvature incisure with a corresponding one on the greater curvature is often suggestive, but not always conclusive. It is more often worth while in duodenal ulcer when spasm can be eliminated, and for that reason the x ray diagnosis of duodenal ulcer is more to be depended upon than of gastric ulcer. The perforative type of gastric ulcer where the contrast substance is seen beyond the lesser curvature line is most conclusive, especially when it occurs in a series of plates, and as I have noted it, with gas superimposed.

The more indirect means of diagnosing ulcer by x ray, namely, tenderness on sharply localized pressure, and hypermotility in duodenal ulcer, I have discarded. Much in this way is worth while, however, in the six hour retention in pyloric stenosis or stenosis beyond in the first and second parts of the duodenum, and in definite pylorospasm, which, in my experience, is more often from trouble elsewhere in the abdomen than in the stomach and duodenum. In a few words, the x ray diagnosis of gastroduodenal ulcer is one of the most useful, and at the same time one of the most misleading means at our command. There are so many factors that enter into it that unless we take them all into consideration error is common. There are the matters of technic, the length of observation, the personal equation of the operator, the confirmation of the findings at another time, and so forth—all of which must be considered.

The factor of least importance in the diagnosis is such information as is obtainable from test meal examination. In the clinical type of acute ulcers, when the characteristic onset of pain, vomiting and hematemesis are present, gastric analyses are not important for diagnosis. But the majority are not acute clinically and therefore should be examined

by test meal. When done by an experienced person there is no danger in passing a tube, but the extraction should be by aspiration rather than by the expression method. In this, the test meal bottle method I suggested is most useful and free from danger. Of course, soon after profuse hemorrhage it is unwise to use this method. When stomach contents have been carefully aspirated, the finding of importance is blood, next a high acidity, although these two are not conclusive, in fact may not even be suggestive and of no importance. The retention of food elements over five or six hours is a finding suggestive of pyloric obstruction or obstruction not far from the pylorus. In duodenal ulcer when hypermotility exists, a smaller return than normal may be met with—that is, with an Ewald meal definitely less than ninety c. c. The test meal finding in true obstruction that may be characteristic has been mentioned. Where, by test meal or x ray method, or both, continuous secretion is diagnosed it points more definitely to ulcer than other conditions that may cause it, because in ulcer it is more definite. Fractional test meal examination may give more significance in diagnoses than the older method, but even here, many ulcers are met with that do not give characteristic acid plottings, and sometimes in characteristic curves no ulcer is present. The minimization of the value of the test meal method of examination is due to many cases of stomach ulcer having normal, low or absent secretions, the interference of many factors, such as chronic gastritis, reflex causes, etc., and the fact that the stomach as an organ does not functionate the same way at all times.

Mention should be made of the string test, which I have discarded. If the symptomatology points to ulcer, and the x ray and laboratory are helpful, it is not required, because even a negative string, not an uncommon finding, would not exclude ulcer. It may be tried, but a positive string should never be sufficient to diagnose ulcer unless there is much more to substantiate it. When I was using the string test frequently I got so many positive strings in pylorospasm, hypermotility, gallbladder cases and in normal stomachs that I discontinued its use. It is very impressive to patients to show them a blood stain on a string and tell them an ulcer is present, but this is the sort of gastroenterology we have had too much of and should be stopped. It is more to the enhancement of one's reputation and the art of medicine to be critical and truthful, than to be careless and of bad character.

To summarize thus far, the history is of most importance, the x ray next, the physical facts next, and the laboratory last of all.

We now come to the subject of perforation. When accompanied with hemorrhage it is the most serious complication of ulcer. I have seen four such cases; one patient died in two hours, the other three were all operated upon within ten hours and all died. There is a fulminating type of ulcer, essentially necrotic in pathology and occurring most often in alcoholics, in which perforation brings the case under observation. They are most often seen in a metropolitan hospital with an ambulance service.

About five per cent. of all ulcers perforate, and while it is said that they are more common in women than men, my experience has been the other way. Perforation of the duodenum is also more common in men. Clinically three types of ulcer are encountered, those which occur in close and direct clinical sequence to acute ulcer; those which take place late in the course of an ulcer when more or less cicatrization has taken place, and the fulminating type already mentioned. Four out of every five perforations are single. Most of those which I have seen are in the anterior wall, next the lesser curvature, and least frequent in the posterior wall. Those of the anterior wall open into the greater peritoneal cavity including the duodenum, the lesser curvature, usually into the lesser, and those of the posterior wall including the duodenum into the cellular tissues behind, perhaps leading to the region of the ascending colon or kidney on that side. In some cases these anatomical points are important to keep in mind, because in that way grades and types of perforation cases are explained. Less commonly the rupture is through the diaphragm and pericardium, causing, according to the region affected, pneumopericarditis, pneumothorax, pyopneumothorax, or involvement of the mediastinum with external emphysema. At other times the subphrenic space, the liver or pancreatic substance, portal vein, gallbladder and ducts, intestines or pelvis of the kidney may be entered, but most often it is in one or the other peritoneal cavity. The symptoms of onset are acute, subacute or chronic, these being given in the order of their frequency which is according to the conditions present.

The acute cases are easy of diagnosis, although no pathognomonic symptoms exist. The onset is sudden, the pain and tenderness spontaneous, the pain spreading across the upper abdomen quickly. Deep breathing causes pain; this can be modified and patients assume the most comfortable attitude and complain on being moved. At first the abdomen is flat, tense, and immobile, later on it distends but still remains tense and immobile. The liver dullness (a late symptom) is absent in one fourth, diminished in one half, and is not affected in the other fourth (this depends upon whether general peritonitis is present and to what extent). A friction rub may be heard, and I have seen two cases in which gurgling of fluid and gas through the perforation was audible. Collapse and prostration soon ensue, the temperature, at first stationary, rises or becomes subnormal. The slower the onset of peritonitis, the higher is the temperature. The face becomes drawn and pale, the angles of the mouth depressed and the expression anxious. At the end of the attack there is general distention of the abdomen, obliteration of liver dullness, vomiting, hiccoughing, cold skin, facies Hippocratica, small running pulse, unconsciousness, Cheyne-Stokes respiration, and death, and such is the terminal picture of a neglected case.

In the subacute cases the onset is less marked. The features here are history of ulcer, change in character of pulse, distinct intensification of pain, the onset of abdominal wall rigidity, a rise in temperature, and onset of a leucocytosis with septic

index. It is in this type of case that diagnosis may not be made early. One must be always on guard for them, and frequent blood counts are most valuable in diagnosis. At the least suspicion, successive counts every few hours should be made, and however marked and obscure the symptoms of perforation, if the number of leucocytes keep steadily rising and the neutrophils relatively increase and perhaps the eosinophiles coincidentally diminish or become absent, our duty to the patient is to insist upon immediate operation. In duodenal ulcers which perforate posteriorly and in which infiltration in the subperitoneal tissue does not take place, it is found that not only does the perforation take care of itself, but surprising as it seems, the ulcer heals without operation. It is better, however, for all patients with perforations to be operated upon, the subacute and chronic as well as the acute.

In the chronic case, definite diagnosis is rarely possible without the x rays. There may be no local or general symptoms other than those due to ulcer, or those present are so vague that a diagnosis is not possible. As a rule these patients recover enough to get out of bed, and the extent of their complaining demands further examination, in which the x ray or the surgeon makes the diagnosis.

In the differential diagnosis of ulcer we meet with such conditions as acute distress in the stomach due to indiscretion of diet (so-called gastralgia), cancer, hypersecretion, hemorrhagic and other forms of gastritis, pylorospasm, appendicitis, pregnancy with hyperemesis, uremia, gallbladder pathologies, kidney stones, epigastric hernia, arteriosclerosis, spinal cord conditions, etc. By extensive work and processes of elimination, the conversant have no difficulty in diagnosing any of the ulcers. Important in the diagnosis of ulcer is that of postulcer conditions. In not a few of the cases as they come under observation, these are present and not infrequently they make the diagnosis of ulcer easier. Fortunately surgery has made marked inroads in clearing off a large proportion of these cases but they are still with us and should be included in ulcer diagnosis.

Perigastritis.—Most of these are due to other than ulcer conditions, but ulcer can bring about perigastric adhesions by causing inflammatory conditions of the peritoneum with resulting organization into adhesions. They are most often met with when the ulcer has cicatrized and they are found generally in the pyloric region and that of the lesser curvature. Those attaching to the pancreas are most frequent, the liver next, both pancreas and liver third, and so of other abdominal organs. Those in which three or more organs are involved with adhesions represent over twelve per cent. of the cases.

The symptoms of these vary according to the extent, degree, and location of the adhesions, and also the character of such inflammation as may be present—whether plastic, fibrous or suppurative. In the early stage of ulcer, the onset of local irritative phenomena (retching, distress, dull pain, and possibly fever) should direct our attention to peritoneal involvement. As a rule, however, the symp-

toms of ulcer disappear under treatment and this complication is not suggested for some time. Then certain symptoms, characterized by chronicity and resistance to treatment, take place and adhesions should be thought of. Marked among them are mild exacerbations of gastralgic pains which are radiating in character and which may be brought on or intensified by certain movements of the body or occur when the stomach is full. Close observation of these people will often display a slight rise of temperature, coming and going, not being accounted for, and due to congestion of the adhesions or mild secondary disturbances that they set up. A gastric stasis may occur when the pylorus is mechanically interfered with.

When the adhesions involve the gallbladder, jaundice may occur, which is liable to be chronic and in that way suggestive of malignant disease of the biliary region. When the adhesions affect the pancreas often one is confused as to whether chronic pancreatic disease (parenchymatous or interstitial) may not be the proper diagnosis. In the adhesion cases I have seen fatty stools, albumin, and carbohydrate loss beyond ten per cent. Many undigested muscle fibres in the stool and glucose urines have never been met with, and these are important points in differentiation. A characteristic feature in adhesions which involve the pancreas is a persistent and marked degree of backache. Adhesions may bind down the gut causing mechanical obstruction of chronic types or only constipation. The best means of diagnosis in postulcer or any type of perigastric adhesions is by x ray, and the process of clinical elimination. Surgery is commonly required to make sure.

Cicatrices in the glandularis or the diffuse form in the stomach cases causing pyloric obstruction is easily diagnosable. There may or may not be the history of ulcer, but there always is x ray and test meal stagnation beyond six hours, with the character of test meal I mentioned. In the majority of cases I have seen, collective vomiting was not present, only the symptoms of a very distressing indigestion and reduced general condition of body. The stomach generally percusses larger than normal, and a pyloric stiffening may be palpable.

Hourglass contraction is best diagnosed by x ray. The spastic types which may closely simulate the true hourglass stomach, must be excluded. There are no special or suggestive symptoms of hourglass stomach that depart from the other ulcer sequelæ. Sometimes the physical phenomena of a stomach which is supposed to have been emptied by a stomach tube giving considerably more return, suggests the condition.

Persistent excess of secretion can be taken as a postulcer condition, but it is always due to dynamic interference with the passage of food and thus is a condensation acidity. Therefore a stagnant stomach is best diagnosed by mixed test meals or the x ray. There are some cases with persistent excess of secretion in which test meal and x ray methods to diagnose dynamic obstruction fall down. They are few and an exploratory incision may be called for in these cases. In them if no stomach lesion is met with, it often will be found in the

gallbladder, appendix, colon or female pelvis. There is a persistent irritable type of stomach in which pain, more or less vomiting, and marked hyperesthesia lingers after an ulcer is supposed to be healed. When other stomach and general conditions can be ruled out, particularly neurological ones, we have to include them as sequelæ. Fortunately they are very rare and are diagnosed by exclusion.

The cases of chronic ulcer and the erosion of vessels are true sequelæ. If a cicatrix is large, in fact if it is at all distinct and persistent, a corrosion of the margins or autodigestion of the central parts of the cicatrix may occur. The factors of importance here are the history of ulcer, small hemorrhages, errors in gastric secretion, gastric irritability and intolerance to foods, the colloquial symptoms of indigestion, and more or less invalidism. The x rays are helpful here. Many surgeons include as chronic or latent ulcers the instances of post-ulcer conditions mentioned. This is not correct. The term ulcer sequelæ should be used instead, because there is a type of chronic ulcer, often of some size, without giving any intensity of symptoms suggesting its presence, usually extensively organized, and found in cases of arteriosclerosis that are the true chronic or latent ulcers.

Lastly is the so-called carcinomatous degeneration in ulcer. Here we come on to debatable ground both as to etiology and frequency. Most all the surgeons claim ulcer an etiological connection and the condition of marked frequency, and most pathologists and gastroenterologists claim otherwise. The Mayo clinic claims to have proved the points by displaying the remains of ulcers in cancer cases or the demonstration of transitional cell elements in ulcer cases. Arshoff claims that cancer always begins as such, and the ulcer cancers were not originally true ulcers but cancers in which ulcer occurred, due to necrosis and digesting away. The majority of clinicians on the basis of so few ulcer cases ever becoming carcinomatous, think that the etiology and incidence are not at all proved. In my belief about five per cent. of all ulcer cases become carcinomatous. This is a small percentage I know as compared with what the surgeons would have us believe, but it is five per cent. nevertheless. I do not believe that McCarthy has proved the etiological linking. In my belief he is dealing with round cell infiltration undergoing organization change—and therefore protective against the ulcer becoming cancerous. I do not believe Arshoff is entirely right either because I have seen cases where carcinomata have developed from ulcer—they are few but nevertheless present. As strange as it seems for me to state it, in my experience, ulcer of the stomach and duodenum due to syphilis is four times as common as is cancer due to ulcer. What is important to say to you is that a gastric ulcer that might at some time cause a carcinoma is the ulcer that is not healed in the normal way, and all the time that this is so the case is surgical anyway, not because it might become a carcinoma so much as because it is giving chronic trouble to the individual. And on this point let me add that in the long standing ulcer case that suddenly has a let up of pain for no

known reason after it has troubled the individual for months or years, look out that a cancer is not already there. In the question as to whether a cancer is secondary to ulcer of much importance is the finding of cicatricial tissue between the base of the ulcer and the carcinoma. My postmortem experience leads me to believe that carcinoma is more liable to develop when there has been a chronic perforation which has become walled off, the carcinoma developing around the sinus. Other than that I need not describe the loss of weight, the change in gastric secretion, the x ray findings and other symptoms of advanced cancer. I want only to say that when ulcers develop into cancer the cases have been poorly handled, the patients permitted to suffer far longer than they should, and that we should have suggested operation to the patient at some time long before his now grave condition and in that way acquitted ourselves from responsibility.

THE MEDICAL TREATMENT OF GASTRIC AND DUODENAL ULCER.

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Our knowledge of the physiology of the functions of the pylorus as well as of the stomach has made great advances during the past few years. Many internists have been slow to take advantage of the knowledge of normal physiology which will shed light upon the physiology and pathology of clinical disorders of digestion. Notwithstanding the new discoveries in medicine, and the many improvements in treatment and means of diagnosis we must admit that only recently have we been able to treat the disorders of digestion with better medical success than in past generations. Until recently the examination of the gastric contents has furnished but little assistance in the diagnosis of gastric and duodenal ulcer. Those cases of "acid stomach," pyrosis, chronic dyspepsia, subacute gastritis, with pain after meals, were regarded as cases of hyperacidity, or more especially hyperchlorhydria, while the test would show in some cases that there was an excess of hydrochloric acid; in a majority of cases the acid was not abnormal.

Patients who complain of pain and discomfort about two hours after meals soon learn that when the stomach is empty they are relieved. For this reason the practice of inducing vomiting when the pain begins is very common. Therefore, we must consider what those symptoms may indicate, whether they indicate some acute disorder of the normal functions or if they are of pathological origin.

In considering the subject of gastric and duodenal ulcer, whether in a medical or a surgical sense, the important point to decide is, where does the medical treatment cease to be of value to the patient, and where should the surgical interference begin? Unfortunately for the patient in some cases, I believe the internist and the surgeon are not always in accord as to the most rational method to be adopted. The surgeon generally advocates

operation and the internist wishes to proceed with medical treatment.

What we need, most of all, is that the internist and the surgeon work together, and if possible make an accurate diagnosis in each individual case. I do not believe it possible to make a positive diagnosis in every case, by examination, but if we take into consideration the history of a long continued disorder of digestion with intervals of rest and recurrence with seasonal regularity, especially in the winter months, improving when the warm weather appears, it is a strong suspicion of duodenal ulcer.

I believe the greatest responsibility rests with the internist in the treatment of gastric and duodenal ulcer, not so much as to the treatment of the ulcer as the treatment of that condition which leads up to the beginning of an ulcer. In many cases, if this is recognized and corrected, we may prevent the formation of ulcer; and I speak more particularly of the duodenal ulcer in this connection. If an ulcer should develop, while in the acute stage and if recognized, and proper treatment is given, the cure is reasonably assured. We all know that many cases of gastric and duodenal ulcer have been treated for dyspepsia, indigestion, hyperacidity, before the true condition was recognized. Frequently it is only after an alarming hemorrhage has appeared that the true condition is suspected.

It is only within the past few years that duodenal ulcer has been recognized and diagnosed with such accuracy. The history and the symptoms are so plain as not to be misleading when combined with a careful physical examination. Moynihan claims that all duodenal ulcers can be diagnosed from the history alone. I do not agree with this, but I do believe that in the majority of cases the history is of great service in making a diagnosis, but the most rigid tests should be made in every case. The internist is frequently criticised for treating a case of duodenal ulcer when the case seems to have been surgical. I think the pendulum has gone too far and we should be more conservative in the medical treatment as well as the surgical. First, if possible, a positive diagnosis should be made. Then the condition present will suggest the treatment, whether it should be medical or surgical.

Have we arrived at finding the cause of the condition which produces gastric or duodenal ulcer? For a number of years medical literature has been filled with all possible theories as to the cause of gastric and duodenal ulcer. I fear our material for theories has been almost exhausted. Let us briefly enumerate some of the more recent theories, as to the cause of duodenal and gastric ulcer:

Many experimenters have clinically and experimentally endeavored to produce a plausible etiology for the forming of ulcer in the digestive tract, and by using organic and inorganic methods have unfortunately succeeded in a number of instances. Some have attributed this condition to nerve changes, heredity, tuberculosis, appendicular disease, and to foreign substances which may have been introduced from within or without. Impairment of the motor functions has been attributed as a leading cause. Regurgitation of intestinal ferments as a result of the pyloric insufficiency has

been advocated by some as a plausible cause. Changes in the functions of the adrenals have been mentioned as one of the contributing factors; toxic shock following influenza has been suggested as a cause.

Still others asserted that there was some substance within the blood stream of an antipeptic nature which would prevent local digestion by the gastric mucosa, and it was the local circulation which was impaired that prevented this antipepsin from reaching certain points in the stomach; hence the ulcer followed as a result of peptic digestion. Infection, especially from streptococcus origin has been given as a cause of ulcer. Tonsillar infection, rheumatism, toxic poisoning, both local and general, mechanical irritation from pylorospasm and many other theories have been advanced as causes, which are too numerous to mention.

The experimentation along this line has been happily practised only on animals and the human being has escaped; and beyond the theorizing of the experimenter's findings, but little has been achieved. In a very large proportion of gastric and duodenal ulcers they are situated within one and a half inches from the pylorus; that is, it is in the first portion of the duodenum or the gastric side. Again, the most frequent location of an ulcer is on the anterior wall of the gut. It is true that we find ulcer in other portions of the mucosa, but these are exceptions and not the rule.

We know that the secretion on the gastric side of the pylorus is acid and the secretion on the duodenal side is alkaline; the ulcer being in the greatest proportion on the anterior wall of the duodenal side, as it is in the most direct position for receiving the jet of acid chyme as it is expelled through the pylorus. An ulcer on the posterior portion of the bowel is very rare. Where there are a number of ulcers they are located on the anterior portion of the duodenum and all grouped within one and a half inches from the pylorus.

We know that the hydrochloric acid comes from the middle portion of the gastric mucosa. We also know that peristaltic activity is different at the fundus and the antrum of the stomach, the fundus acting as a reservoir. Therefore, the food at this location is not thoroughly mixed with the gastric secretion, and from which the contents are passed into the active right half of the stomach.

Food in the fundus is only slightly acid and may be alkaline, while that of the antrum is strongly acid. The gastric juice at the fundus is practically inert, and for this reason an ulcer at the fundus will heal more readily under medical treatment. The prolonged contact of the gastric juice, due to retention, would have a very destructive action on the mucosa, this contact being produced by an abnormal closure of the pylorus would produce a hyperperistalsis. This would on account of the narrowing outlet at this portion make an increased friction by the particles of food within the stomach.

We know that pylorospasm may undoubtedly be produced from an ulcer, but before there has been an ulcer formed we may have a functional or intermittent pylorospasm from excessive acidity. Hydrochloric acid is an irritant to all normal mucous

membrane except the stomach. When the mucous membrane of the stomach is injured, the hydrochloric acid at once becomes an irritant. The normal secretion of the duodenum is alkaline. When the acid chyme is retained too long without being neutralized, when passed into the duodenum, it becomes an irritant and produces pylorospasm. Therefore, any cause which will increase and retain acid for an abnormal time in either of the above locations, will become an irritant.

Probably the theory of lowered general vitality is the one most accepted as a cause of gastric or duodenal ulcer. However, localized traumatism with increased secretion resultant from intermittent pylorospasm is a plausible cause of gastric or duodenal ulcer, the pylorospasm being caused in the first place from increased acidity and then the slow neutralization of the acid chyme within the duodenum.

If there is slow neutralization within the duodenum there is also long retention of hydrochloric acid within the stomach. Either may be the means of bringing about an irritation of the mucosa. It is this pylorospasm which gives rise to the so-called chronic dyspepsia, indigestion, and other ailments, and if this is neglected it will finally result in the production of an ulcer through mechanical irritation.

The diagnosis of gastric and duodenal ulcer was imperfect for many years, because of the fact that the symptoms were not studied accurately. The different periods of the onset of pain were not sought for; they were treated for chronic dyspepsia, indigestion, and it was only when the more alarming symptoms would arise that a more thorough investigation would be made. Many of these patients give a history of having had some digestive disturbances early in life; in fact, they cannot remember when they did not have some stomach trouble. However, in these cases we always find periods of quiescence, especially in duodenal ulcer. During those periods of rest the patient is comparatively free from any distress.

In chronic duodenal ulcer the periodicity of the attacks is characteristic, the recurrence from time to time with total absence of all symptoms in the interval; the attacks are more frequent during the winter months and in cold, damp weather. During the summer the patient is comparatively free from disturbances and frequently attributes this improvement to the change to fresh vegetable diet, and they will tell you that they always improve when they get the summer vegetables. In the majority of cases the early symptoms are those of oppression or weight in the epigastrium after meals, pain coming on from one to two hours. If the pain is manifested three or four hours after meals, the position of the ulcer is generally posterior, the pain coming on when about half of the meal has left the stomach.

If the pain comes on within an hour after a meal the symptoms are in favor of gastric ulcer. If pain comes within two hours after meals the ulcer is near the pylorus, and may be on either the gastric or duodenal side. I do not believe we can differentiate between gastric ulcer near the pylorus with an equal location on the duodenal side.

I believe we are safe in making a differential diagnosis between gastric and duodenal ulcer by the period in which the patient is free from pain after a meal. In all cases of stomach disorder a test meal should be given. The proportion of free hydrochloric acid may vary according to the stage of the disease. During the active stage of ulcer there is always hyperchlorhydria. Moynihan claims that a recurring hyperchlorhydria is always a positive indication of duodenal ulcer. I wish to say that the symptom complex of hyperchlorhydria is very great and has been responsible for many mistakes in treating stomach disorders. I believe the mechanical irritation of the ulcer is responsible for the presence of hyperchlorhydria, this appearing after the ulcer has developed. The excessive proportion of the acid has nothing to do with the cause which forms the ulcer.

After careful study of many cases of gastric and duodenal ulcer I feel quite confident that the etiology and predisposing factor which is responsible for the formation of ulcer is the introduction into the system of an infection from some local focal point. Through metastatic activity an ulcer is produced. Through mechanical irritation the resistance is lowered, making more readily the susceptibility of an ulcer at this point of least resistance, the seasonal regularity of returning ulcer being caused by an excessive quantity or shower of infection coming from the local focal point. The discovery of the focal infection and complete removal is the only positive measure to prevent a recurrence of the ulcer. If the ulcer is chronic and will not heal, then the logical procedure is removal by surgical interference.

I am quite positive that the only reliable procedure of the cure and prevention of gastroduodenal ulcer is careful search and removal of local focal points of infection.

Pain in gastric ulcer is always referred to the midline and is higher up than that of the duodenal ulcer. In gastric ulcer the pain usually radiates to the left costal margin and left breast, while that of the duodenal ulcer radiates to the right and is not so high up in the middle line. Pain in the back is always present in gastric ulcer. Hematemesis and melena are always present in gastric ulcer. They may be present also in duodenal ulcer, but are more frequent in gastric ulcer. Hemorrhage is not a symptom of gastric ulcer, but a complication coming on late in the course of the disease. Occult blood is significant of gastric or duodenal ulcer, but is not reliable as a diagnostic feature, for you may have blood coming from various causes within the alimentary canal.

During the examination of the stomach by the x ray the rapidity with which the stomach empties itself is an indication of duodenal ulcer. Excessive peristalsis in the normal stomach is an indication of some trouble within the duodenum.

There are quite a number of tests which may be used for the diagnosis of gastric and duodenal ulcer. One very reliable test is that devised by Einhorn; this is the thread test, and consists of a duodenal bucket to which is attached a thread. This is used in the evening, allowing it to remain in the

stomach over night, passing through the pylorus in the meantime, and if an ulcer is present the blood stain will be marked on the thread. All ulcers located on the gastric side of the pylorus, or on the duodenal side, will show the blood stain on the thread. In many cases the blood stain would show on the thread when there has not been any occult blood or other symptoms which lead us to suspect ulcer.

With the thread test we are always sure whether the pylorus is patent or not. We can locate the position of the ulcer by the distance of the blood stain on the thread from the lips. In duodenal ulcer there will be a bile stain on the bucket end of the thread, and the blood stain will be above the bile stain. With the duodenal bucket we can also secure some of the duodenal secretion and test this for alkalinity or other conditions. The average distance from the lips to the cardia is eighteen inches and to the pylorus twenty-two inches. However, this will vary to some extent in different individuals.

In many cases of duodenal ulcer there may not be any pain, or the thread test may even fail to show blood, but a protracted and persistent stomach disorder should be treated for ulcer. I have, during the past twenty years, treated a number of patients with this in mind when the most cardinal signs, pain, blood, etc., were absent.

The differentiation between duodenal and gastric ulcer is not difficult. Moynihan claims that duodenal ulcer can also be diagnosed by the history. In differentiating between gastric ulcer and duodenal ulcer we should take into consideration the period of pain after meals, the periodicity of the attack, with intervals of rest, chronicity, the thread test with blood stain, hyperchlorhydria, and other symptoms. In gastric ulcer pain comes on within one hour after meals. There are no periods of remission. Hemorrhage is more copious than in duodenal ulcer. There is a greater prostration, and all the symptoms are acute. When an ulcer has formed, the pain is not due to the ulcer, but to the acidity, with functional pylorospasm. In all cases where there is pain we can lessen and modify the pain by decreasing the acidity in the stomach.

We know that the pyloric sphincter control depends upon the free acids on the gastric side, which is the signal for the opening of the pylorus for the entrance of the jet of acid chyme into the duodenum. The entrance of the acid chyme into the duodenum is another signal for the closing of the pylorus. As long as the acid chyme is present within the duodenum, the pylorus will continue closed. It is, therefore, the function of the duodenal bile and pancreatic secretion to neutralize the acid chyme, which will indicate the period that the pylorus will remain closed, no matter how much acid may be on the gastric side. Excessive acid in the duodenum if slowly neutralized will produce a temporary pylorospasm.

If the normal physiological function of the pylorus is to be maintained, we must have proper balance of the acid secretion on the gastric side and the neutralizing powers on the duodenal side. Any derangement of this normal function will bring

about some serious impairment of the digestive powers. I have found that in the majority of these cases there is an abnormal acidity present, but that the condition is not improved by reducing the acid alone. We should also endeavor to improve the neutralizing forces within the duodenum. We know that the power of neutralization of the acid chyme within the duodenum depends upon the strength of the bile and pancreatic juice and the secretion of the duodenal mucosa. Any treatment which will improve the normal functions and equalize the secretion of acid and the neutralizing powers, will prevent pylorospasms.

To improve the neutralizing forces there must be supplied those constituents which are deficient, by artificial means. While we cannot supply the normal secretion of the duodenum, we can supply bile and pancreatin. However, if we administer these directly into the stomach, the bile and pancreatin will be altered by the gastric secretions so that neither will be of any benefit when entering the duodenum. I have used for this purpose an enteric coated tablet, containing three grains of fresh powdered ox bile, and three grains of pancreatin. Glycotauro capsules in five grain doses have also given good results. The tablets are given in doses of two after each meal, increasing or decreasing the number according to the effect. For the treatment of ulcer and to correct the acidity we give in conjunction with the enteric coated tablets, bismuth and calcined magnesia, twenty grains of the bismuth and ten grains of the magnesia, before meals. The diet is restricted to milk and eggs, fresh bouillon, soft toast, scraped meat, bouillon and clam broth equal parts, lamb broth and beef broth equal parts, beef juice demitasse, mutton juice demitasse, puree of peas and carrots equal parts, puree of lima beans and carrots equal parts, cooked lettuce, junket, rice pudding, ice cream, glass of half milk and half Vichy water, administering the feedings every five hours during the day. When it is unsafe to administer food by the mouth, or undesirable to give nutritive enemas, there is a most practical and satisfactory method of administering food by an appliance for direct duodenal feeding. The apparatus is very ingenious and gives splendid satisfaction. The feedings are given every four hours and administered very slowly, milk and eggs being the principal diet.

If there is severe pain or pylorospasm present, atropine is given hypodermically, 1-100 grain every six hours, unless contraindicated by any systemic condition. I have treated a large number of these patients and in every case there was marked improvement, and many seemed to be cured. However, unless the cause is located and removed, the ulcer will return. For the correction and prevention of the pylorospasm nothing has given me better service than the use of benzyl benzoate twenty to twenty-five minims before meals, and when the pain is severe twenty-five minims every one or two hours until the patient is relieved. This prevents pylorospasm by its effect on the smooth muscles and relieves the tonus or spasm, thereby inhibiting the contractions. This preparation is nonnarcotic and is a safe antispasmodic.

In all cases of gastric ulcer it is important that the patient have perfect rest of mind and body, and in the duodenal cases, where there is severe hemorrhage, or a tendency to recurrent hemorrhage, the patient should have perfect rest, but in those cases where the ulcer is not extensive, the patients may do very well under medical treatment without having to be put to bed. In all chronic ulcers of the duodenum, where they do not show any improvement under medical treatment, these patients should be operated upon, but I do not advocate surgical interference in the acute or subacute cases.

There is room for much study in these cases and the internist and surgeon should work together and devise the best treatment for the welfare and protection of the patient, but in all cases the source of infection must first be removed.

THE GREENBRIER.

AN UNUSUAL CASE OF CARCINOMA OF THE ESOPHAGUS.

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The early diagnosis of carcinoma of the esophagus is usually made possible by the almost immediate symptoms caused by obstruction or by changed neuromuscular activity of this organ. Increasing dysphagia accompanied by the regurgitation of food is the earliest and most common sign of esophageal malignancy in persons of middle age. The diagnosis is generally made without difficulty. The following case is interesting because the diagnosis was made only at postmortem, although the carcinomatous process had involved the entire lower portion of the esophagus and the adjacent structures.

On November 11, 1918, Mr. H. M., a man of fifty-eight, in apparently good health, entered the Boston City Hospital for the relief of a large swelling in the right side of his neck which caused him no trouble, save that he was forced to wear larger collars than had been his custom. His family and past history were entirely negative. He was a bricklayer by trade, had always worked hard, and usually enjoyed good health. He denied any previous Neisser or luetic infections, and only drank and smoked in moderation. About three weeks before, he had noticed a small lump in the right side of his neck which was not tender and had continued to grow rapidly, especially during the past week.

Physical examination showed a very well developed and nourished man, five feet seven inches tall, weighing 157 pounds. With the exception of the mass in his neck the physical findings were practically negative. This mass in the neck was about the size of an orange, situated in the posterior triangle but somewhat overlapping the anterior edge of the sternocleidomastoid muscle. It was apparently adherent to the skin in places; in consistency it was firm except at a few points where it seemed fluctuating. These points were reddened, but not tender or hot. The mass was not freely moveable.

His temperature, pulse, and respirations were nor-

mal. His white blood count was 14,600 with a proportional increase in the polymorphonuclear cells. The red blood count showed 4,800,000 cells with a hemoglobin estimated at ninety-five per cent. A Wassermann report on his blood was negative. Urine examination showed no sugar, but a slight trace of albumen; no casts were found.

Because of its acute onset a tentative diagnosis of septic cervical adenitis was made, although the absence of pain and tenderness could not be accounted for. Hot flaxseed poultices were applied for forty-eight hours in order to point the abscess if possible. During this time, the mass became definitely much larger and seemed more fluctuating. There were no obvious signs of sepsis—heat, tenderness, and redness were absent.

Malignancy was then suggested and a scrutinizing examination of the lips, gums, tongue, tonsils, and oropharynx failed to reveal the site of any primary malignant disease. The possibility of a malignant branchial rest was considered but not held tenable. X ray examination of the chest showed nothing remarkable in the lungs. The radiologist reported "a somewhat enlarged mediastinal shadow."

On November 18, Dr. John Babst Blake, assisted by the writer, operated upon the patient using ether anesthesia. The mass was so firmly attached to the skin that it was opened on the first incision and a large quantity of semisolid necrotic and foul smelling material was evacuated. A frozen section pathological examination of the tissue showed it to be cancer of the medullary type. The area was rapidly curetted; the sternomastoid muscle was found to be deeply infiltrated with the tumor. The wound was then opened widely in preparation for x ray treatments. The patient made a good ether recovery and was then discharged to the x ray therapy department. For about a month the patient did well; the wound was closing slowly, but the granulations were becoming more healthy.

On January 3, 1919, the patient slipped and hurt his right leg. He was sent to the Long Island Hospital. Upon admission to this hospital he was found to be in a fair physical condition, weighing 141 pounds. The wound in his neck measured three cm. in diameter and was fairly clean. A week later rhinitis and a sore throat developed in the patient. He was put to bed, but from this time on he grew rapidly weaker, lost much weight, and became decidedly emaciated. The wound grew larger and finally ulcerated into the trachea. The patient lived a week in this condition, vomiting a good deal, but without dysphagia. A bronchopneumonia supervened and the patient died on February 3d.

The postmortem examination was made by Dr. Ward H. Cook, who reported that "in the lower portion of the esophagus is a fusiform enlargement seven cm. long ending three cm. above the cardiac orifice of the stomach. This enlargement is two cm. in diameter in comparison with one cm. in the remainder of the esophagus. On opening the esophagus there is disclosed from the posterolateral two thirds of the esophageal wall a granular tumor mass, the upper two thirds of which is hol-

lowed out to form a cavity opening freely into the remains of the esophageal lumen. The cavity contains curds and a few small particles. In the midportion of the esophagus are scattered a few lenticular ulcers with slightly indurated walls. The mediastinal lymph nodes are all enlarged; those near the bifurcation of the trachea containing calcareous foci. Those of the superior mediastinum are firm and evidently contain the tumor. Lymphatics extending in both directions from the esophageal tumor mass can be palpated as fine hard cords. The passage of the esophagus through the diaphragm is marked by the presence of tumor infiltrated tissue. The tumor nodule is spread over the peritoneal surface of the stomach in the cardiac region and diffused through the retroperitoneal tissues penetrating the inferior vena cava and the right adrenal lying just behind, the medulla of which is prominent, grayish white in color and firm, while the cortex is swollen and pale. This retroperitoneal infiltration of the tumor mass extends into the pancreas at the midportion distal to which the organ is firm, of diminished diameter and of indistinct lobulation, while the occluded branch of the splenic artery is obliterated by a thrombus."

In view of the postmortem discovery of the tremendous involvement of the lower part of the esophagus and adjacent structures by the malignant growth, it is remarkable that the patient had no symptoms until a short while before death that would cause one to suspect the condition present. Indeed, the vomiting and regurgitation of food was reasonably explained by the perforation of the ulcerating mass of the neck into the upper part of the trachea and esophagus. No suggestion of the primary focus below was ever indicated.

The interesting and unusual factor in this case is the rapid metastasis to the right cervical glands and the predominance of the symptomatology of the secondary growth over the primary site of the malignant disease, in spite of the fact that the latter was in an anatomical area that gives indication of a developing pathological process.

Another somewhat interesting feature is the selection of the right cervical glands for metastasis, while the left were uninvolved. Carcinoma of the lower esophagus, of the cardiac end of the stomach, and of the tail of the pancreas usually metastasize to the left supraclavicular glands and the glands of the left cervical chain, due apparently to the anatomical relations of the thoracic duct on the left.

In brief, this case is valuable in that it demonstrates that an extensive pathological process can occasionally involve the esophagus without that organ responding in its usual immediate fashion, and that unexplainable malignant disease of the right cervical glands may be secondary to "silent" esophageal carcinoma.

Statistics of Puerperal Uterine Inversion.—E. Welpner (*Zentralblatt für Gynäkologie*, 1918, No. 19) has found that at Trieste and its suburbs there was in a total of 35,000 births only one case of uterine inversion, while at maternity there were five cases with three deaths from hemorrhage and septicemia

MENINGITIS.

By HYMAN I. GOLDSTEIN, M. D.,
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The following is a report of five rather interesting cases: one, a tuberculous meningitis occurring in an adult; the second, meningitis in a newborn infant; the third, epidemic cerebrospinal meningitis in a young child; the fourth, tuberculous meningitis in a seventeen year old boy; the fifth case, meningismus or nonbacterial toxic meningitis, complicating otitis and bronchopneumonia in a three and a half year old child, with a brief discussion of the symptoms and more important diagnostic and therapeutic features of meningitis in general.

CASE I.—M. B., an Italian, male, aged thirty-three years. Married nine years. Had one child, who died two hours after birth. Was always fairly well. Denied venereal disease. Was in Brazil eight years ago, where he had an operation for hernia. Had been sick one week, with chill, severe racking headache and excruciating pain in the back, marked constipation, and vomiting. The headache was principally frontal, but also on "top of head," and later occipital; some fever, temperature 102°, pulse eighty-four. He had no convulsion, ocular palsies, or nose, ear or throat symptoms.

We have, then, the usual symptoms of the onset of meningitis. The slow pulse, becoming irregular, is probably explained by the difference in the degree of intracranial pressure. There were no herpes, facialis or labialis, and no petechiæ or purpuric spots. There was some hyperesthesia of the skin, especially over the abdomen. The absence of slow pulse and herpes does not eliminate the diagnosis of meningitis. Their presence helps toward a positive diagnosis. Later the patient began to gnash and grit his teeth almost constantly, especially during sleep. His neck became moderately retracted and quite rigid. No myoidemas. His blood pressure when first seen was 145 systolic and 90 diastolic.

There were no Kernig, Babinski or Brudzinski signs; pupils were equal. The next day his pulse was only seventy-four, and a slight fever still continued. There was no dermatographia, and no eruption at any time. He had difficulty in urinating and finally had to be catheterized repeatedly. The Widal reaction was negative. The culture of the sputum showed many streptococci and few staphylococci. Malarial parasites were not present in blood. The blood culture was negative. The blood Wassermann on two occasions was negative. The spinal fluid Wassermann was negative. No typhoid bacilli and no pyogenic bacteria were found in the blood. Animal inoculation with spinal fluid, sputum or blood serum was not done, as the later progress of the case left no room for doubt as to the diagnosis of tuberculous meningitis.

There was harsh breathing over the left apex; no râles; some signs of impairment; no cardiac murmurs; urine, negative. Later a sputum specimen examined at the University Hospital showed tubercle bacilli present.

Blood.—Red blood corpuscles 4,570,000, hemoglobin eighty-five per cent., 5,800 white blood

corpuscles, sixty-six neutrophiles, twenty-six lymphocytes, five large mononuclear, one transitional, one eosinophile, one basophile.

Lumbar puncture.—Between fifteen and twenty c. c. of fluid under twenty mm. pressure removed. Slightly yellowish and not clear. Showed great excess of lymphocytes with Wright's stain. No xanthochromia. The Widal, spinal and blood Wassermann were again done at the University Hospital and also proved negative. Spinal fluid—examined for microorganisms, but report was negative (not repeated). Cells were not very numerous but there were about twenty to the field. Leucocytes 175 to c. mm.; lymphocytes, eighty-five per cent.; polymorphonuclears, four per cent.; endothelial, eleven per cent.

The urine now showed some albumin, and a few granular casts. At the suggestion of Dr. Alfred Stengel, urotropin in doses of ten grains in twenty c. c. saline solution, were given intraspinally daily, after removal of a similar amount of spinal fluid. No episthotonos. Pain in back of neck and down the spine and hyperesthesia increased. Kernig's and Brudzinski's "frog sign" and identical reflex "contralateral" reflex, were present. Babinski reflex absent. Before death the man suffered excruciating pain, and was markedly emaciated.

CASE II.—The patient, a small, poorly developed infant twelve days old, was seen by me on April 12, 1918. The baby had been fretful, crying, restless, and did not take the breast for two or three days. Was delivered by a midwife. Had "twitchings" and convulsions a day or two before. The neck was rigid. The child cried on being touched or turned over, or if an attempt was made to pick it up or raise its head. The next day all the typical textbook signs and symptoms of meningitis were present. At the Cooper Hospital, lumbar puncture was tried. No spinal cultures were made. A culture from the sore, fetid, and inflamed umbilicus, showed staphylococci and diphtheroid bacilli (colon bacillus?). No tetanus organisms, no streptococci, nor any meningococci could be found. The discharge about the umbilicus was yellowish and foul. This was a case of meningitis beginning about seven or eight days after the child was born—of umbilical origin; the infection originating through the contaminated water, probably used in bathing the infant. The child died fourteen days after birth. The father's blood Wassermann was negative. The mother had worked in a cigar factory until six weeks before birth of child. She was a primipara.

I report this case because meningitis is exceedingly rare in young infants. Moses Barron in a careful review of the literature (1), found only thirty-nine cases reported in infants under three months old. Of these thirty-nine cases, only nineteen were in the newborn. The umbilicus is the most important route for such infection according to La Fetra. Rasch, Koplik, and Aschoff believe that the avenues of infection of the middle ear, that of the Eustachian tube and of the external auditory canal are most important. Barron concludes that meningitis in the newborn and in early infancy is a rare disease; that the *Bacillus coli* occupies, in the early months of infant life, the important place

that the *Bacillus tuberculosis* holds in the meningitis of later infancy.

Seven of the nineteen cases in the newborn were due to the *Bacillus coli* and six cases were caused by the staphylococcus and streptococcus. Seventy-five per cent. of all tuberculous meningitis in children occur before the fifth year. The largest number occur during the second year (2). Holt in a review of 300 cases of meningitis in children up to three years of age found *Bacillus tuberculosis* responsible for seventy per cent. of this series, but only one per cent. in infants under three months old. If epidemic meningitis is excluded, from fifty-five to seventy per cent. of all cases of meningitis in infants and young children are tuberculous in origin. Besides the auditory canal, eustachian tube, and umbilicus, the mouth (through the agency of the fingers or instruments of the accoucheur), spina bifida, and the intestinal tract may be portals of entry of infection in meningitis in the newborn. Some infections occur in the bathtub through contaminated water. Breastfed babies have greater resistance than artificially fed ones, probably due to the compensation of the passive immunization by the breast milk for the active immunization which is still deficient.

CASE III.—E. Z., aged five years, white, female child, had influenza and pneumonia (?) several weeks ago—and had been complaining of fever, up to the time I first saw her. At this time she had stiffness of the neck, strabismus, positive Kernig sign, cérébrale tâche (Trousseau's sign); Squier's sign—a rhythmical dilatation and contraction of the pupils caused by extending and flexing the head, scaphoid abdomen and emaciation, and frequently crying out. At the first lumbar puncture about fifty-five c. c. of fluid was withdrawn under considerable pressure, this fluid was clear, no microorganisms were demonstrable, cell count 920 per c. mm. Polymorphonuclears seventy per cent. Mononuclears twenty-six per cent. Noguchi globulin test +++++. Heller's test +++++. Acetoferrrocyanide test +++. Reducing substance absent. Lactic acid +, one drop. Potassium permanganate test + five seconds. Wassermann negative.

A tentative diagnosis of tuberculous meningitis was made. At the second lumbar puncture, about forty c. c. of slightly turbid fluid was withdrawn. Upon centrifuging, a thin, purulent sediment formed. Numerous pus cells, present. Polymorphonuclears eighty-five per cent.

Noguchi globulin test +++++. Reducing substance, trace. Potassium permanganate test + ten seconds. Heller's test +++++. Acetoferrrocyanide test +++. Meningococcus present intracellularly in extremely few numbers. On November 12th, the report from Dr. A. I. Rubenstone, pathologist and bacteriologist of Mount Sinai Hospital, showed a fine, purulent sediment in the fluid taken at the third lumbar puncture. There were also a few meningococci present; these were relatively decreased in numbers. Sixty c. c. cerebrospinal fluid was withdrawn at fourth lumbar puncture. Fluid was fairly clear, with only a thin, purulent sediment. Pus cells and meningococci present in some numbers and many were extracellular. The

patient had so far received three intraspinal injections of polyvalent antimeningococcic serum, of thirty c. c. each. Internally, bromides and enemata of salt and bicarbonate of soda solutions were given. Sodium bicarbonate, citrate of potash, and soda were also given by mouth. Urotropin was not used, because a distinctly acid medium is necessary for its efficient action, the cerebrospinal fluid is alkaline. A dilute solution of liquor thymolis compositus was used in the nose and throat.

In this case Gower's sign was present, i. e., slight pressure, as one knee on the other, or slight irritation would very promptly cause a red spot or patch. The application of the very mildest irritant or heat, was liable to cause vesiculation.

The fingernail drawn very lightly over the abdominal integument was followed by a congested red streak that persisted for several minutes (Trousseau's sign, *tâche cérébrale*). Idiopathic muscular spasm (myoidema) was not very evident. Very early in the disease there was a disturbance of the third nerve, pupillary inactivity and a tendency to miosis which then gave way to wide dilatation. At present pupils were widely dilated. In December, 1918, there was paralysis of the extraocular muscles. Iodoform emulsion injections within the spinal canal were not tried in any of the cases.

CASE IV.—F. D. Tuberculous meningitis occurring in an Italian boy, aged seventeen, with turbid cerebrospinal fluid, with a sudden onset and rapid course resembling acute epidemic cerebrospinal meningitis. He worked in a shipyard. First seen on December 14, 1918; had been ailing for nearly a week, and was under the care of another physician several days before. Patient presented symptoms of influenza at this time. A few days later evidences of pneumonia appeared. The following week he had apparently recovered and came downstairs without permission. He walked about a little, though feeling weak. I insisted that he return to bed, because of a rise in temperature to 101°. On Christmas Day, he complained of severe headache; headache was also complained of the night before with backache and vomiting. The following day the neck appeared slightly rigid and very tender; there were slight Kernig and Brudzinski. I told the parents that the boy had meningitis, and that a lumbar puncture should be done. Permission was refused. I withdrew from the case. The day before the boy died, I was again called in; a lumbar puncture was made, and about forty-five c. c. of cloudy fluid was withdrawn under pressure.

Dr. A. I. Rubenstone, of Mt. Sinai Hospital, Philadelphia, reported that the fluid contained pus (polynucleosis)—there was a thin purulent sediment: Reducing substance; Ross-Jones and Nonne +; protein test strongly positive; pus cells (polynucleosis) and no organisms were demonstrable after a prolonged search of over two hours.

Doctor Rubenstone expressed the opinion that it was a case of meningococcal meningitis. Owing to parental opposition the spinal puncture was made eight days after the beginning of the meningeal symptoms. I sent a spinal fluid specimen to the State Laboratory of Hygiene and received a report that meningococci could not be found; tubercle

bacilli present. Widal tests were negative; malarial smears negative and the throat cultures showed staphylococci. The temperature was not high at first. The first two days it was 101°. Pulse 84-88. He had no herpes, no petechiæ, abdomen not rigid. He cried out occasionally and especially when attempts were made to move him.

On the morning after the spinal fluid examination, the boy died from acute pulmonary edema. His color was almost indigo blue. There was frothing and foaming at the mouth. I tried atropine, and digalen with hot applications, but of no avail. The day before the boy died, I was called in by the parents to see him again in order to do spinal puncture (after a delay of nearly a week!). I found him in bad condition. His neck was rigid, he had a marked Brudzinski (neck sign), also Kernig, *tâche cérébrale*, ocular palsy, and squint of right eye; Squier's sign was present, as was also the identical contralateral reflex. Chovostek's facial sign was positive +; Babinski absent. The acuteness of the case, with rapidly increasing symptoms, and the rapid development of the stuporous condition, suggested cerebrospinal rather than tuberculous meningitis, especially when the spinal fluid appeared turbid and was under considerable pressure. The laboratory report, however, showed tubercle bacilli present in the cerebrospinal fluid. The patient had received bromides by mouth, and thirty c. c. of polyvalent antimeningitis serum, pending the laboratory reports of the cerebrospinal fluid examinations.

MENINGISMUS OR SEROUS TOXIC NONBACTERIAL MENINGITIS.

CASE V.—David B., aged three years. Had been sick for four or five days and a physician had told his mother that the child had an upset stomach, and several days later made the diagnosis of catarrhal pneumonia. The child had had a projectile form of vomiting several times. Complained of headache and earache in left ear with purulent discharge. When seen by me on the fifth or sixth day of the illness the patient showed a considerable loss of weight, and did not want to be touched or disturbed. He did not answer questions and cried out when approached. The neck was somewhat rigid and tender. Squier's sign was positive. The identical contralateral reflex was present. Kernig's sign was mildly positive.

Lumbar puncture.—About forty-five c. c. of fluid was removed under increased pressure. It was clear and crystalline. The cell count was fifteen lymphocytes to the c. mm. The Noguchi globulin test was +. The acetoferricyanide test was +. Heller's test was +. Reducing substance, +. Lactic acid, + 3 drops. Potassium permanganate test, + 2 minutes, which indicated meningeal irritation. No microorganisms were found. The Wassermann spinal fluid was negative.

Blood.—11,200 white blood cells, 62 polymorphonuclear, 32 small mononuclear, 3 large mononuclear; eosinophiles, 1; mast cells, 2. Some poikilocytes and anisocytes. This was a case of meningismus or serous nonbacterial meningitis complicating a case of bronchopneumonia with staphylococci

suppurative otitis. The Widal reaction was negative and malaria smears were negative. The cultural reports of spinal fluid reported to me by Dr. A. I. Rubenstone, of Philadelphia, and also by the State Laboratory of Hygiene of Trenton were negative. Tubercle bacilli were not present. Cultures from the nose showed *Staphylococcus aureus*; from the throat showed staphylococci; cultures from ear discharge showed *Staphylococcus aureus*. Bacilli resembling diphtheria bacilli were also present. The child should make a rapid recovery. The relief, following the lumbar puncture was quite noticeable, the patient appearing brighter, and there was a lessening of the slow mentality, and it did not show so much aversion to being disturbed; the rigidity of the neck was not so marked.

Encephalitis lethargica.—According to P. Sainton (3) this is a toxic, infectious, epidemic syndrome, characterized by lethargy, ocular palsies, and fever. There is a diffuse encephalitis, most marked in the gray matter of the midbrain. Economo, called it *nona*. There is usually some blurring of vision and diplopia, and increasing listlessness and lethargy. There may be difficulty of speech and swallowing. Spinal fluid is practically always clear and cell count (mononuclear) is less than twenty-five per c. mm. Spinal fluid and blood cultures negative.

The expression of the patient is masklike and immobile, the negative spinal fluid, the clinical characteristic triad of ophthalmoplegia, lethargy and fever all help in making the diagnosis. In some cases a history of a recent attack of influenza has been given. Some investigators (Neal, Pothier, etc.) believe *nona* to be associated with influenza. Bassoe apparently does not find influenza an important factor in this condition.

Jacobi (4) suggests that where the meningitic process is confined to the cerebrum, draining by the lumbar puncture may carry the infection down the cord and thereby extend the disease. It is impossible to force fluids of a therapeutic character from the lumbar extremity into the arachnoid spaces above the cervical region, unless puncture is also made into the ventricular space of the brain, then the fluid passes very readily from one end to the other. Jacobi advocates flushing of the cerebrospinal axis by means of both the lumbar puncture and a small trephine opening with drainage from the lateral ventricle.

Vaccine therapy is recommended, even in meningococcal meningitis, by Florand and Fiessinger (5), and Netter states that intramuscular injection of the serum often proves useful to supplement the intraspinal injections in case of meningococcus septicemia, and Netter also had encouraging results with vaccine therapy in cases rebellious to serotherapy. Dr. Walter L. Niles, of Bellevue Hospital, recommends that sterile horse serum or even antimeningococcic serum be given intraspinally, as this may set up a cellular reaction, and may do some good in the hopeless and tuberculous cases.

Serum disease is an anaphylactic phenomenon, evidencing the sensitization of patient's cells to horse serum. Eosinophilia is often found and there may be a delay in the coagulation time of the

blood. It develops eight or ten days after the first injection and is manifested by joint pains, urticaria, and other symptoms. Joint pains are a common symptom. It is important not to mistake it for an exacerbation of the infection itself and so give more serum. If this mistake is made the meningitis symptoms will increase temporarily, or if several days have elapsed since the last injection there is danger of anaphylactic shock.

Meningococcic meningitis.—Meningococcic infection is irregular in every symptom and treacherous relapses may occur or a subacute serous, or chronic meningitis may develop. These latter are rare if the serum is administered early in the case.

Cerebrospinal meningitis is an infectious disease of the pia mater and arachnoid membrane of the brain and spinal cord.

Etiology.—The commoner causes are *Diplococcus intracellularis*, *Bacillus tuberculosis*, pneumococcus, *Streptococcus pyogenes*, *Staphylococcus pyogenes*, and *Bacillus influenzae*. Epidemic cerebrospinal fever or spotted fever is due to the *Diplococcus intracellularis meningitidis* (Weichselbaum).

Symptomatology.—The incubation period is unknown, but is brief. There is a prodromal period consisting of rachialgia, joint pains, lassitude, headache, and vomiting, backache and constipation. The actual attack usually begins abruptly with a chill, headache, and vomiting. Convulsions are common in children. Backache and pain in the cervical spine are prominent symptoms. Dysphagia, moderate elevation of temperature, photophobia and strabismus, herpes and petechial eruptions may be present. Convulsions are rare in adults; ptosis is common. Anesthesia of the cornea and conjunctiva occurs in fifty per cent. of the patients according to Burville-Holmes (6), giving rise to conjunctivitis; purpuric spots may appear; sighing respirations and Cheyne-Stokes breathing. Delirium appears early in some cases, in others it is absent. Symptoms of motor irritation are quite common, such as twitching of the muscles and muscular contractions. Tonic spasms of the muscles of the extremities may set in and myoidemas may be elicited. Polymorphonuclear leucocytosis is usually present.

Kernig's sign is explained by the irritation of the meninges of the lower portion of the spinal cord and of the nerve roots that constitute the cauda equina, together with intraventricular pressure. It is sometimes also seen in tetanus and typhoid fever. Brudzinski or frog sign is elicited by flexing the chin upon the chest with one hand, while you steady the patient with the other, the arms being drawn up and the thighs and legs flexed, the patient lying flat on the back. The identical or contralateral reflex is the eliciting of Kernig's sign in one lower extremity, causing a reflex flexion of the thigh on the opposite side of the body. The absence of eruptions is of no diagnostic importance. According to J. L. Morse, eruptions are more often absent than present in this disease in childhood. The taches cérébrales are of no importance in the diagnosis of meningitis, as they are present in other conditions

in childhood. In some cases, however, this sign is quite distinct.

Diagnosis.—Tuberculous meningitis, according to Jacobi, frequently has its origin in tuberculous bronchial lymph glands, and is most common in children between two and three and seven and eight years of age. There are usually three stages, namely, the stages of cerebral excitement, the transitional stage, and the third, or paralytic stage. Choroidal tubercles may rarely be detected in the eye, and the MacEwen sign may be present. The MacEwen sign is a hollow note on percussion over the inferior frontal or parietal bone, an indication of fluid in the ventricle. Leucocytosis is often absent, or a leucopenia may be present. A leucopenia is consistent with tuberculous meningitis, but not with other types.

Tuberculosis may exist elsewhere, in the lungs, or other parts of the body. The typical night crying or hydrocephalic cry of children is present. The positive Ninhydrin reaction in the spinal fluid, aids in differentiating this disease from typhoid fever, pneumonia, and digestive disturbances.

R. C. Cabot makes the statement that tuberculous meningitis is not an absolutely fatal disease. Perhaps one patient in four or five hundred recover. "In every case we can truthfully say to the family that there is hope and that recovery is possible." The cerebrospinal fluid shows a lymphocytosis, the small lymphocytes being in the majority. Tapping the muscles with a percussion hammer often brings out clearly defined swellings, at the point of irritation, which last for a few seconds and disappear (myoidemas), and are a certain indication of wasting muscles. These are commonly very marked in tuberculous meningitis, but may be present in other general conditions. Cerebration may be normal until near the end. The tongue is very dry (except in mouth breathers), indicating a severe degree of toxemia.

Meningismus, or "serous" meningitis, may occur in typhoid fever, uremia, pneumonia, and gastrointestinal disturbances with acute meningeal irritation with hyperproduction of cerebrospinal fluid of practically normal constitution. In meningismus, there is usually stiffness of moderate degree, and without retraction except in children. Kernig's sign is usually present, but not always and the reflexes may be more active than normal. In meningismus, the cells in the cerebrospinal fluid are not very numerous, they are practically all lymphocytes. In tuberculous meningitis the cell count is not so high as in the other purulent forms of meningitis, and mostly lymphocytes. But in children, while we sometimes get a high cell count, mononuclear cells usually predominate, but at times polymorphonuclears are in the majority. To decide, one must examine the spinal fluid for tubercle bacilli, and animal inoculations may be resorted to. In the other forms of meningitis, the cerebrospinal fluid is distinctly cloudy and runs freely under increased pressure.

Examination shows a high cell count and both polynuclears and mononuclears are increased, the polynuclears being in the majority. The Noguchi protein test is positive. Fehling's solution is reduced. Sterile cultures and negative smears may at

first be the results of the cerebrospinal fluid examinations, but if the search is continued, the organisms may finally be found. After a week or two it is often impossible to find microorganisms in the spinal fluid and the process may become a low grade inflammation with serous exudate and little cellular reaction. When in doubt, it is always a good plan to give the antimeningococcic serum. Any case with delirium, unequal pupils, Kernig's sign, stiff neck and leucocytosis, demands a lumbar puncture. If the cerebrospinal fluid is very cloudy you rarely find the meningococcus on staining a smear in true cerebrospinal fever. You may, of course, have a streptococcemia or a staphylococcemia, that is a septicemia of pyogenic origin with a meningococcal meningitis, and one may therefore first find the staphylococcus or streptococcus organism and not until later the meningococcus. It is, therefore, a good plan to give the Flexner serum at once. Osteomyelitis, bad tonsils, or other foci of infection may exist. Staphylococcus aureus frequently produces osteomyelitis and secondary or pyemic abscesses often follow; however, staphylococcus very rarely localizes on heart valves and rarely attacks the meninges. The chances of recovery are greater in staphylococcal than in streptococcal acute purulent leptomeningitis, but the prospect of recovery from either is small. In meningismus of uremia, there would be hypertension, hyperpnea, increased urea, creatin and creatinin in the blood, albumin and casts, and the carbon dioxide combining power of the blood and other blood chemical tests could enable one to rule out uremia.

Typhoid fever.—Severe headache, not of the occipital type, is present but does not last through the course of the disease. Backache and pain along the cervical spine are not prominent symptoms. The splenic enlargement, the rose spots, typhoid bacilli in blood cultures, Widal reaction, leucopenia, dicrotic pulse, the urochromogen urine test, or Ehrlich's diazo reaction and the temperature chart—all help in making the diagnosis of typhoid fever. The intolerance of light and sound, the marked hyperesthesia, exaggerated reflexes, peevishness, and restlessness of meningitis are absent in typhoid fever. The pulse is also slow, in proportion to the fever in meningitis, but is not dicrotic as in typhoid. A positive diazo (urine) reaction in any disease is a bad prognostic sign; its absence in a febrile case argues against typhoid fever.

Meningomyelitis is the commonest form that syphilis takes in the central nervous system; and, therefore, this condition, when more or less acute, must be ruled out. This is also a surface infection of the spinal cord and brain—the original infection occurring in the membrane covering the nerve tissue and the pia arachnoid.

The Wassermann spinal fluid and blood tests, the history of the case, and the therapeutic tests are measures that help to differentiate this condition. A study of the cerebrospinal fluid, bacteriological and cytological results are also of assistance. Xanthochromia and massive coagulation or the syndrome of Froin are not usually present in the cerebrospinal fluid of acute meningitis cases. It is due to pressure and localized stasis of the fluid

along the spinal meninges; there is a great excess of protein and spontaneous coagulation of the cerebrospinal fluid in the test tube, with slight or no increase of cells; most often seen in cases of spinal tumor and inflammations and reactions following injuries to the spine. However, it must be remembered that in all instances of acute inflammation of the meninges the protein is increased in the cerebrospinal fluid. The total quantity normally is about 0.02 to 0.03 per cent. or 0.2 to 0.3 gram per 1,000 c. c. of spinal fluid. A decrease in dextrose in the cerebrospinal fluid occurs in the acute meningitides. Normally, there is 0.048 to 0.058 per cent. or 0.48 to 0.58 gram to 1,000 c. c. of spinal fluid.

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(To be concluded.)

INFLUENZA PNEUMONIA TREATED BY BLOOD TRANSFUSION.

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The great pandemic of influenza has caused the physician to realize more than ever the lack of specific remedies for cutting short the course of infectious diseases. With influenza and pneumonia our efforts have been largely confined to palliative treatment. I cannot agree with Fantus (1), when he says that symptomatic treatment is the very acme of the medical art. A speedy cure, by a specific remedy, which cuts short the course of the disease in no uncertain manner, is to my mind the acme of the medical art.

The treatment of influenza pneumonia by immune blood, is an effort to develop a specific remedy, and while not enough reports have been made to enable one to make a definite statement on the matter, the indications are very favorable. The use of antipneumococcic and antistreptococcic serums have been tried, but the results are uncertain. Citrated blood, taken from patients recently recovered from influenza pneumonia, has been given by me in six cases and the results have been favorable, although two of the patients died. The death of these two cannot be held against the method, however, as in one case it was not done until twelve hours before death, and in the other case, the patient was so far away from town that he could not be properly watched. In the four patients who recovered the results were immediate and certain.

CASE I. R. C., aged forty-five, rancher. Sick with influenza of a moderately severe type. On the fourth day got out of bed and walked around

the house. This was followed by the onset of bronchopneumonia, with a pulse of 105, temperature 104°, respiration 45, sibilant and subcrepitant râles over both lungs, bloody expectoration, and a cyanotic tinge to the skin. On the sixth day of his illness, which was the second day of the pneumonia, I gave him 100 c. c. of citrated blood, taken from a patient who had recently recovered from an attack of influenza pneumonia. His temperature dropped to normal within thirty-six hours and he made a rapid recovery.

CASE II. This was one of the fatal cases. Young man, aged twenty-five, sick with influenza ten days when first seen, and as near as I could tell, the fifth day of the pneumonia. Temperature 103°, pulse 130, respiration 50, very profuse bloody expectoration, delirium, cyanosis. Lungs showed large areas of consolidation. Patient refused food and vomited liquids. I gave 150 c. c. of citrated blood from a patient who had had influenza followed by a mild pneumonia. There was apparently no improvement and patient died thirty-six hours later.

CASE III. Male, aged eighteen. This boy had had three doses of antipneumonia vaccine, from the laboratory of one of our medical schools in the Northwest, and had had the third dose two weeks before he became sick. On the fourth day of a severe attack of influenza, he showed signs of pneumonia. The temperature which had been 102°, went to 104°, respirations to 48, pulse 120, coarse râles over both lungs. Great anxiety was felt for this young man, as he had a mitral and aortic lesion, following rheumatism and endocarditis four years before. He was transfused on the fifth day, with 150 c. c. immune blood. This was taken from the same donor as was used in Case I. The effect was very gratifying, as the general condition improved rapidly, and pulse and temperature dropped to normal within thirty hours. The subsequent history of this case was interesting. On the sixth day of normal temperature he was sitting up in bed for about an hour. His temperature rose to 104°, by two in the afternoon, and was followed by a very profuse perspiration, after which the temperature dropped to normal. This was repeated on the next day, and on the evening of this day, I gave him fifty c. c. of polyvalent antipneumococcic serum intravenously, first desensitizing him. The next day he perspired a little and the temperature rose to 102°, and on the next day the temperature remained normal and there was no perspiration. What the condition was, I could not determine, although of course I suspected an empyema.

CASE IV.—This was the second patient who died. Was seen on the fifth day of influenza, at which time temperature was 102°, pulse 100, respiration thirty. He did not do well, and pneumonia gradually developed. Was unable to procure a suitable donor, until it was too late, which was on the ninth day of the disease. At this time patient was practically moribund, and he died twelve hours after the transfusion.

CASE V.—Female, aged forty, seen at onset of what was apparently a mild influenza, at which time pulse was 100, temperature 102°. Her con-

dition remained about the same for seven days, at which time I was able to detect areas of consolidation in the right lung. Her condition became worse, with delirium, pulse 115, temperature 103°, respiration forty-three. She was transfused on the eighth day of her illness, with 150 c. c. of citrated blood taken from a patient who had had influenza pneumonia, and had recovered thirty days previously. The recovery was rapid, and in twelve hours the pulse dropped to 100, temperature to 101°, and in thirty-six hours the pulse and temperature were normal.

CASE VI.—Female, aged thirty. Pneumonia developed on about the fourth day of the influenza. On the fifth day there were râles in both lungs with areas of consolidation. Pulse was 112, temperature 104°, respiration forty. The patient was very restless and cyanosis was beginning. She was transfused on this day with 100 c. c. blood taken from the young man mentioned in Case III. This transfusion was followed by a severe anaphylactic shock, but the patient reacted after a few hours. The day following the transfusion she felt much better, was not so restless, and the pulse and temperature rapidly fell to normal. The anaphylactic shock in this case was severe, and nearly cost the patient her life. It began with intense itching all over the body, so that she was frantic, then the pulse became uncountable; face turgid; eyes bulging and bloodshot; severe chill, with a complaint of icy coldness inside of chest and abdomen, and great difficulty in breathing. Stimulation with atropine, strychnine, and adrenalin, pulled her through after several hours, and no hemolysis resulted. This case apparently proves to me that the grouping for transfusion must be exact, as in this case it was the serum of the donor which agglutinated the corpuscles of the recipient. In ordinary transfusions I had been accustomed to test the cells of the donor with the serum of the recipient and also the serum of the donor with cells of the recipient, but during the extreme rush of the influenza epidemic, I had only been testing the serum of the recipient with the cells of the donor. Many workers in blood transfusion have claimed that this was safe, in that the serum of donor would be so diluted that it would be insufficient in amount to agglutinate the cells of recipient. McGuire and Redden (2) state that they have discontinued the compatibility tests in their work in treating influenza pneumonia with human serum.

After this patient recovered from her shock I tested her corpuscles with the donor's serum, and found that very active agglutination occurred, and I attribute her reaction to this cause.

The patient (Case II) who died, was twenty miles away, in the mountains, and I did not have a fair chance with him, and a more favorable result might have followed if I could have seen him twelve hours after the transfusion, and repeated it with another donor.

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POSTINFLUENZAL EMPYEMA.*

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The recent influenza epidemic in this country in death alone claimed over 400,000 victims. Its effect upon those whom it did not kill, in sequelæ of various kinds, such as osteomyelitis, tuberculosis, etc., cannot even roughly be estimated. The problem of reconstruction days from the great war is not greater than that from the serious epidemic or plague through which the world has passed or is passing, and any and all aids, which may be of assistance in this struggle, should be given expression. Therefore, the presentation of the notes upon this subject:

The first epidemic, of which we have any definite record, occurred in Persia and Mesopotamia in 855 A. D. In 1889 the United States of America had its first real invasion. The epidemic of itself was not so alarming as were its sequelæ. At that time it was called the Russian influenza, during the recent epidemic the Spanish influenza, but in reality its name is Turkish. This epidemic of 1889, also that of 1893, were spoken of as pandemic, that of 1907 and 1908 as pneumonic, and from the evidence at hand, no doubt, the present epidemic, so pandemic in character, will be spoken of as the streptococcic.

The bacterial cause of this disease is undoubtedly Pfeiffer's bacillus, which occurs in about eighty-four per cent. of the cases, and its effect in increasing the activity of other bacteria accounts for its serious results. For without this latter effect, influenza is a disease of only a few hours or days, and of but little danger. It is a specific infectious disease of the blood stream and septicemic in type, appearing in three distinct forms, catarrhal, cephalic, and abdominal. The name of influenza septicemia should be its characterization in our nomenclature.

Those in an impoverished or run down condition naturally show the most serious results, both acute and chronic. For instance, in England where the people had been upon a starvation diet for nearly five years when attacked by this form of septicemia they frequently died within an hour, while in this country, where our diet had not been so restricted, there was not the same rapidity of onset and death, as our systems had not as yet been impoverished, though there would seem to be some reason in saying that the seriousness of the epidemic was, in part, due to this fact.

In influenza during the first twenty-four hours the bacillus may be found in the blood stream (Brill). We cannot, therefore, wonder at the variety of complications with which we may be confronted, or at the sequelæ which may follow. From reports in various parts of the country of influenza and pneumonia cases, we may say that pus thorax or empyema in some form occurs in about five per cent. of the cases. Now, why does this condition occur and of what benefit is it? Aside from the

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seriousness and discomfort of an accumulation of pus in the thorax and its ultimate danger to life, there is a favorable viewpoint. For in such cases if the empyema did not occur the patient would die. It is nature's method of freeing the blood stream of the invading organism. This fact may be proven by the following procedure:

In any case of septicemia in which organisms are demonstrated by blood culture in the blood stream, same may be removed by a fixation abscess and the patient cured. This fact I have demonstrated in several severe cases of puerperal septicemia. The fixation abscess is formed in either thigh by the injection of one c. c. of spirits of turpentine, deep injection. In twenty-four to forty-eight hours, if induration begins, you may make a favorable prognosis. The abscess is allowed to form and should not be opened until the eighth day. This simple procedure has freed the blood stream and cured very serious septicemia cases. From these results, artificially obtained, we may recognize in empyema many times the work of our good, kind friend, mother nature. And, also, it is an argument against the too early evacuation of these accumulations of pus, which by their formation are overcoming the general septicemia. The same principle occurs, but in a lesser degree, in our pneumonia cases as shown by the freeing of the blood by consolidation or induration. Thus, the explanation of empyema is quite simple. But the handling of such cases is not such a simple matter. Its importance from an economic, as well as from the viewpoint of life itself, can well be understood. Under some of the methods of procedure, the long duration and fatal termination of such cases are well known, and the subject is deserving of our earnest thought and discussion.

The diagnosis of pus thorax.—Empyema may be divided into two distinct divisions, those with and those without bronchial connection. Our physical findings, the x ray and the aspiration needle are of the utmost importance in such cases: Free pus is more frequent than restricted, but physical signs the same as large effusions, bulging, dullness, displacement of neighboring viscera, and vocal fremitus, all must be considered. The x ray is of benefit especially in localized empyema. When the pus pocket is not in contact with the chest wall the diagnosis is more difficult.

Thoracic paracentesis is the most reliable diagnostic procedure, but may fail when the walls of the cavity are covered with a thick layer of fibrin or when the pus itself is viscid. We must differentiate whether the pus is from the lung cavity or from a subphrenic abscess. Cases of pulsating empyema are those in which nature has effected her own aspiration. Our tuberculosis wards show many such cases (1). Subphrenic abscess can be differentiated by aspiration and the area of resonance between the lateral line and spine. The heart is seldom displaced. New growths and serous effusions must also be differentiated (Dr. Howard Mason). Extensive serous exudates frequently appear in the vicinity, but not communicating with the focus of infection and free from bacteria in an empyema, abscess of lung and also gangrene. These may

render the detection of the collection of pus difficult (2).

Attempting pleurotomy should depend upon whether bacteria are present in the aspirated fluid. If an aseptic purulent pleurisy, it will become absorbed (3). Aspiration is best for infants under two years of age, otherwise the mortality is high. The most desirable point of aspiration, I believe to be the interspace between the ninth and tenth ribs either in the axillary or midscapular line and this saves more time and causes less inconvenience for the patient than when paracentesis is performed at a higher interspace.

Operative procedure.—These patients, on account of their weakened condition, and the difficulty they have in breathing, especially those who can only breathe when lying on the side, will test the skill of the anesthetist, perhaps more than any other type of patient. Nitrogen gas and oxygen have seemed to give the most satisfaction. Procedures under local anesthesia can only be warranted by the need of a temporary emergency, and it is in cases of this character that bismuth paste may later be of use. It is of use as Doctor Robinson, of Boston, says "in cases not properly operated upon," or visceral pleurectomy may have to be performed. In thoracic surgery, perhaps more than in any other field, we have gained by the lessons of the great war and now that a method of procedure has been devised, it would seem that while pus in the thorax, even as in the abdomen, is a serious surgical condition, it will in the future, be more efficiently handled and with less difficulty than heretofore. The axillary excision of a rib, while excellent for simple drainage, was greatly improved upon by the midscapular incision, but both of these methods are greatly excelled by the method of anterior incision which I desire to present for your attention and discussion.

Surgeons are divided in their opinions as to the method of procedure for thoracotomy and we may divide them into two classes (4). 1. Those who believe that the thorax should be opened by an incision which removes the fourth rib anteriorly. 2. Those who believe that the thorax should be opened at the nearest point in relation to the area to be drained.

From the opinions expressed by surgeons who have had wonderful opportunities to ascertain the best method of approach for thoracic operations, and from my own work at the Metropolitan Hospital, I am of the opinion that the anterior incision is the method par excellence, and is equally applicable for our pleurapostema cases as for chest wounds in general.

This anterior incision has several advantages: 1, Freedom of approach; 2, less difficulty in operation; 3, more periosteum present; 4, better control of drainage and the 5, end results to the patient are more satisfactory.

The steps of the operation cannot be more clearly stated than has already been done by Pierre Duval (5), the great French surgeon, I shall, therefore, quote from him substituting the ninth rib for the fourth rib incision.

The patient lies flat in the most comfortable position, with his arms at his sides. A curved incision

along the line of the ninth rib from the sterno-costal articulation for five to seven inches. The muscle fibres are split and separated from the rib. The point of hemorrhage is clipped or a ligature applied. An incision is made along the rib, through the periosteum, midway between the upper and lower border, and it is stripped from the rib on both surfaces. The costal cartilage is then cut through, and the rib either divided at the lateral line or bent outward. The periosteum which remains offers more chances for a new rib to form. Care is taken, in excising the rib and lifting it away, so as not to wound the pleura. The pleura must be separated widely from the ribs above and below, otherwise closure may be difficult. The ribs are retracted above and below so that there is a gap sufficient for the whole hand to be passed into the chest. The pleura is now incised along the line of the rib. The air enters freely and immediately into the pleural cavity, or the free pus may then be slowly evacuated; incapsulated collections located; adhesions of lung to the parietal pleura freed if they are slender and easily broken. Some are of such strength that they cannot be severed without danger—trabeculated empyema. Heat and pressure are usually sufficient to combat bleeding; drainage, as usual, at the lateral or axillary line. But, by the freedom of our incision, we can so thoroughly remove large collections of pus and fibrin that drainage is not of such long duration, and irrigation by any of the various solutions is not essential.

SUMMARY.

The employment of the anterior incision for thoracic work offers a field of investigation which I am sure will be productive of as great a benefit to humanity from an economic and life saving standpoint, as has already been experienced from the use of abdominal incision.

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10 WEST SIXTY-FIRST STREET.

MEDICATION BY INHALATION.*

BY P. DAVID SHULTZ, M. D.,
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I present for your consideration the subject of medication by inhalation, a method of sufficient importance to arrest and hold the attention of every progressive clinician. It is a method that has not been extensively used, but I hope that it will soon find a place in professional armamentaria. On account of the many things that militate against the

public health, the presence of influenza, the prevalence of pneumonia, and the fact that many soldiers have been returned who have been affected by shell shock, gas and tuberculosis, every available method should be used for overcoming or modifying these untoward conditions. I am sure these cases can be helped by inhalation treatment.

At the present time most drugs are administered by way of the alimentary tract and the giving of medicines in this manner is often impractical and in some cases impossible. Alimentary medication has so much of the unknown quantity in it that frequently the results are discouraging. It is not easy to determine the alimentary contents when the medicine is given, nor what chemical changes take place after its ingestion. Empiricism has taught us that we are justified in expecting certain results from alimentary medication, but we are often grievously disappointed.

Hypodermic medication is more prevalent now than ever before, especially since the increased use of serums, antitoxins, and intravenous medication, but this method has its limitations, especially since the patient often objects to the use of the needle. For many years I have experimented with gases as a means of carrying medicine into the system, and am convinced that the method is useful in many cases that do not respond to the ordinary methods of treatment.

It is harmless and has proven beneficial in all cases. As far as my experience goes nitrous oxide is more useful in this method than any other one gas or mixtures of gases. The gas is harmless, if used in the proper way and every one will agree that we are justified in using every means in treating diseases. In advocating the use of gas as a conveyor of medication into the blood I do not presume that it will be used indifferently or for purely experimental purposes. As we know, nitrous oxide is used for purposes of anesthesia where other means are not suited, but in its use as a conveyor of medication it is not carried to such an extent. Nitrous oxide is perfectly respirable even pure and when substituted for air. It is rapidly absorbed into the blood and with air it is exhilarant. At body temperature it resists decomposition and the molecule of oxygen does not become available for the purpose of respired oxygen. It is commended medicinally in cases of nerve exhaustion. I am positive that the gas itself is beneficial if correctly used. The vital question is will it carry medication into the system. To this I answer yes. If the gas is helpful and if any medication can be absorbed by the membranes of the mouth, pharynx, trachea, and the lungs, it acts directly upon the blood and the stomach is spared for its normal function of digestion. Direct absorption means direct effect and the production of more immediate results than is obtained by the alimentary tract. To maintain health it is not necessary that the body be fed on drugs, nor is it necessary to give drugs in great quantities to restore the body when its health is impaired. An odor may nauseate, a drop of some drug may destroy life, the microscopic germ may produce fatal disease, and so small things may work for good. In medication by inhalation,

*Read before the Washington Heights Medical Society, March 18, 1919.

if the conveyor is beneficial, we can do greater good when some medicine that will impress the system favorably is judiciously added to it. No claim is made for a cureall, neither is there a limitation of this method to the treatment of some special disease. It is an adjunct to the methods now in use and does not preclude the use of any of the things already accepted. For a condition that requires quinine there is no reason why it should not be given in the usual way and at the same time by inhalation. It should be noted that the inhalation treatment causes the system to absorb the alimentary medication more readily and therefore a smaller dose is advisable.

It has been inferred that this method of medication is limited to the treatment of pulmonary diseases because the gas and medicines are inhaled, but such is not the case. All medicines, save a few alimentary sweepers, do not act until they are taken into the circulation and there is no reason why medicines should not be given by this means to treat any disease for which drugs are given. In

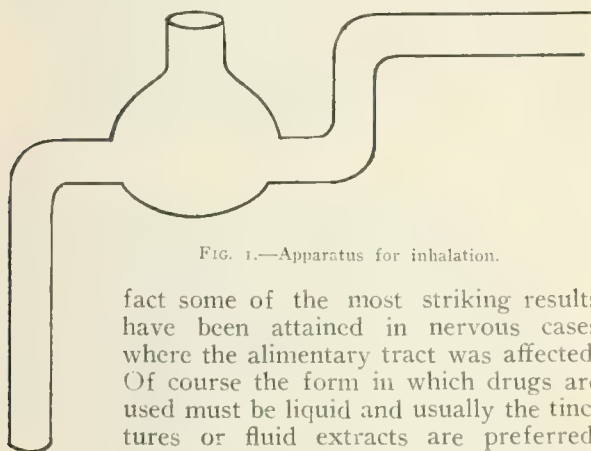


FIG. 1.—Apparatus for inhalation.

fact some of the most striking results have been attained in nervous cases where the alimentary tract was affected. Of course the form in which drugs are used must be liquid and usually the tinctures or fluid extracts are preferred.

Drugs that have to be given in large quantities are not available, though it may be found that a small amount given by this means will act as well as the larger dose by the ordinary method.

The following will show that it is necessary to administer only minute medication to get desired results. Eighteen years ago a man was sent to me with a history of chronic constipation and general sluggishness that prevented his attention to business. When he gave his history and said he wished to be treated by inhalation I answered that I had not treated such a case and that it seemed hardly probable that enough medication could be introduced into the system to correct the condition. However, he agreed to take treatment daily for one month and we began at once. In four days he did not need any medicine other than that given by inhalation, and within a week his condition was so improved that he said he never felt better. The medicine that I used in this case was the combination of aloes, belladonna, and strychnine.

In using anything out of the ordinary there will arise annoying questions and suggestions, and injurious assertions will be made by inexperienced people. Honest criticism based on information is helpful, but broad assertions made without knowledge are harmful. The following is an illustration.

A physician who knew nothing about inhalation said, "It will knock out the heart." He planted a seed of fear and I had to prove beyond a doubt that the suggestion made in ignorance had no foundation in fact. I hunted for cases of bad heart lesions so that I might treat them. In every case treated the patient was benefited.

The following is of special interest. A man about twenty years of age had an attack of rheumatic endocarditis. He had been confined to his bed for sixteen weeks, unable to sleep more than three hours out of twenty-four, was not permitted to raise himself in bed, and compelled to keep an ice pack over his heart all the time. A consultation was held and his physician announced that he did not have more than one chance in a hundred and if he did live he would not be able to get out of bed for sixteen more weeks. I consented to treat him by inhalation, but before beginning had four physicians examine him. All expressed the opinion that it was a hopeless case. I gave no medication except by inhalation and permitted him to take only two inhalations at each treatment, but treated him three times a day, making six inhalations in twenty-four hours. In three days he was sleeping eight hours out of twenty-four and on the third day I removed the ice pack. In three weeks he was sitting up, in six weeks he was visiting the Museum of Natural History, and in twelve weeks he was at his work running a printing press. The medication in this case was only a few drops of the tincture of digitalis and one drop of the one to 100 per cent. solution of glonoin. After he was up and around the medicine was changed to have a tonic effect. This man lived for six or seven years and I was told that he afterward died of pneumonia.

Another harmful assertion was made that inhalation would cause hemorrhages, especially in tuberculous cases. In all the patients treated there was never one in which hemorrhage developed, but, on the contrary, patients who had hemorrhages were relieved and the bleeding stopped. In the case of a man about twenty-seven years of age the hemorrhages were so severe that his life was despaired of. It had been determined to send him away for sanitarium treatment when I was called in consultation. I did not think he would stand the trip to the country with the change of altitude and agreed to treat him for two weeks to get him in condition to make the change. At the end of the two weeks I met his physicians and told them I would not advise any tuberculous patient to give up change of climate and sanitarium treatment for any other treatment, and would suggest following out the original plan. The hemorrhages had stopped entirely and the patient had gained fifteen pounds in two weeks' treatment.

The inhalation treatment is beneficial in increasing the respiratory power of the patient. He learns to breathe better, learns the benefit of expanding the chest, and paying attention to the important function of oxygenating the blood. A man who had suffered from asthma for thirty years learned to increase his chest expansion nearly two inches and from having attacks that lasted from ten to twelve weeks with excruciating suffering, he now has one or two attacks a year that last only a day or two and

these come at the change of seasons—spring and autumn. He has not been under treatment for five years, but continues his uniform good health. I have found inhalation excellent in relieving pain in chronic cases. In a case of miliary tuberculosis the patient suffered such severe pains in the chest that she could scarcely breathe and could get but little rest at night on account of the shortness of breath, the pain, and the coughing. She had no appetite and was losing weight rapidly. When her relative, a physician, wrote to me about bringing her to the city I answered that I would not bring any patient with tuberculosis from the country to the city for any treatment I knew of. He brought her, however, and I undertook treating her; there was no hope of a cure. In three days after beginning treatment her pains were relieved, her appetite improved, and she slept well. In three months she had gained twenty-five pounds, felt well, and returned to her home, where she lived comfortably for over a year. It was not a cure. I did not expect that, but it was a help and a relief from suffering.

Nearly twenty years ago I was asked to examine a man who could scarcely walk about and who had been condemned by two physicians, one saying he could live no more than three months and the other that he could not live through the winter. I undertook the task of relieving his suffering and if possible lengthen his life. In a week his pain was relieved, in six weeks he returned to his work and he is alive now. He says that he has gained twenty years of life and is in better health now than he was for years before treatment.

From the above it may be inferred that I advocate the inhalation treatment as a cure for tuberculosis, but I do not. There are no cures, unless the surgeon can cure by cutting, but nature is a great healer and in many cases we can aid if we use judgment and care. It must be remembered that it takes time to get results and if an invalid expects to be healed at once he would better seek the aid of those who claim to heal by supernatural power and leave the physician to do honest work in a painstaking way.

The method of inhalation treatment is simplicity itself. A properly made tube holds a piece of freshly moistened sponge and on this are put a few drops of the medicine to be given. The patient empties his lungs and takes a deep inhalation of the gas which as it passes over the sponge takes up a portion of the drug and carries it into the circulation. The valve in which the tube is placed closes automatically and is opened by pressing a button. The gas is put into a bag and I use a bag that holds about five gallons. The most favorable conditions for giving treatment will aid in getting satisfactory results. The patient should sit in a quiet room in an easy chair and take his treatment without disturbance of any kind. It is better to refrain from talking or occupying the mind with anything other than taking the treatment. If the room is noisy the treatment will make the noise seem louder and it will become a disturbing element. When he has filled his lungs with the gas and medication he should put the tube down and relax. He should hold the gas as long as possible with comfort, but should do nothing to cause discomfort. He should

wait about five minutes between inhalations. Some patients think they can take it faster, with the idea that if a little is good more will be better, or try to hold the breath too long. He must be taught that you know best and that he must follow your instructions and not try to experiment upon himself. When he has rested five minutes he repeats the process. This continues until he has completed his treatment which takes about six inhalations and requires about twenty-five minutes.

The amount of medication and gas are limited by the amount put in the bag and the patient is under the control of the physician all the time. This differs from stomach medication in the fact that medicine once in the stomach is not easy to control. This treatment has been used in all kinds of cases and never without benefit, but it would be foolish to waste time where operative measures are indicated or in simple ills that will be cured in a short time under the supervision of the physicians. It has proved to be of the greatest benefit in cases that have not responded to the usual methods of treatment, as in chronic indigestion, low nerve vitality, heart and lung conditions, and the many conditions that accompany poor nutrition or sluggish action of the various organs of the body.

It is simple, harmless, helpful, and can be used alone or as an aid to the usual means of treating disease.

RÉSUMÉ.

In the inhalation treatment we have one more aid in overcoming disease. It does not prevent the use of all known methods and agencies. It may be used by itself or in conjunction with other methods. It is helpful. It is always under the control of the physician. It has the advantage of direct influence upon the system. The stomach is spared for the normal function of digestion. Persons who can not be given medicine by any other means can be treated in this way. It is an ideal method for sanitarium and hospital treatment.

601 WEST 156TH STREET.

(Permission to publish given by the Surgeon General,
U. S. Army.)

SECONDARY SUTURE AND SKIN GRAFT UNDER LOCAL ANESTHESIA.

BY JULIUS A. MILLER, M. D.,

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One of the chief surgical aims in the treatment of wounds during the war period was early secondary suture. The sooner it could be accomplished with aseptic safety the better. I need not go into detail here of the immense advantage of early resuture. It is sufficient to say that the patient was made fit months sooner; the dressings were done away with almost entirely, for in absolutely successful cases only two dressings were necessary, and the beds, which were in great demand were ready for new patients in a shorter period. In fact it was one of the greatest features of economy evolved in the surgical department. It was a preserver of man power, a reducer of labor and a saver of money.

At first I did these secondary resuturing of wounds, following the methods of my instructors, under general anesthesia. But later, after studying the general run of wounds, and the prevailing conditions, I decided to do the majority of the operations under local anesthesia. Three of my chief reasons were: First, while the wound was often ready for resuture, the patient owing to gas poisoning, bronchitis, cardiac troubles or a poor general condition, was not ready for a general anesthetic, without some risk to his impaired health. The sooner the man was out of a surgical ward and able to go to a convalescing home, for recuperation and strengthening, so much more quickly would he be ready to take up his duties again.

Second, most of the men operated upon under local anesthesia preferred it. Because, if care was taken to anesthetize the area well before starting the incision, there was very little pain attending the entire procedure. And naturally there were none of the aftereffects that often follow a general anesthesia.

Third, in the average base hospital there was a shortage of medical officers and this method dispensed with an anesthetist. In many hospitals the anesthetics were administered by part time civilian practitioners, who in busy times were not available, or could not give as much of their time as was needed.

In many cases this method had its limitations. Excessively large and deep wounds could not be treated in this fashion. Large cutaneous nerves would be encountered and the operation would take too long if complete anesthesia was to be maintained. But these types of wounds were very few in comparison with the majority of cases that came under my care.

The largest wound that I had occasion to resuture under local anesthesia was a boy about nineteen years of age who was wounded in the posterior aspect of the thigh by a piece of shell. Gas gangrene set in and the entire thigh posteriorly was excised with a great loss of muscle as well as other tissues. The wound which remained, after the usual extensive operation for gas gangrene, extended from the popliteal space to well up the buttock. When it was ready for resuturing it measured about fourteen inches in length and about six inches in width at its widest point on the buttock. At this time the patient was in no condition for a general anesthetic. In addition to being in a debilitated state from his gas gangrene, influenza developed with a complicating bronchitis. Therefore as the wound was ready for operation months before the man could support general anesthesia, I performed the operation under local anesthesia. The wound healed perfectly and the man was on his feet in three weeks' time, ready for a convalescing home where he could undergo the process of recuperation and not be obliged to remain in bed.

Often when the wounds were quite small and superficial, but of such a character that healing would be protracted, and secondary resuturing was evidently indicated, it seemed so futile to do it under general anesthesia which would require an anesthetist. It would have been a waste of pro-

fessional man power and time pure and simple. And yet I have seen whole days of an anesthetist's time taken up by these small cases. Whereas each operation could have been done almost in the time it took to anesthetize the patient.

In cases where secondary resuture could not be attempted because of the great loss of skin, I grafted skin using the same principles, and performed the operation under local anesthesia. The results were most excellent. The graft took almost entirely in most cases and there were no absolute failures amongst any of the cases which were handled in this fashion. The chemicals used for the anesthesia did no harm to the grafted skin.

The preliminary procedure for resuturing or skin grafting was the same. Two days prior to the operation the wound was dressed with gauze moistened with a twenty-five per cent. solution of magnesium sulphate. I believe this assisted, to some extent, in bringing any bacteria, which were deep in the granulation, to the surface by the promotion of an increased exudation of serum from all parts of the wound. And also in the cases for skin grafting the exuberant granulation tissue was reduced to a firmer consistency, which was essential. At the time of operation care should be taken carefully to wash away from the wound all of the magnesium sulphate with sterile saline solution before proceeding with the sterilization and the anesthetization of the part. I used chiefly two per cent. novocaine or two per cent. eucaine, to which was added about fifteen minims of adrenalin to the four ounces at the time of using. In the resuturing of wounds I infiltrated the entire circumference of wound superficially and deeply, and under the granulation tissue covering the wound, the needle penetrating from the surrounding edges which had already been anesthetized.

In the vast majority of cases the patients felt no pain after the first injection, if the line of infiltration was followed around the wound carefully. The next injection was always started just within the edge of the last infiltrated portion. In the cases of skin grafting the entire area of skin was anesthetized intradermally instead of subcutaneously. An area of skin which was calculated, usually by experience, sufficiently large to give the required amount of skin necessary to cover the wound, was anesthetized in this way, remembering, as in the deep injection, to start the new insertion of the needle within the last anesthetized area. The pain was thus absolutely eliminated. After the entire portion of skin to be used has been treated in this fashion, the skin was picked up by a needle and cut off with a sharp scalpel, bit by bit, each piece about the size of a small split pea, and laid on the wound to be covered. I preferred this method to any other because of the great covering area obtained from a relatively small skin area, roughly speaking, about half the size of the wound to be covered by the graft. It is much slower than other methods, but I believe it is more efficacious.

I wish to state that the amount of novocaine or eucaine used was often as much as six ounces of the two per cent. solution, and never did any of the men experience any toxic effects. In two cases

of skin grafting, the areas from which the skin was obtained became infected. The graft itself did not. In the resuturing of wounds in this manner I followed out the ordinary technic of swabbing out the excised area with alcohol and then rubbing in bipp and closing the wound with silk wormgut.

CONCLUSIONS.

Although, because of the present turn of events we may not need to hurry the repair of wounds from any cause, still it must be borne in mind that resuturing is a time, money, and labor saving operation. And because of the industrial and experimental stage of this age, there will be many accidents, causing various wounds, in which resuturing should play an important part in their treatment. And often in civil practice, when the patient either refuses a general anesthetic or is in no condition for it, it is well to know that repair can be made far more safely and with almost as much ease by the local anesthesia method and with the same surety of success.

75 FORT WASHINGTON AVENUE.

STUDIES IN EPIDEMIC ENCEPHALITIS (ENCEPHALITIS LETHARGICA).

*Preliminary Report.**

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(From the Pathological Laboratory of Mount Sinai Hospital, New York City.)

The following is a report of a series of experiments performed in an attempt to establish the etiology of epidemic encephalitis:

Monkey No. 1. *Macacus rhesus.*—March 1, 1919: Saline emulsion of human brain of encephalitis case introduced subdurally and intraperitoneally. March 2, 1919: Monkey ill; lumbar puncture showed clear fluid containing ninety mononuclear lymphocytes per cubic millimetre. March 4, 1919: Monkey autopsied; sections of brain showed multiple, cortical, and subcortical punctate hemorrhages; perivascular infiltration of mononuclear leucocytes; and a moderate degree of meningitis with infiltration of mononuclear leucocytes.

Monkey No. 2. *Macacus rhesus.*—March 4, 1919: Saline emulsion of brain of monkey No. 1 introduced subdurally, intracerebrally and intraperitoneally. March 10, 1919: Hemiparesis on the side opposite to that inoculated. March 17, 1919: Autopsy revealed large hemorrhage and necrosis at the point of intracerebral injection; lesion possibly traumatic.

Monkey No. 3. *Macacus rhesus.*—March 4, 1919: Saline emulsion of brain of monkey No. 1 injected subdurally and intraperitoneally. April 27, 1919: Monkey alive and well to date.

Monkey No. 4. *Macacus rhesus.*—March 22, 1919: Berkefeld filtrate of washings of nasopharynx from a case of encephalitis introduced

subdurally and intraperitoneally. March 30, 1919: Paresis of both hind legs; monkey distinctly apathetic. April 5, 1919: Lumbar puncture showed sixteen cells per cubic millimetre, mostly lymphocytes. April 6, 1919: Condition improved. April 9, 1919: Entirely recovered; to be later inoculated with filtrate of mucous membrane to determine the question of immunity.

Monkey No. 5. *Macacus rhesus.*—April 7, 1919: Berkefeld filtrate of nasopharyngeal mucous membrane from a fatal case of epidemic encephalitis injected subdurally and intraperitoneally. April 8, 1919: Right hemiparesis and paresis of external rectus of left eye. April 11, 1919: Typical Jacksonian epileptic convulsions of right side, which became generalized, followed by a stupor. April 11-13, 1919: Recurrent clonic convulsions and periods of stupor; general condition poor; killed. April 13, 1919: Autopsy showed numerous cortical and subcortical punctate hemorrhages; one small hemorrhage on surface of pons and a large hemorrhage within the pons; some necrosis and increase of glia cells in proximity to the hemorrhage; puncture and larger hemorrhages on the parietal peritoneum, visceral peritoneum and omentum, near the site of inoculation.

Monkey No. 7. *Macacus cynomolgus*¹.—April 18, 1919: Berkefeld filtrate of mucous membrane of nasopharynx from a fatal case of cardiovascular disease, injected subdurally. April 27, 1919: Monkey has remained well to date.

Monkey No. 7. *Macacus cynomolgus*¹.—April 18, 1919: Saline emulsion of brain of monkey No. 5 injected subdurally. April 20-23, 1919: Persistent paresis of right arm and leg. April 23, 1919: Autopsy showed the brain markedly congested and near the site of inoculation a large hemorrhagic area surrounded by numerous cortical and subcortical punctate hemorrhages, with small area of necrosis in the centre of the larger hemorrhage. Blood vessels in this region showed evidence of proliferation.

All the material, both human and monkey, was cultured aerobically and anaerobically according to the usual methods and was found to be sterile.

CONCLUSIONS.

1. Inoculation of emulsion of human brain produced lesions in the monkey characteristic of the lesions found in epidemic encephalitis.
2. The inoculation of the filtrate of the mucous membrane of the nasopharynx of a patient not suffering from epidemic encephalitis produced no evidence of disease in the monkey.
3. The inoculation of the washings of the nasopharynx in a case of epidemic encephalitis produced paralysis in the monkey accompanied by pleocytosis in the spinal fluid.
4. A filtrable virus obtained from the mucous membrane of the nasopharynx in a fatal case of epidemic encephalitis produced hemorrhagic encephalitis in the monkey. This virus has been carried through a second generation.

Further research is necessary to determine the incidence and nature of the virus and any possible relation it may bear to influenza.

*Submitted for publication April 28, 1919.

¹This monkey had received two subdural injections of a very virulent poliomyelitis virus two years ago, with negative results.

RECENT GLEANINGS RELATIVE TO THE PROPHYLAXIS AND TREATMENT OF INFLUENZA.

By LOUIS T. DE M. SAJOUS, B. S., M. D.,
Philadelphia.

(Continued from page 685.)

Although initial purgation with magnesium citrate solution or some similar agent is often recommended, a number of observers have recently pronounced it useless, at least in most instances. According to Lereboullet, 1918, enemas, suppositories, or mild laxatives should alone be employed in the relatively constipated condition often met with during the active course of the disease. In the period of decline, however, if the tongue remains heavily coated and the gastrointestinal functions disturbed, sodium sulphate or castor oil may be indicated to open the bowels and hasten recovery. Bastedo, 1918, on the other hand, urges that during influenza the digestive tract be kept free from fermentation and putrefaction by means of a primary dose of castor oil or calomel as well as a subsequent mild laxative or daily enema.

In some cases, apart from the presence of a complicating pneumonia, circulatory impairment demands special treatment. Sir James Mackenzie, 1919, points out that as in other febrile states, the heart in influenza may be influenced by three factors, viz., the rise in temperature itself, toxins produced by the causative germ or germs, and direct invasion of the heart by the germ or germs. Lereboullet lays stress on certain cases of influenza analogous to malignant scarlet fever, with early and progressive adynamia, circulatory asthenia, and usually a definite reduction of blood pressure. The customary remedies for acute circulatory impairment constitute the usual treatment in these and similar cases, including injections of camphor in oil in amounts of four to eight mils a day, sometimes alternated with one milligram or larger doses of strychnine sulphate; injections of caffeine—with caution to avoid the production or maintenance of delirium or sleeplessness—and digitalis or strophanthus.

Certain French and English authors have drawn attention to acute insufficiency of the adrenals as the cause of general prostration and circulatory adynamia in influenza. D. T. Harris, 1918, reported a case with rapidly oncoming and extreme prostration and an almost imperceptible pulse in which at autopsy softening and multiple hemorrhages of the left adrenal were found, in the absence of any involvement of the heart, spleen, liver, or kidneys. He suggests the use, in adynamic cases, of adrenalin in small doses every four hours, to be followed by adrenal substance during convalescence. G. Lyon, 1918, asserts that in cases with pallor, thready pulse, syncopal tendency, and the "white line" phenomenon, strychnine is without value, while adrenalin is directly indicated in doses of five drops of the one in 1,000 solution by the mouth every hour, up to thirty or forty drops a day. According to Sergent the subcutaneous or intramuscular route is preferable to ingestion; Lere-

boullet advises caution, on the other hand, in injecting adrenalin under the skin, having found it badly borne when thus given in markedly adynamic patients and considers it dangerous if given in an initial dose of one milligram. The last named author, like Lyon, uses the remedy by the mouth, in ten or fifteen drop doses repeated two or three times a day. In some cases he substitutes injections of whole adrenal extract from ampoules each corresponding to 0.1 gram of the extract, or, approximately to one milligram of adrenalin. Such injections he had already found very effectual in malignant scarlet fever.

During the course of the recent influenza epidemic a number of therapeutic measures not previously employed in this disease were brought into requisition. While some were applied merely by isolated observers, others gained many adherents, from whom a considerable number of special clinical reports have been appearing in medical literature.

Among the latter group of therapeutic measures is the use of colloid metals, which, it is asserted, have been employed with good results both in incipient and relatively mild cases and in those more severe or actually desperate by reason of lung complications. P. Richard, 1919, has recently issued a favorable report on gold collobiase, a form of colloid gold which he injects intramuscularly in two mil doses on two to four successive days in incipient influenza. His experience led him to conclude that when this measure is utilized on the first two days of the disease, before any complication has developed, recovery regularly follows in a surprisingly brief time. The use of colloid gold generally rendered the administration of such drugs as antipyrine and acetylsalicylic acid unnecessary. In fifteen severe cases, including a number with definite pulmonary involvement, repeated daily injections of colloid gold certainly assisted, in Richard's estimation, in promoting early recovery and even in saving life.

An earlier report on colloid metals was that of Capitan, 1918, who employed a pure colloid arsenic prepared by Fouard, of Paris, frequently in conjunction with colloid silver. Both mild and severe forms of the disease were thus treated. Five mil doses of each preparation, injected intramuscularly, were used in a large number of patients, generally with a resulting descent in temperature from 39° or 40° C. to 37° in two or three days. In a series of forty grave cases with marked pulmonary involvement, many patients were given intravenous as well as intramuscular injections. In the most severe cases six mils of the arsenic and three mils of the silver preparation were given at once intravenously, and the same doses repeated twelve hours later in the muscles. Next day the same procedures were carried out unless improvement was already very marked, in which event a nine mil dose of arsenic and six mil dose of silver were given intramuscularly, with descending amounts on subsequent days. Often the injections were repeated but once every two or three days, their effects manifestly continuing for this length of time.

(To be continued.)

Editorial Notes and Comments

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THE RELATIONSHIP OF THE INTERNAL SECRETIONS TO GASTROINTESTINAL DISEASES.

Gastrointestinal diseases and disorders are perhaps preeminently affections due to advanced civilization. As civilization progresses and people flock to towns, so the maladies and disorders of the alimentary tract increase. The reasons for this increase are obvious. The town dweller leads a sedentary life. The majority of the dwellers in cities are cooped up in offices for the greater part of the day and in consequence do not take sufficient exercise, and what is possibly of greater importance they eat and drink more than is good for them, or exist on an unsuitable, ill balanced diet. The outcome of this unnatural mode of living is that the digestive system becomes deranged and in the efforts to remedy this state of affairs the working of the digestive apparatus becomes thoroughly out of gear and the effects are always troublesome and not infrequently serious. The so called chronic diseases, most of which proceed directly or indirectly from digestive disorders, have increased very largely during recent years and are often due undoubtedly to the manner in which the urban population lives. Dyspepsia almost invariably commences with constipation, which condition is often aggravated by the injudicious use of purgatives. The disinclination or inability to evacuate the bowels at regular periods gradually merges into obstinate chronic constipation, intestinal stasis results,

and the last straw is the establishment of alimentary toxemia or autointoxication. Alimentary toxemia is generally caused by food poisoning in the intestines, by intestinal putrefaction, and although views as to results of the toxic condition of the alimentary tract vary considerably, there is little doubt that if permitted to persist not only will life be rendered a misery, but diseases of the most serious nature may ensue. It is true that under normal conditions in healthy persons putrefactive changes in the intestines bring about no evil results and may even fulfill a useful rôle in the animal economy.

The protective agencies that exist in the human body to combat the deleterious effects of toxins that may be produced by the various bacterial flora are the action of the liver, the action of the internal secretions of the thyroid and other ductless glands, or it may be the production of antibodies in the blood. Evidence has been accumulating for a considerable time that the specific action of the thyroid and the other internal secretions play an important part with regard to vital resistance, and it has been demonstrated that in cases of intestinal stasis associated with thyroid enlargement, the gland has diminished in size on removal of the stasis. The relationship of the thyroid gland to alimentary toxemia is somewhat intangible and many of the theories regarding the internal secretions are mainly speculative. Yet gradually increasing knowledge of these secretions appears to prove definitely that they exert a profound influence on the mechanism of the human system. It is now believed by a number of medical men that the way to secure sound sanguineous fluid in which germs cannot exist is to take care of the intestinal secretions. It appears to be quite probable that among the many functions of the thyroid gland, one of the most important is a protective action against circulating toxins. If the action of the thyroid is taken for granted, and that one of the sources of intoxication is the bowel, it follows that in proportion as the amount of intoxication can be lessened the extra burden on the thyroid is removed or decreased and the gland in consequence diminishes in size. While enough is not absolutely known with regard to the internal secretions to warrant any dogmatic statement as to the exact part they play in the working of the human machine, it may be said that they wield a remarkable influence on physical and mental health. It may then be justly inferred that the diseases and disorders of the gastrointestinal tract are owing, at least to some

extent, to the impaired or imperfect action of not only the thyroid gland but of those internal secretions which are concerned with the alimentary tract.

In the treatment from the preventive and curative standpoints diet is of the first importance, and must be adapted to the peculiar needs of the individual. Attention must be paid to the vitamin content of the diet, and the person's age and mode of life must be carefully taken into account. Moreover, food should be masticated thoroughly, and therefore must be of a dry nature. The soft, pappy food so largely eaten at the present time is mainly responsible for bad teeth and for a good deal of the constipation and digestive troubles which are the bane of modern life. Another important means of avoiding digestive derangements is to insalivate the food properly. Unfortunately, the tendency of the age is hurry, and with regard to eating this tendency is carried to excess by Americans especially. Food is too often devoured without adequate chewing and therefore without causing a flow of saliva, while it must be further borne in mind that moistened starchy food, even when chewed, does not cause insalivation. A moderate, well balanced diet suited to the age of the individual and to the work that he does, and masticated thoroughly, will both prevent gastrointestinal disorders and cure or abate them when contracted if they are not of organic origin. Constipation, generally the exciting cause of digestive ills, can be prevented to some extent by a judicious diet and by leading an active life as far as this is possible for a town dweller. The use of strong purgatives is contraindicated for if their employment is cultivated, it will become a habit, a vicious circle will be established, and the last state of that man or woman will be worse by far than the first. In the large majority of cases, in the early stages of intestinal stasis, simple remedial measures such as modifications of diet, physical exercises, abdominal massage, mild aperient remedies and lubricants, such as liquid petrolatum will usually have the desired result. The internal secretions should always be considered in the prevention and treatment of gastrointestinal diseases and disorders.

INTESTINAL OXALIC LITHIASIS.

If in intestinal inflammatory lithiasis the enterocolitic symptoms occupy the foreground almost exclusively and make an epiphenomenon of the lithiasis occurring in chronic enterocolitis, in the lithiasis of gout, on the contrary, often appears in subjects whose intestine is otherwise intact, but who have previously suffered from hepatic or nephritic colic. In a general way it may be said that few cases of intestinal lithiasis

are recognized for the simple reason that the affection is overlooked. In the case of inflammatory lithiasis it is the enteritis with its paroxysms of pain that occupies the physician's attention, and those among them who have methodically looked for the lithiasis have detected it oftener than is generally supposed. In other instances it has been the size of the calculus and the resulting mechanical disturbances that have put the clinician on the right road, or, as has happened, the patient may complain of the sensation of gravel passing per anum. The initial phase of the process is in most cases unquestionably obscure, it is confounded with the causal affection, while its first manifestations are very variable. However, it may be laid down as a rule that there are emaciation, pronounced asthenia, with great nervous irritability, cardiovascular disturbances, and, above all, arterial hypertension. This syndrome applies particularly to the latent form of the process, but in the painful form the abdominal paroxysms, sometimes of extreme violence, dominate the clinical picture.

These paroxysms of abdominal pain have been the cause of many diagnostic errors, and on account of their severity, Dieulafoy described them as lithiasic intestinal colic. At the beginning of the paroxysm the painful irradiations are those of the solar plexus, but little by little a segment of the colon becomes particularly sensitive on palpation, while spasm of the gut is so intense that it may be felt like a cord. Occasionally a doughiness may be felt over the cecum or in the hypochondrium, due, according to Dalché and Chevalier, to a sand stasis in various areas of the large intestine. Watery, bilious, or even bloody vomiting increases until a true paroxysm has been reached, and then gradually subsides. The attack ends with the passage of hard scybala—these patients are constipated—followed by diarrhea containing sand or gravel in varying amounts. This evacuation may be accompanied by hemorrhage, which sometimes is serious. The paroxysm may last only a few minutes, but usually it continues for hours or even an entire day.

In the interval between paroxysms, the pathological phenomena may disappear completely, but certain symptoms persist, due particularly to chronic intoxication and demineralization, and to which reference has been made. However, the most striking morbid phenomena are the emaciation and arterial hypotension, resulting from the oxalemic intoxication of the organism. Occult intestinal hemorrhage may continue during the intervals between the paroxysms and is the cause of the anemia and bodily weakness of the patient.

THE WORK OF THE NARCOTIC RELIEF STATION.

The Narcotic Relief Station established by the Board of Health of the City of New York at 145 Worth Street, Manhattan, on April 10th, has afforded a unique opportunity for the collation of data regarding drug addiction. Unfortunately, the statements of the addicts themselves must be relied upon for much of this information and experience has shown that the statements of drug addicts as a class are not to be depended upon. An analysis of the statements made by 1,506 patients treated shows that only nineteen per cent. were women, a fact which may be accounted for by the relatively greater timidity of the women in applying to the clinic. This timidity may also be a factor in affecting the number of colored patients, only fourteen per cent. of the addicts who applied for relief having been negroes. The relatively high proportion of skilled workers, forty-four per cent., is rather surprising, and the fact that seventeen per cent. of the total number applying for relief were employed in transportation work of some kind, as chauffeurs, signalmen, motormen, etc., is alarming, as these men are in a position in which negligence on their part would endanger the lives of others.

Only twenty-one per cent. of the addicts charge their habit to illness or attempts to relieve pain or insomnia, the remainder attributing their habit to curiosity, bad associates, and idleness, bad associates being charged with the responsibility for the habit in sixty-eight per cent. of the cases. This, however, may be merely due to the universal tendency of human nature to charge our failings to some one else. Sixty-nine per cent. of the addicts used heroin alone, four used cocaine alone, and seventeen per cent. used cocaine in connection with either heroin or morphine. In a bulletin issued by the State Board of Health of Rhode Island in February, 1918, 191 cases of drug addiction were cited, in only three of which heroin was used. It would seem from this that the preponderating use of heroin may be a local condition. The treatment adopted by the narcotic clinic consists merely in the reduction of the drug until the physiological minimum is reached, that is, until physiological disturbances are produced, such as irritability, peevishness, exaggerated emotion, tendency to perspiration, nausea and gastric disturbances. If possible when this point is reached the patients are sent to a hospital for further treatment. Sixty men and one woman have been admitted to Riverside Hospital for treatment since April 10th and there is a waiting list of forty additional patients. Where cocaine has been used it can be discontinued apparently without producing collapse.

The Committee on Narcotic Relief never permits the administration of more than fifteen grains of the drug, no matter how large an amount the patient had been accustomed to take. In none of the cases under observation has reduction to this amount been followed by collapse. There is always a possibility, however, that the patients have obtained additional supplies elsewhere, and this possibility throws a shadow of doubt on all the deductions made from the statistics given. The treatment by reduction has been productive of excellent results in a large number of cases both as to physical appearance and mental attitude of the patients, especially those who have been taking large amounts.

A study of the case histories of the women show that many of them have acquired the vice at their places of employment, generally on the recommendation of some fellow employee as a relief from overexertion. Once the appetite is acquired the girls have frequently paid as much as \$2 or \$3 a day for the drug, though earning only \$12 to \$16 a week. On being asked how the deficit was met the answer was invariably that a woman could do things to make money which men could not do.

The financial problem is one which appears to be an important factor in determining the recourse of the addict to the Narcotic Relief Station, for the number of new applicants for relief has diminished steadily since April 14th, while the social status of those returning for relief has gradually declined, leaving very few of the well dressed or well to do, who apparently find relief through other channels.

Dr. S. Dana Hubbard, of the Department of Health, who is in charge of the details of the Narcotic Relief Station and who furnished the statistics upon which these comments are based, advocates the establishment of a special reconstruction hospital, such as might well be made out of Warwick farms. The city has here several hundred acres of land and some of the Government barracks could be moved to these farms and provision made, at very slight expense, for several hundred addicts for the final period of reconstructive treatment. Where the patient honestly cooperates with the physician the amount of the drug can be reduced to the minimum physiological requirement by the outpatient method of treatment, but as soon as an effort is made to further diminish the quantity of drug used the patient is almost certain to relapse unless he is under hospital restraint. Therefore, it would seem that private practitioners and the Narcotic Relief Station could do the preliminary work, sending the patient to hospitals only when there is evidence of the approach to the minimum physiological requirements of the drug in the particular case under observation. In the mean-

while private practitioners can do much to help the situation by prescribing for addicts in accordance with the law, taking care, however, to reduce the drug until the minimum requirement is met, and then sending the patient to a hospital for further treatment.

PROTECTION OF THE CIVIL POPULATION.

Mingled with the rejoicing at the return of the home coming soldier there is a note of fear from the doctors lest harm should be done to the civilians who are already weakened by inferior food, by those who may possibly be carriers of dysentery. An Army Council Act, just issued in England, provides in the fullest way for the care of such cases. "All patients suffering or convalescent from dysentery will, if fit to travel, be sent to a selected dysentery hospital, where they will be examined, treated, and disposed of." The staffs at these hospitals will include a competent bacteriologist and protozoologist. The duty of the staff to be appointed at the Central Dysentery Hospital is to make periodic examinations of all "carriers." The disposal of these and chronic cases is a matter of grave importance, and, in the order, it is insisted that every "healthy" or "uncured" amebic carrier who elects to be discharged while still a carrier will be required to sign a paper stating that his condition has been explained to him; that he has been offered and refused specific treatment. On his discharge from any hospital a note shall be sent before discharge to the medical officer of the local government board giving his full name, age, case history, bacteriological, and protozoological findings, treatment, and future place of residence. This is undoubtedly a wise form of medical administration, as it aims at protecting the public while doing full justice to the soldier.

GROSS EXAGGERATION.

The narcotic problem is a grave one and we have no desire to minimize its dangers, but we must deprecate the hysterical exaggerations which some of the men engaged in the efforts to solve this problem indulge in. A member of Congress, Henry T. Rainey, of Illinois, has been quoted, or misquoted, in the daily press as stating that it was found that there were 80,000 drug addicts in the first draft and that "they were all rejected by camp officers." It would be interesting to know where this Congressman obtained these figures if, indeed, he ever made such a statement. In his second report, the Provost Marshal General states that out of 3,208,446 men examined physically, 2,007 were rejected for alcohol and drugs. As between a newspaper statement as to what a Congressman has said and the official report of the Provost Marshal General, the scientist would prefer to accept the official statement which, we are specifically informed, covers the "total rejections by local boards and camp surgeons." General Crowder reports that in both drafts, only one fortieth the number were rejected for both alcohol and drugs that the Congressman says were rejected for drug addiction alone.

CORRECTIONS WHICH DO NOT CORRECT.

A Scotch clergyman wrote from Venice to *The Scotsman*, one of the best edited newspapers in the United Kingdom, announcing the discovery of a cure for influenza. "This substance is fenola, which I suppose is popularly known as fenol or carbolic acid." The writer then gave a formula prescribing more than one grain every hour and further instructed the reader to take an injection of twenty grams of ten per cent. camphorated oil (equal to thirty grams of camphor) to which thirty grams of crystallized phenol had been added. The next day a correction appeared. Some time later Sir Frederick Milner published a letter in *The Scotsman* saying that he gave "Calvert's phenol No. 2; two tablespoonfuls a day." The patient was instructed to remain in bed—superfluous advice to one who has taken two tablespoonfuls of carbolic acid. Again a correction appeared on the following day to the effect that the titled practitioner had meant diluted acid. But he did not say this at first and in the meantime many patients may have remained in bed until the undertaker came. If he must write for the lay press the physician cannot be too particular that he writes what he means for he cannot presume upon any knowledge of the subject by the reader, as he could to a certain extent in a medical publication. An error of this kind once printed cannot be caught up with by any number of subsequent corrections.

Obituary.

H. AUGUSTUS WILSON, A. M., M. D.,
of Philadelphia.

Dr. H. Augustus Wilson, a prominent specialist and writer in orthopedic surgery, died in Philadelphia on Wednesday, April 16th, in his sixty-seventh year. He was born in 1853 and was descended from a long line of physicians on both the paternal and maternal sides. His education was begun in the public schools of Philadelphia and continued in the Friends' Central High School. He was graduated from the Jefferson Medical College in 1879, and soon after was appointed ophthalmic and aural surgeon to St. Mary's Hospital, and a year later pathologist to the Presbyterian Hospital, Philadelphia. For four years after graduation he was clinical assistant in the medical, surgical, and ophthalmological departments of Jefferson Hospital, and in 1882 became assistant surgeon of the First Regiment of the National Guard of Pennsylvania. The Master of Arts degree was conferred upon him by Ursinus College in 1894. Recently he was special editor on orthopedic surgery for the *NEW YORK MEDICAL JOURNAL*. He was a fellow of the American Orthopedic Association, of which he became vice-president in 1893 and president in 1901-2. He was also a member of the Philadelphia County Medical Society, the Medical Society of the State of Pennsylvania, and the American Medical Association, and a fellow of the College of Physicians of Philadelphia.

News Items.

American Röntgen Ray Society.—The twentieth annual meeting of this society will be held in Saratoga Springs, N. Y., September 3rd, 4th, 5th, and 6th, under the presidency of Dr. David R. Bowen, of Philadelphia.

New York Academy of Medicine.—The stated meeting of the academy for May 15th will be held under the auspices of the Section in Neurology and Psychiatry. The regular meeting of the section for May will therefore be omitted.

American Public Health Association.—The executive committee of this association announces that the date of the annual meeting of this association has been changed from October 9th to 12th to October 27 to 30, 1919, inclusive.

Feeding the United States Army.—At a stated meeting of the New York Academy of Medicine, held Thursday evening, May 1st, Colonel John R. Murlin, Medical Corps, United States Army, delivered an interesting address on Efficiency and Sanitation in the Feeding of the United States Army.

Greek Decorations for Red Cross Workers.—Fourteen members of the American Red Cross mission to Greece were decorated recently by King Alexander for services rendered in the work of relief among Greek subjects. Among those who received the decorations were Dr. Samuel J. Walker, of Boston, and Dr. Carl E. Black, of Jacksonville, Ill.

Philadelphia Neurological Hospital to Visit Army Hospital No. 11.—On the invitation of Major Charles H. Frazier, the members of the Philadelphia Neurological Society will go to Cape May, N. J., on Saturday, May 10th, to visit United States Army Hospital No. 11, which is largely devoted to neurological cases. In the evening a special meeting will be held in the hospital.

Army Hospitals Transferred to Public Health Service.—Ten army hospitals, with equipment, buildings and land, have been transferred by the War Department to the Treasury Department for the use of the Public Health Service. These hospitals are situated at the following camps: Camp Cody, N. Mex.; Camp Fremont, Cal.; Camp Hancock, Ga.; Camp J. E. Johnston, Fla.; Camp Logan, Tex.; Camp Sevier, S. C.; Camp Sheridan, Ala.; Dansville, N. Y. (G. H. 13); Nitrate Plant, Perrysville, N. Y.

New York Neurological Society.—A stated meeting of the society will be held in New York, Tuesday, May 6th, under the presidency of Dr. Walter Timme. The program includes the following papers: Clinical Experiences with Epidemic Central or Basilar Encephalitis (Encephalitis Lethargica), by Dr. Bernard Sachs; Committee Report on Encephalitis Lethargica, by Dr. Isador Abrahamson, chairman of the committee; Observations on Gunshot Wounds of the Head, by Major K. Winfield Ney, Medical Corps, United States Army, which will be illustrated with lantern slides. The discussion will be opened by Dr. Charles A. Elsberg, Dr. Alfred S. Taylor, and Dr. Harold Neuhoof.

The New York Diagnostic Hospital.—Physicians from all over the country are expected to attend the opening of the New York Diagnostic Hospital at 125 West Seventy-second Street some time this month. The institution, made possible through a fund raised by the physicians, will be the first of its kind in this country. The clinics will be for diagnoses only and will accommodate about 500 patients daily.

Hospital Congestion in New York.—The hospital ship *Mercy* has been directed to take on 200 to 300 patients at New York for transfer to the naval hospital at Portsmouth, N. H., stopping at the latter port on her next trip to France. The *Solace* has been directed to take 150 patients to Charleston, S. C., when the fleet leaves New York waters, rejoining the fleet at its base. The reason for these transfers is the necessity of relieving the hospital congestion in the New York area. While no statement was available at the Navy Department, it was regarded as probable that a hospital ship would be assigned to the destroyer force.

Physicians Wanted in the Panama Canal Service.—The United States Civil Service Commission announces an examination on June 18th, open to men only, for physicians in the Panama Canal Service. The entrance salary is \$150 a month; promotion may be made to \$300, and to higher rates for special positions. The entrance rate for physicians experienced in the care of the insane is \$200 a month. Applicants must be unmarried, must have been graduated from a medical school whose graduates are eligible for commission in the United States Army, and must have had at least one year's postgraduate hospital experience. For further particulars and the proper application blanks address the United States Civil Service Commission, Washington, D. C.

Meetings of Philadelphia Medical Societies.—The following medical societies will meet in Philadelphia during the coming week:

MONDAY, May 5th.—Academy of Surgery; Blockley Medical Society; Philadelphia Clinical Society; Main Line Branch, Montgomery County Medical Society.

TUESDAY, May 6th.—Medical Examiners' Association.

WEDNESDAY, May 7th.—College of Physicians; Laryngological Society.

THURSDAY, May 8th.—Aesculapian Club; Pathological Society.

FRIDAY, May 9th.—Atlantic County Medical Society; Northern Medical Association; Psychiatric Society.

SATURDAY, May 10th.—Neurological Society.

Brooklyn Gynecological Society.—A regular meeting of the society was held Friday evening, May 2d, in the Library Building of the Medical Society of the County of Kings. Dr. Leo J. J. Commiskey reported a case of amniotic adhesions; Dr. O. P. Humpstone presented a specimen of five months' cornual pregnancy with rupture. Dr. H. J. W. Morgenthaler read a paper on the Administration of the Obstetric Nursery. Dr. Carroll Chase related some of his experiences in the service of the French Army Medical Corps. The officers of the society are as follows: Dr. Eliot Bishop, president; Dr. Gordon Gibson and Dr. William Pfeiffer, vice-presidents; Dr. Harvey B. Matthews, secretary; Dr. Alfred W. White, treasurer; Dr. Joshua Ronsheim, librarian.

Miss Delano Dies in France.—Miss Jane A. Delano, director general of the department of nursing of the American Red Cross, died on Tuesday, April 15th, at Base Hospital No. 8, Sauvigny, France, from complications following an operation for mastoiditis. Miss Delano sailed from New York on January 2d for the purpose of making a personal survey of the nursing situation in France, Italy, the Balkans, and other European countries where the American Red Cross is at work. She was taken ill soon after her arrival in France. Miss Delano was one of the foremost figures in the nursing world. It was under her direction that more than 30,000 nurses were recruited through the American Red Cross for service in the army and navy after the United States entered the war. She served three times as president of the American Nurses' Association and also served several years as head of the directorate of the *American Journal of Nursing*.

National Association for the Study of Epilepsy.—The eighteenth annual meeting of this society will be held at the Craig Colony for Epileptics, Sonyea, N. Y., June 6th and 7th. Those attending the meeting will be entertained as guests of the colony. The association was organized at the Craig Colony for Epileptics in 1901, and for the first time it will hold its annual meeting at the institution. There was no meeting of the society last year, on account of the war, and at the coming meeting there will be a reorganization and a resumption of activities to meet the demands of the postbellum period. Plans will be discussed for a union of the epilepsy investigators in allied and neutral countries with those of America.

Personal.—Dr. Joel T. Boone, of Pottstown, Pa., lieutenant commander, Navy Medical Corps, has been awarded the Croix de Guerre, with two palms, by the French Government. This is the second decoration won by Commander Boone from the French Government, and he also holds the Distinguished Service Cross of the United States. He served seventeen months with the Marines in France.

Lieutenant Colonel Charles H. Peck, Medical Corps, United States Army, has been awarded the Distinguished Service Medal of the United States. Doctor Peck was senior consultant in general surgery for the American Expeditionary Forces and director of Base Hospital No. 15 in France.

Dr. Frank P. Norbury, of Springfield, Ill., has returned to his home and resumed practice after having served since August 1, 1918, as acting medical director of the National Committee for Mental Hygiene in New York, in the absence of the director, Colonel Thomas W. Salmon, M. C., (late senior consultant in neuropsychiatry, A. E. F.) and of the associate director, Major Frankwood E. Williams, M. C., (late in active service in the Surgeon General's Office). Colonel Salmon is now on duty in the Surgeon General's Office and Major Williams, having received his discharge from the Medical Corps of the Army, has resumed his duties in the office of the National Committee for Mental Hygiene.

Health of Navy and Marine Corps.—Health reports of the Navy and Marine Corps show a steady decline in the number of influenza cases and an appreciable fall in the annual rate in 1,000 in the total admissions for all diseases. For the entire navy (complement 373,000) for the week ending March 29th the annual admission rate in a 1,000 was 184.60. For certain communicable diseases the report shows these admissions: Cerebrospinal fever, six; diphtheria, twenty-eight; malaria, sixteen; measles, forty-one; mumps, 112; pneumonia, 132; scarlet fever, twenty; tuberculosis, sixty; influenza, 905. The annual admission rate in a 1,000 in the Marine Corps (complement 60,000), was 421.72. Admissions for pneumonia in the week were twenty-two and influenza 309, mumps eighty-eight, and malaria forty.

Meetings of Local Medical Societies.—The following medical societies will meet in New York during the coming week:

MONDAY, May 5th.—Clinical Society of the New York Polyclinic Medical School and Hospital; New York German Medical Society; Brooklyn Hospital Club.

TUESDAY, May 6th.—New York Academy of Medicine (Section in Dermatology); Medical Society of Harlem Hospital; New York Neurological Society; Society of Alumni of Lebanon Hospital.

WEDNESDAY, May 7th.—New York Academy of Medicine (Section in Historical Medicine); Bronx Medical Association; Harlem Medical Association (annual); Society of Alumni of Bellevue Hospital; Brooklyn Hospital Club; Brooklyn Society for Neurology.

THURSDAY, May 8th.—New York Academy of Medicine (Section in Pediatrics); West End Clinical Society; Brooklyn Pathological Society (annual).

FRIDAY, May 9th.—New York Academy of Medicine (Section in Otology); Clinical Society of the German Society of the German Hospital and Dispensary; Eastern Medical Society of the City of New York; Flatbush Medical Society (annual).

Many Medical Societies to Meet in Atlantic City in June.—The following medical societies will hold their annual meetings in Atlantic City in June: American Medical Association, June 9th to 13th; American Academy of Medicine, June 9th and 10th; American Association of Anesthetists, June 9th and 10th; American Association of Genito-urinary Surgeons, June 16th and 17th; American Association of Industrial Physicians and Surgeons, June 9th; American Association of Pathologists and Bacteriologists, June 16th and 17th; American Association of Physicians, June 16th and 17th; American Climatological and Clinical Association, June 16th to 18th; American Dermatological Association, June 16th and 18th; American Gynecological Association, June 14th; American Neurological Association, June 16th to 18th; American Ophthalmological Association, June 16th and 17th; American Orthopedic Association, June 16th and 17th; American Otolological Society, June 16th and 17th; American Pediatric Society, June 16th, 17th, and 18th; American Proctological Society, June 7th to 9th; American Psychopathological Society, June 19th; American Society of Tropical Medicine, June 16th and 17th; American Surgical Association, June 16th to 18th; American Therapeutic Society, June 6th to 8th; Congress of American Physicians and Surgeons, June 16th and 17th; National Tuberculosis Association, June 12th to 14th.

Miscellany from Home and Foreign Journals

Perforated Gastric and Duodenal Ulcers.—H. M. Richter (*Surgery, Gynecology, and Obstetrics*, April, 1919) in taking up the subject of the treatment of perforated gastric and duodenal ulcers offers the following suggestions: 1, The peritonitis resulting from a gastric or duodenal perforation is but slightly if at all infective during the first hours following the accident, and therefore should not be treated as a suppurative process; 2, the degree of patency of the pylorus after closure of the perforation alone does not determine whether a gastroenterostomy is indicated; 3, the operator's technic, quite irrespective of the method he uses, determines in a high degree, his mortality. While the normal stomach is practically sterile the presence of an ulcer causes a certain, small amount of infected material to be present. It is frequently found that patients do not give a history suggestive of pyloric obstruction. The perforation may be the first evidence of the presence of an ulcer. The type is usually accompanied by hyperacidity and a rapid emptying of the stomach. The ulcer is an infective process; but the stomach contents are practically sterile. The violent reaction, when they are emptied into the peritoneum is caused by the chemical irritant. Fat necrosis may be present. It may be produced experimentally by perforation of the duodenum. This is also a chemical reaction and calls for the mechanical emptying of the peritoneal cavity. Tubes or gauze for drainage should not be left in the peritoneum, as they may cause infection of the damaged tissues. If solid masses of food are present a midline exploratory incision is called for, the more dependent parts of the abdomen are examined, and the masses are removed. If removal is not possible drainage may be instituted. As the perforation is usually less than five millimetres in diameter this rarely occurs. The drainage is regarded as a safety factor in the event that suppurative peritonitis may develop, but as the tubes are walled off from the free peritoneal cavity long before the development of the suppuration the operation is futile. It is therefore concluded that drainage is always called for in early perforations, but it may be instituted: 1, in late cases; 2, occasionally in inadequate closure of the perforation due to physical inability to invert the lesion; and 3, where large masses of stomach contents are thrown into the peritoneum.

There is a division of opinion on the advisability of a gastroenterostomy after the closure of a perforated ulcer. It is said to perform a double function; first to relieve the obstruction due to the inversion of the ulcer, and second to treat the lesions in the stomach. Perforation is a cure for a large proportion of involved gastric ulcers. The perforation is only a small portion of the entire ulcer. In closing the perforation the entire ulcer should be imbedded. Excision of the ulcer and cauterization of the perforation are unnecessary. Through and through suture grasping the entire ulcer as well as the perforation is effective in destroying the lesion. The technic is important regard-

less of the type of operation performed. While a benign peritonitis may be present during the early hours following perforation the abdominal viscera will not stand excessive traumatism. There must be a minimum handling of the parts. If the stomach contents are poured out during the operation it is evidence of poor technic. The incision should be ample for easy access to the upper abdomen. The pyloric end of the stomach and duodenum must be exposed so they can be reviewed *in situ*. This enables the operator to quickly find the perforation and leave the parts in a normal position. When the perforation is located the finger should be placed upon it until a through and through running suture can be placed to whip it in. The perforation and ulcer are then folded in. When the perforation is near the pylorus with a wide area of induration, it may be desirable to turn the first portion of the duodenum upon the stomach and suture it there. Fowler's position, no oral feeding, and large quantities of water by rectum are an important part of the after treatment.

Technic of Gastroenterostomy.—A. Schwyzer (*Surgery, Gynecology, and Obstetrics*, April 1919) presents some of the minor points in the operative technic for gastroenterostomy in application to the side to side methods. The fear in gastroenterostomy has been the vicious circle. Doubtless, atony of the stomach walls has been an important factor in its formation. Therefore the surgeon must attempt to do all he can to secure an easy outlet from the stomach and avoid any difficulty of passage. If the efferent loop should become fixed by adhesions, a kink may prove disastrous. If the intestinal loop is free, even if kinked, it may easily move on its contents. Antiperistaltic attachment of the jejunum may give better results because the inlet is kinked off which is a beneficial feature. Food will pass through a patent pylorus even after gastroenterostomy, and will appear in the afferent loop. The afferent opening will not have the same tendency to contract as the distal jejunum which in atony of the stomach is not forcibly offered food. As soon as there is no free outlet from the lower opening, the duodenum and the jejunum will become distended. In vicious circles the afferent loop becomes so ballooned that the efferent opening is compressed and pushed out of the way. Therefore the afferent opening should not be allowed to become too large and so annex the neutral territory or the part of the gut which lies between the two ends of the gastroenterostomy incision. The upper loop may become so large as to compress the outlet. For this reason the afferent gut is fixed for some distance upon the stomach. It is desirable that the efferent gut lead freely away from the stomach. The following procedure is recommended for posterior gastroenterostomy. First, the stomach is drawn through the slit in the mesocolon as far as possible. Second, the edge of the mesocolon is fastened to the stomach as far on the periphery as possible. In front the mesocolon is fastened to the

anterior wall of the stomach by grasping the stomach wall through the omental attachment where it can be had between the vessels. Third, the gastroenterostomy is made large enough to allow the tips of four fingers in it. Fourth, the loop is attached in the isoperistaltic sense; and the stomach extends from a point about half way between the greater and lesser curvatures on the afferent side close to the greater curvature on the efferent end. After the stomach is replaced, the gastroenterostomy opening has a downward course on the posterior wall of the stomach and is as much of a posterior inferior outlet as can be secured. Fifth, after the posterior Lembert suture is placed, the gut incised down to the submucosa, and the second suture applied and the mucosa opened, the third suture seizes the broad edge of the mucosa. The mucosa was never excised, for the mucosa on the suture line protects the tissues against secondary ulcer. The middle suture buries the eversion and the sewing goes more quickly. Sixth, the anterior Lembert suture is placed so that after the distal half is finished in the ordinary way, it pulls the jejunum on the proximal half over to the left and upward by a slanting direction of the suture. The suture in its progress toward the left angle gradually includes broader peritoneal surfaces and so pulls the gut over into the stomach creating a narrowing and kinking of the gut, bringing a broader agglutination at the point of the greatest pull.

Cow's Milk Dyspepsia in Early Childhood.—

A. B. Marfan (*Paris médical*, January 4, 1919) states that cow's milk dyspepsia occurs during the first two years of life in children fed exclusively or almost exclusively with cow's milk. The chief sign of the condition is a special alteration in the stools, which are pasty, firm, homogeneous, pale yellowish or at times almost white, and resembling putty or potter's clay. They show little moisture, are more copious than normal, strongly alkaline, and possess an ammoniacal and putrid odor. Chemical and microscopic examination reveals a marked excess of soaps of the alkaline earths, especially calcium; a great amount of putrefactive products; an excess of mineral substances and the presence of bile pigments, mainly in the form of urobilinogen. The treatment varies according to the child's age. Up to the fourth or fifth month two classes of cases present themselves. Either the child has been receiving cow's milk insufficiently diluted, at too short intervals, or in excessive amounts, in which case the error made should be corrected, or the cow's milk has been properly given, but nevertheless disagrees. In the latter event, the most certain therapeutic measure is a temporary resumption of breast feeding, with feedings somewhat reduced from the normal in order to rest the digestive tract. If breast feeding is not possible, asses' milk may be used; if unobtainable, modified milk preparations will have to be resorted to. The milk appropriate under these conditions is one with the casein already prepared for digestion by heat or ferment action, with the fats reduced, and with the carbohydrates increased. The modified milks answering these requirements are buttermilk, partly

digested humanized milk, skimmed and sweetened condensed milk, and powdered milk with the addition of sugar. Skimmed milk, diluted and sweetened, gives less favorable results than the preceding. If neither modified nor skimmed milk is obtainable, the treatment may be begun directly with cow's milk, previously sterilized and diluted with four or five parts of sweetened water. Digestive ferments may also be added. On the first day of treatment, the child may be given merely sweetened water. The milk product selected is then begun in amounts less than the normal feedings, gradually increased till the child begins to gain slightly in weight, continued in this amount for a few days, and then replaced by ordinary cow's milk. At first the latter is given freely diluted with a solution of cane sugar or of maltose dextrin; then the proportion of milk is progressively increased according to tolerance. In children four to six months of age the treatment is along the same lines, but maltose or milk flour preparations are added to the milk products already referred to. In children older than six months ordinary flour preparations can be used at the start, at first prepared without milk, later with milk added in increasing amounts. Some of the meals consist of milk diluted with an equal amount of sugar solution.

Bacteriological Diagnosis of Dysentery.—

Loygue, Bonnet, and Payre (*Bulletins et mémoires de la Société médicale des hôpitaux de Paris*, December 5, 1918), write concerning an epidemic of 320 cases of dysentery encountered among French troops in August and September, 1918. Two hundred patients were subjected to laboratory study, the stools of 118 being examined and the agglutination reaction tested in 150. From the stools the bacillus of Shiga was isolated in only fourteen instances, the bacillus of Flexner in one, and the bacillus of Hiss in one. Stress is laid on correct procedure in obtaining material for examination from the stools. Only fresh stools of a distinctly dysenteric appearance and obtained as soon as possible after the onset of the disease should be accepted. Under unfavorable conditions it is better to dispense with examination of the stools entirely, to avoid being misled. The agglutination reaction gave far better results, eighty-six of the 150 cases tested being positive and eight doubtful. Among the eighty-six, seven were negative to the Shiga but positive to the Flexner. Of the remaining seventy-nine out of the eighty-six, all were positive to the Shiga and fifty-four showed coagglutination of the Flexner. Of eight cases that came to autopsy, all showing typical lesions of bacillary dysentery, none had been positive as regards the stools, in spite of repeated examination. In the five cases, out of these eight, in which the agglutination test was carried out, the test was positive in three and negative in two—the latter doubtless because of the early time of examination, death rapidly supervening. These observations show clearly that whereas isolation of the dysentery bacillus from the stools is unreliable, especially under unfavorable conditions, the agglutination test is a necessary part of diagnostic procedure.

A Painful Point in the Right Lumbar Region in Acute Appendicitis.—G. Brun (*Presse médicale*, January 16, 1919) emphasizes the fact that, in acute appendicitis, pain and tenderness are not limited to the right or the left iliac fossa. In a considerable number of patients, in whom the intensity of pain and degree of rigidity in the right iliac fossa are less than usual, the position of these signs is merely carried back posteriorly into the lower, right lumbar region. In these cases operation reveals a retrocecal situated appendix. A tender point in the lower lumbar region, accompanied by contraction of the muscles of the posterior wall, has doubtless been frequently noticed by clinicians, but is not referred to or mentioned only incidentally, in current textbooks. Yet it is of far greater importance that the tender point in the left iliac fossa so laboriously defined by many authors, constituting as it does a clinical expression of the retrocecal variety of appendicitis, found by surgeons in no less than thirty to forty per cent. of their operations for this disease. It occurs more often in children than in adults. The frequency of a retrocecal position of the appendix demands a systematic examination of the lumbar point of tenderness whenever acute appendicitis is suspected, especially when the signs in the right iliac fossa are incomplete. Brun found this tender point in thirty per cent. of his cases. The point is located above the middle portion of the crest of the ilium reaching its greatest intensity at the outer angle of the triangle of Petit. The contraction of the muscles of the posterior wall which sometimes accompanies it is best elicited by comparative palpation of the corresponding area on the left, or normal, side. Whenever these signs were present Brun diagnosed retrocecal appendicitis, and the operation always confirmed this assertion. The sign permits frequently of detecting an appendicitis that might have passed unnoticed upon examination of the right iliac fossa alone. By guiding the surgeon beforehand to the actual situation of the appendix, it may also permit him to make a correct selection of the site of incision.

Separation of the Sigmoid and Uterine Adnexa when Fused by Inflammation.—H. Grad (*American Journal of Obstetrics*, March, 1919) points out that in laparotomy in patients with diseased adnexa adhesions of the sigmoid to the Fallopian tubes and ovaries are often encountered. In some the union is so intimate that separation cannot be effected without marked injury to the structures concerned. Injury to the sigmoid adherent in the pelvis is a serious complication of the operation, from which fatalities often result. In acute cases, separation of the sigmoid or loops of small intestine adherent to the bladder wall is easily accomplished; the cleavage method must be followed, and the organs torn repaired by suture of the rent. Under all other conditions, however, in the presence of diseased tubes or ovaries adherent to the sigmoid rectum, or to loops of small intestine, separation should be done not along the plane of cleavage but by cutting the adherent bowel away at the expense of the parts to which it adheres. The surgeon will then have less bowel injury to deal with—which is a very important consideration. In cases of tubo-

ovarian abscess with sigmoid or rectal involvement, cases with massive infiltration of the mesosigmoid, and where the abscess cavity is draining into the bowel, the adherent tissue on wall of the sigmoid or rectum should be utilized to facilitate closure of the rent in the bowel wall. When the lumen of the bowel has been entered, the complication is a serious one, and every attempt should be made to repair the mucous surface as accurately as possible. After the repair, the suture line should be allowed to fall against some surface to which it may become adherent—either the posterior surface of the uterus, the cul-de-sac itself, or the bowel wall. No drainage material should be placed against the suture line but, if necessary, above or to the side of it. Rubber drain is preferable to gauze. The outer coat admits of more ready closure if there is also adherent tissue on the wall to be included in the suture. Upon separation along the plane of cleavage with the outer coat infiltrated with inflammatory product, the suture will not hold. In such an emergency it is best to place a layer of omental tissue, held with a few sutures, over the suture line and mucous surface. Where the sigmoid has been so damaged as to be beyond repair, resection must be resorted to.

Uterine Myomata.—Le Roy Broun (*American Journal of Obstetrics*, March, 1919) presents a review of 262 cases operated in for uterine myomata during 1918 at the Woman's Hospital, New York. The mortality was four cases, or 1.52 per cent., two succumbing to embolism, one to intestinal obstruction, while the fourth died within three days after supravaginal hysterectomy and removal of purulent uterine appendages. Complications during recovery numbered ten, comprising mural abscesses in the abdominal wound, six; colon bacillus infection of the kidneys, two; vesicovaginal fistula, one, and severe bronchitis, one. Of 117 patients who subsequently reported, ninety-nine were in good condition and felt well, five complained of menopause symptoms, and fourteen had symptoms directly referable to the end result of the operation. Eight of the latter had symptoms due to reformation of pelvic adhesions; one had developed a hard mass posterior to the cervix, and one was complaining of pain over the right conserved ovary. Attention is called to the relatively small number of patients with menopause symptoms; in the presence of tumor growth the endocrine function of the ovaries is probably greatly diminished, and their importance in maintaining nervous equilibrium correspondingly reduced. From the psychic standpoint it is well to be able to say to a patient that one or both adnexa have been preserved, but in hysterectomy with removal of the tubes it is well also to remove the ovaries, even though apparently healthy, on account of the probable after disturbance in conserved ovaries due to interference with their circulation. As regards pathological conditions found in coincidence with the myomata, forty of the 262 cases had corpus luteum cysts and seventeen, hemorrhagic cysts. There were twenty cases of associated chronic salpingitis and sixteen of hydrosalpinx. There were also serous cysts, seven; dermoid cysts, four; parovarian cysts, two; pa-

pillomatous cysts, two; ovarian cancer, two; adenocystoma, three, and pseudomucinous cyst, one. Associated tubal involvements also included tuberculous salpingitis, four; hematosalpinx, four; purulent salpingitis, two, and gonorrheal salpingitis, one. Normal pregnancy existed in six cases and tubal gestation in one. Of 1,760 myomatous tumors removed during the last nine years, 5.1 per cent. were undergoing necrotic changes and 1.5 per cent., calcareous changes; carcinoma of the body was also coincident in 1.5 per cent. The mortality in the 1,500 cases was 1.86 per cent. and in the last 262 cases, 1.51 per cent. The author questions whether the end results reported could be equalled by the x rays or radium. These agencies should be used in myomata only for the purpose of controlling hemorrhage and then only when the contents of the pelvis can be clearly mapped out.

A Dynamic Examination of Uteromotor Medication.—Guggisberg's (*Zentralblatt für Gynäkologie*, 1918, No. 19) method consists in measuring the active energy of the living uterus. The writer introduced a monometer into the uterine cavity filled with fluid and afterward noted the increase of the pressure caused by the contraction, as well as the volume of fluid expelled. The uterine work is the quotient of the pressure by the volume put in motion. The best results were given by pituitrin (pituitary extract) and secacornin. The increase of the pressure is weak, the volume of fluid expelled is large. On the contrary, the various synthetic products are quite useless for the reason that the resulting elevation of the pressure caused by them only puts a small volume of the uterus into contraction. This technic is recommended for the biological examination of ergot preparations. The experiments seem to show that small doses of secacornin produce good contraction in the pregnant uterus.

Contraindications to the Use of Hydrostatic Bags in Obstetrics.—Edward T. Hull (*American Journal of Obstetrics*, March, 1919) asserts that labor is now being often induced artificially without sufficient regard to definite indications and with a resulting mortality and morbidity. Before using a bag, one should be satisfied that the cervix is dilatable with a bag, and also that there is good reason for believing labor pains will be induced. Rigid cervix is most often seen in primiparæ before the last weeks of pregnancy or following cicatrices, while uterine inertia is difficult to foresee except with a history of previous labors. Bags are contraindicated where great haste is necessary, as in severe accidental hemorrhage, threatened edema of the lungs, tonic uterus, or acute failure of cardiac compensation. Where induction of labor is solely in the interest of the child, the mother must be in such a condition that she will probably live through the delivery. Under these circumstances more rapid methods, such as vaginal Cæsarean section, are likely to be indicated. In cases of relative disproportion or borderline pelvic contraction the author has found it advisable by experience to dispense with bags and induction of premature labor and to adopt the expectant method, combining diet

and exercise with a trial labor, close watch of the fetal heart, rectal examinations, and keeping the patient in condition for operative delivery if necessary. Williams, in the induction of premature labor for contracted pelvis, quotes a maternal mortality of 1.03 per cent. and a fetal mortality of thirty-nine per cent. On the other hand, eighty per cent. of cases of contracted pelvis deliver themselves spontaneously if given a trial labor, and in Williams's series there was a loss of only four per cent. of babies among cases treated expectantly. As for the question of frequent or routine bagging of normal cases at term, extended use of bags by the best obstetricians has amply shown that there is considerable danger, even in selected cases, from such conditions as infection, prolapse of the cord, displacement of the presenting part, abnormalities in mechanism, increased number of operative deliveries, asphyxia, atelectasis, prematurity, etc. Even were there sufficient reasons for routine bagging at term, it is very difficult to determine in every case the proper time for the operation. In dystocia from resistance of the soft parts, the bag overcomes the resistance somewhat, but the cervix remains thick and contractable; it is not thinned out, retracted, nor paralyzed, and grips the presenting part, with release only by laceration or incision if forceps or breech extraction is attempted. It is better to avoid introduction of a bag before the lower segment is prepared, and still better, to allow spontaneous institution of labor.

Intensive Serum Therapy.—G. Schreiber (*Paris médical*, January 18, 1919) holds after experience with about one thousand injections of various kinds of serum, that it is quite unnecessary for the practitioner to take into account the possibility of anaphylactic reactions in the clinical employment of serums, even in massive doses. Of twelve meningitis patients treated with polyvalent serum from the Institut Pasteur to a total amount of 200 to 400 mils, divided into four to twelve injections, none showed the least anaphylactic manifestation. In fifteen cases of dysentery treated with antidyenteric serum in total amounts of 100 to 500 mils, ascending at successive injections from twenty to 100 mils, then descending again, there were similarly no anaphylactic phenomena, though ordinary mild serum disturbances, such as erythema and arthralgia, were observed in eight. Antistreptococcic serum was effectually used in three grave cases of erysipelas, in daily doses of twenty to forty mils, without anaphylactic effects. Several hundred curative injections of diphtheria antitoxin were given in daily subcutaneous doses of twenty to 100 mils, and likewise intravenously in two malignant diphtheria cases, without anaphylaxis. Finally, massive injection of tetanus antitoxin were given in four cases of tetanus occurring in soldiers who had received immunizing doses of the serum some time before. Anaphylactic manifestations were absent, and three of the four patients recovered. Stress is laid on the administration of large quantities of the serum in fractional doses of from forty to 100 mils, in developed tetanus. It is also pointed out that the injection of antitetanus serum may be followed by temporomaxillary arthralgia.

Treatment of Influenza by Phenol.—Sebastiano Orlando (*La Riforma Medica*, January 18, 1919) describes his method of treatment which gave 100 per cent. recoveries in a community where other methods showed a mortality of 6.43 per cent. He gave two daily intramuscular injections of five c. c. of a two per cent. solution of phenol with the administration by mouth of one gram daily of the phenol. In some patients he used only the oral route in the following formula:

Phenol 1 gram;
Syrup anisi 50 grams;
Water q. s. ad..... 300 c. c.

Epidemic of Influenza at Camp Devens, Mass.—Paul G. Woolley (*Journal of Laboratory and Clinical Medicine*, March, 1919) adds to the number of reports of the epidemic a description of it at Camp Devens, Mass., which was the first of the cantonments to be affected. Therefore the authorities were without precedent regarding treatment and prophylaxis, and the chief end aimed at was early recognition and hospitalization. Every case was regarded and treated as a possible pneumonia. The men were kept out of doors as much as possible, and separated in their barracks. Bacteriological studies of the sputum showed beside pneumococci and hemolytic streptococci the *Bacillus* of Pfeiffer, and a large bacillus which was not identified.

Intravenous Iodine in Influenzal Bronchopneumonia.—D. M. Baillie (*Lancet*, March 15, 1919) tried the intravenous injection of doses of 1.3 to 2.0 mils of the B. P. tincture of iodine, which, unlike the U. S. P. tincture, is only 2.5 per cent. in iodine content. Each dose was diluted to about ten mils with physiological saline solution and given slowly into one of the veins near the bend of the elbow. The dose was not repeated oftener than once a day. Usually within twenty-four hours after the dose the pulse rate and temperature fell rapidly and the patient's general condition changed markedly for the better. In ten severe cases so treated nine patients recovered. The mechanism of the iodine action is unknown.

Bronchopneumonia Due to the *Bacillus* of Pfeiffer.—P. Menetrier (*Bulletin de l'Académie de médecine*, January 28, 1919) reports a case of bronchopneumonia, encountered by him in the recent influenza epidemic, in which the influenza bacillus was found in practically a pure culture, or at least, without accompaniment of any of the other microorganisms commonly met with in influenzal lung complications. After experiencing typical influenza symptoms for about a week a more severe cough and intense dyspnea developed. There was no pain and expectoration was practically nil. Physical examination showed impaired resonance over the posteroinferior two thirds of the lungs, with diffuse crepitant and subcrepitant râles. Anteriorly there was puerile breathing and sibilant râles. The temperature was about 40° C. In spite of treatment cyanosis grew worse and the patient succumbed in three days. At autopsy the lungs showed an unusual pathological state characterized by hepatization with interspersed small whitish areas, the com-

bination of these two changes at first suggesting acute tuberculosis. Microscopically there was revealed a mixture of congestion extending frequently to hemorrhage and a diffuse exudation of leucocytes into the bronchial channels and some of the air vesicles. The leucocytes in the exudate were not degenerated, but took stains well. In general there was no exudation of fibrin in the air vesicles. In the congested areas some air vesicles were directly filled with blood, others obliterated through intense hyperemia of the capillaries in their walls. In the purely hemorrhagic areas all microorganisms were absent, but in the tissues with leucocytic exudation there were innumerable short, thin bacilli morphologically resembling the influenza bacillus, negative to Gram's, and growing in fine colonies on blood agar but not on plain agar. The intense dyspnea and early fatal ending is ascribed to the massive functional paralysis of lung tissue resulting from the blocking of the respiratory tissues and passages, as well as to the concomitant general infectious toxemia.

Treatment of Influenza.—F. Duprat (*Revista Medico-Cirurgica do Brazil*, September, 1918) summarizes his treatment under various heads as follows: 1. To reduce the fever aspirin in .5 gram doses three times a day. 2. To maintain the general condition, rum, champagne, grog, three times a day with caffeine where the myocardium was suspected of weakness. 3. To prevent pulmonary complications, large mustard plasters even where examination of the chest was negative. 4. To prevent toxemia, saline purgation with sulphates of soda and magnesia daily with one gram of urotropine daily. Cardiac adynamia was combated with sparteine sulphate .1 gram daily in two injections, camphorated oil, and strychnine arsenate in doses of two third mgm. per day. Pulmonary complications were treated by collargol ten c. c. a day, venesection, and mustard applications. Nervous complications such as agitation, delirium, and meningismus were treated by ice bags to the head, leeches to the mastoids, purgative irrigations of the bowel. Persistent hacking cough was best treated by tincture of iodine in ten drop doses in milk.

Intravenous Injection of Camphorated Oil in Influenza.—Loeper and Fumouze (*Bulletins et mémoires de la Société médicale des hôpitaux de Paris*, December 5, 1918) refer particularly to severe cases in which the toxic effects appear to be exerted especially on the pulmonary nervous mechanism. The marked tachycardia, the low blood pressure, the occasional Cheyne-Stokes respiration, and the usual complete disappearance of the oculocardiac reflex suggest that the poison acts especially on the medulla and vagal system. The first therapeutic indication in this asphyxial form of influenza is venesection, which should be copious and repeated. Subcutaneous or intravenous injections of sugar solution or saline solution with adrenalin are also helpful. Recent reports on the action of oily camphor solutions in shock led the authors to apply this measure in thirty-eight cases of the asphyxial form of influenza. Twenty patients, or between fifty-five and sixty per cent., recovered—a great improvement over the results from ordinary treat-

ment, after which recovery occurs in only a small proportion of cases. The camphor and oil were given daily to the amount of two mils of a ten per cent. solution. The injections were administered slowly into a vein in the arm. No harmful results were ever observed. The results comprise an immediate sedation of the nervous manifestations, a marked subjective sense of well being, an increase of blood pressure, slowing of the heart rate, and in the cases that go on to recovery, progressive improvement of the cyanosis. An effect on the temperature is produced in about one-third of the cases. Sometimes it is very marked, but often it is slight, and on the whole it is inconstant. The authors deem the treatment well worthy of trial in the asphyxial type of influenza.

Influenzal Intraabdominal Catastrophes.—Reginald Eccles Smith (*Lancet*, March 15, 1919) points out that influenza may be complicated by several forms of severe abdominal conditions. The first of these is peritonitis, which has been found to be due in all cases to the streptococcus and is a blood borne or embolic infection. It is always a general peritonitis. The second class of conditions includes those due to the toxemia of the disease and is best illustrated by acute toxic dilatation of the stomach. The third type includes those abdominal lesions which are purely coincident, such as acute appendicitis, etc. While these strictly surgical complications occur in influenza, the surgeon must be on his guard because the initial symptoms of influenza not infrequently simulate very closely such acute surgical conditions as appendicitis, perforated gastric ulcer, peritonitis, etc. These abdominal symptoms may occur before there are any definite signs in the lungs and the diagnosis of influenza is often difficult. Three differential points are of great value: First, movement of the *alæ nasi* with respiration never occurs early in abdominal surgical lesions but is frequent in influenza; second, dullness in the flanks is never present in influenzal pseudocatastrophes; and, third, the facies of the influenza patient is that of lethargy and resignation while that of the acute surgical abdomen is anxious and terror stricken.

Prolonged Administration of Cardiotonic Remedies.—Giovanni Galli (*Presse médicale*, January 27, 1919) refers in particular to cases of advanced heart disease in which rest in bed is insufficient to restore compensation and the continuous use of heart tonics becomes absolutely necessary, as shown by recurrence of decompensation if the drugs are left off. Such protracted use of heart tonics has not in the past been sufficiently availed of owing to an unfounded fear of a cumulative action of the drug. The author gives digitalis powder in 0.05 gram doses once or twice a day for months and even years. In less advanced cases, such a dose may suffice to sustain the myocardium, even if the drug be administered but two or three weeks in each month. In patients over seventy years of age, presenting symptoms readily attributable to old age, but actually due to true disturbances of the circulation, Galli likewise counsels administration of digitalis in small doses. Continuous use of such doses does not impair the sensitiveness of the myocardial fibres.

The Mortality of Mastoid Operations.—Barries (*Monatschrift für Ohrenkrank. und Laryngologie*, 1917, Nos. 11 and 12) reports 1108 operations on the mastoid, 853 of which were simple opening and draining of the process, while the remaining 255 cases required further operation. There were 119 deaths or a mortality of 10.7 per cent. In fourteen cases death must be attributed to the operation itself, the following causes being offered by the writer: 1, Secondary infections of the cerebellum following an exploratory incision; 2, secondary infection of a cerebral hernia following exploratory incision; 3, lesion of the temporal lobe from a drainage tube; 4, a bone splinter projecting into the temporal lobe; 5, operative lesion of the dura mater during an operation for cholesteatoma; 6, operative lesion of the sinus; 7, phlebitis of sinus although the sinus was not exposed; 8 and 9, postoperative inflammation of the labyrinth with meningitis; 10, 11 and 12, postoperative meningitis of unrecognized origin; 13 and 14, postoperative erysipelas.

Injection into the Umbilical Vein for Adherent Placenta.—B. S. Schultz (*Zentralblatt für Gynäkologie*, 1918, No. 19) recommends this procedure in cases of adherent placenta. A sterile physiological salt solution is forced down the umbilical vein. The writer remarks that when injecting milk into a placenta which has become freed a swelling of the fetal capillaries takes place and although the milk did not pass into the maternal vessels these became emptied of the blood contained in them. The process thus set up is efficacious in detaching the afterbirth when the adhesions are not too strong.

Treatment of Congenital Syphilis.—Yeppo (*Therapeutische Monatschrift*, May, 1918) prefers treating congenital syphilis with soda salvarsan and states that a cure may be obtained after from twenty to thirty-five intravenous injections at the dose of from seven to ten centigrams for each injection. The duration of the treatment is from nine to eighteen months. The combined mercury and salvarsan treatment does not appear to be particularly favored by the writer.

Gonorrheal Urethritis.—S. Reines (*Wiener klinische Wochenschrift*, No. 9, 1918) treats acute posterior gonorrheal urethritis and cystitis with intravenous injections of a two per cent. methylene blue solution at the dose of ten c. c. per injection. The subjective disturbances quickly disappear and the second glass of urine becomes limpid. This treatment is contraindicated when the prostate, seminal vesicles, testicle, or epididymis are involved in the gonorrheal process. After three injections given every second day the usual treatment is taken up and continued.

Gonorrheal Infection.—Schlittler (*Zeitschrift für Ohrenheilkrankung*, Band 76) reports a very interesting case of gonorrheal infection of the upper respiratory and digestive tracts. In the patient, a man forty-two years of age, there developed an acute stomatitis and pharyngitis on the fourteenth day of a gonorrhea. A severe, painful inflammation of the parts first appeared followed by profuse sup-
puration.

Proceedings of National and Local Societies

NEW YORK ACADEMY OF MEDICINE,

SECTION IN NEUROLOGY AND PSYCHIATRY.

Regular Meeting Held March 11, 1919.

The Chairman, Dr. JOSEPH BYRNE, Presided.

Double Facial Neuritis.—Dr. SIMON ROTHENBERG (by invitation) presented this case of post-influenzal involvement of the nervous system. The points of interest were a high lymphocyte count of 290 cells, persistent miosis, and pain in the back of the head and neck, all pointing to a meningeal irritation beside the encephalitic involvement. The patient, a man thirty-six years of age, was admitted to the hospital on January 8, 1919, complaining of frontal and occipital headache and pain over the mastoid region. He was drowsy and responded very slowly to questions, dozing off frequently while talking. He vomited a great deal at this time, had photophobia and was unable to open his mouth widely. The previous history, beyond the attack of influenza, was negative except that he had been suffering intermittently with headaches for two years which were often relieved by spontaneous vomiting. There was tenderness over the mastoid region and all reflexes were exaggerated except the abdominal. There was partial ptosis of both eyelids, sluggish pupillary reaction, the lower facial nerve was affected giving a flat and drooping expression, the tongue came out straight but with difficulty and mouth opened partially but symmetrically. The speech was indistinct and slurring. There was an intention tremor in the left arm. There was no Kernig or rigidity of the neck, no involvement of mentality. There was bilateral miosis. Wassermann examination of the blood and cerebrospinal fluid was negative. Influenza bacilli and microcatarrhalis were present in the sputum. The blood contained a very high lymphocyte count. Diagnosis was made of nuclear involvement of both facials due to lethargic encephalitis.

Intrathoracic Goitre.—Dr. JOSHUA H. LEINER (by invitation) presented this case, one of true intrathoracic goitre or struma profunda lying entirely within the thorax. There was no visible sign whatever showing the condition of the gland. The patient was a married woman, thirty-four years of age, a Russian Jewess. She had no difficulties in labor at the birth of her three children and had had no miscarriages. Her menstruation, however, had always been irregular. She first came under observation in the early part of 1916 at which time she showed a marked exophthalmia, von Graefe's sign, pulse 96, and an enlarged thyroid. A soft systolic murmur was heard at the apex. The only subjective disturbance complained of was nervousness. About one year later she was taken suddenly very ill. She was confined to her bed with the entire chest wall heaving and pulsating together with pulsations of both carotids. At this time she showed objectively a marked hypertrophied thyroid, marked exophthalmia, a pulse of 140 a minute, tremor, and other evidences comprising a

clinical picture of a Basedow goitre heart. Her complaint was a marked asthenia, dyspnea and cardiac palpitation. Examination showed a heavily built young woman with abundant hair, moist palms, impalpable glands, no pigmentation, normal teeth, some exophthalmia, a double von Graefe, fine tremor of fingers, pulse 108 a minute, blood pressure 138 systolic, eighty diastolic. The thyroid gland was not palpable in the neck but at its site there was a baggy mass of loose distended fatty tissue. There were systolic murmurs of the heart at the apex and at the base. Percussion over the sternum revealed a small area of dullness.

The diagnosis of intrathoracic goitre was confirmed by fluoroscopic examination. There was no displacement of the trachea or the esophagus. The patient was given Forchheimer's treatment of quinine hydrobromate and ergotin and was given ovarian and thymus extract. She improved subjectively and objectively, the thymus treatment being particularly effective. Prognosis in this case included two considerations. Regarding her Basedow, the thyrotoxin was burying itself out and in the future she would probably reach a state of hypothyroidism. Regarding the intrathoracic symptoms, as the struma was of small dimensions the pressure symptoms were negative and surgical interference was therefore not indicated. In view of the fact that the thyrotoxic symptoms were showing improvement the patient would probably get along very well under careful observation.

Lethargic Encephalitis Forme Fruste.—Dr. Hyman Climenko reported the case of a young girl, thirteen and a half years of age, who came for treatment on November 22, 1918, complaining of excessive drowsiness. She had previously had an attack of uncomplicated influenza which confined her to bed for three weeks. One week after she was out of bed and apparently well, she began to suffer from somnolence, falling asleep on every occasion, while eating at the table and even while walking on the street. It was always easy at these times to arouse her and, although she was fully conscious of the approaching drowsiness, she could not overcome it. In the beginning of this lethargic condition these attacks occurred every five minutes so that they seriously interfered with her daily routine, but they gradually became more and more rare. At the time of the patient's first visit, Doctor Climenko did not know as much about the condition of lethargic encephalitis as he did later when the condition became more generally known, and he gave the patient hormotone and a week afterward she felt better. Then small doses of thyroid were given and she continued to improve. On discontinuing the organotherapy the symptoms grew worse but at no time returned to the original state. After she had had no attack for two weeks a preparation of glycerophosphates was given but the symptoms immediately returned, and opotherapy was again resorted to and the patient was relieved of all symptoms of lethargy and had been so for

two weeks. In this case the cell count was negative, every laboratory test indeed being absolutely negative. There were no organic neurological symptoms. It was presented as an atypical example of lethargic encephalitis following influenza.

Traumatic Myelitis.—Dr. WILLIAM COHEN presented this case, as well as the röntgenograms showing the fragments of bullet still in the vertebra. The patient, a young man, thirty-two years of age, was accidentally shot while walking on the street in April, 1917. He fell backward to the ground, his hands first striking the pavement. Though fully conscious he could not rise as he was unable to move his legs. He was taken to the hospital and here he began to experience excruciating pain in the soles of his feet, though his feet and legs from the soles to the thighs felt numb. He was operated upon and the bullet removed. About four weeks later sensation returned to his legs and in six weeks he could lift both feet from the bed. In four months he could walk. He had to be catheterized for seven weeks, but from that time on he has had incontinence of urine. There was rectal incontinence for six weeks, but at this time he was constipated. Sexual impotence had existed for one year and a half. At the present time the station and gait were negative; no decensus and the gross motor power was intact in both extremities. Tonus was normal except for slight hypotonia of the left knee joint. The plantar reflexes were normal. There were muscular twitchings of the left thigh. Knee jerks were present on both sides but the Achilles jerks were not obtainable. Sergeant's white line was present below the lesion beginning at the level of the twelfth dorsal in the region of the lesion and a marked dermatographia was present above the lesion.

Multiple Sarcomata (?) of the Spine Cured by Coley's Fluid.—Dr. I. ABRAHAMSON reported the case of a woman sixty-three years of age, who was admitted to Mount Sinai Hospital, July 20, 1918, complaining of pain in the lower back and weakness of legs, which had existed for six weeks, confining her to bed; and she was constipated for the first time in her life. There had been loss of urinary control on the first day of the illness; no incontinence since but partial retention. She had slight dyspnea on exertion. Examination was made and the reflexes were found to be abnormal; the triceps and wrist jerks were not elicited, the knee jerks were present, but there was no plantar response; Achilles were not elicited. There was slight Kernig; wasting of the left thigh and both legs, especially the left, and decided weakness of both legs, ankles and feet; pain at the base of the chest posteriorly, marked tenderness of spine of tenth dorsal vertebra and a large, bulging, firm mass at the sacrococcygeal region but no redness, heat or fluctuation; and saddle anesthesia, perineal and down thighs bilaterally. Röntgenogram of the last dorsal and first lumbar vertebra showed an irregular outline; fusion of the dorsal part of the dorsal vertebrae and upper part of lumbar vertebrae; and disappearance of intervertebral space. The articulating surface of the other lumbar vertebrae was slight-

ly "lipping," probably the seat of a spondylitic condition. There was a high lymphocyte count. Wassermann of blood and spinal fluid, and complement fixation test for tuberculosis, were negative. Diagnosis was made of neoplasms of the spine involving the lower cord above the conus and involving parts of the cauda equina, and it was decided to treat the patient with Coley's fluid. The first injection was made August 2, 1918, and as the needle penetrated the lower spinal mass it felt firm and cartilagenous. The patient had a marked reaction and for one or two days thereafter the mass seemed to increase in size and firmness. On the 7th it was noticed, however, that the mass had decreased to almost one third its former size and there was marked softening. On the 10th the mass felt soft to the penetrating needle. On the 14th the fluid was injected in the upper mass and again on the 19th. The lymphocyte cell count on the 27th had decreased to 12,000. The injections were continued until August 31st and on September 4th the patient was discharged much improved. The only evidence of the tumors was a small fibrous knot about one half centimetre in diameter at the level of the twelfth dorsal at the end of the spinous process, and a diffuse bulging, soft but not tender, in the sacrococcygeal region. The injections had been kept up at home with further improvement. The tumor masses had practically disappeared; she had regained her former state of good health, could walk about freely and attend to her household duties.

Intermediary Stages in Sexual Development.

—Dr. C. P. OBERNDORF traced the transition of heterosexuality from the sexual impulse in its earliest manifestations of autoerotism in children. The earliest pleasurable impulses that develop in the child are those derived solely from bodily movements, such as suckling, swaying, etc., and are autoerotic. Autoerotic impulses are those arising spontaneously from within and finding satisfaction in the individual's own person. From this state the normal individual gradually progresses to object love, that is, the love of another person. The intermediate stage between these two is called narcissism, which comprises a great subdivision of autoerotic activities and is characterized by the fact that in the transition of the patient from the most primary autoerotic impulses which he collects in earliest infancy to the heterosexual object love, he directs his impulses toward his own person in his actual or fancied state. In this transition stage each person is apt to pass through a period where his love is directed toward an actual object or fancied object of some one like himself, i. e., a homosexual image, before passing to heterosexual actualities. It is evident that in this period of autoerotism, homoerotic as well as autoerotic impulses may be given unrestricted, fanciful outlet.

The most frequent unmistakable autoerotic sexual manifestation in the child is masturbation. In fact, it may safely be regarded as a normal phase of sexual development, and it is only when prolonged to an age beyond the normal, arbitrarily twenty years, or accompanied by excessive narcissistic fancies, that it is to be considered patho-

logical. Seventy per cent. of the students at a certain university recorded that they began masturbation between the thirteenth and seventeenth years, and sixty-three per cent. of these made a transition to intercourse between seventeen and twenty-one.

The primitive forms of masturbation, however, do not as a rule continue long in their simpler mold, especially in neurotic individuals, but become associated with elaborate fancies. This "fancy" activity is particularly pernicious as it removes the individual further and further away from realities, and the fancies acquire a hold on the life of the individual which it is difficult to alter, and they fix a standard of comparison for all subsequent erotism. He is apt to have recourse to it as a solace in times of stress and this tends to increasingly unfit him for sex actualities and leads to all sorts of conflicts. These in turn form the basis of neuroses. Persons lingering in autoerotism frequently suffer from a sense of guilt and dishonesty and a fear that retribution in some form must overtake them for their practices. Where the sense of shame of guilt has become excessively emphasized, through parental warning or religious or even broad social censure, each repetition of the act may be accompanied by remorse and attempts at repression which result in the establishment of neurotic compromises or unconscious manifestations. While early autoerotic impulses are normal and physical masturbation is without great subsequent effect upon physical sexual functions, the continuance of narcissistic fancies into adult life may be productive of most unfortunate consequences. Merely to label a condition as masturbation in no way indicated the psychic difficulties with which the person so afflicted was contending. In homosexuality there were two forms in the male, with homologous counterparts in the female. Subjective homoeroticism in the male, i. e., where the male assumed the passive rôle exclusively, was probably a biological anomaly and such individuals were apt to show secondary sex signs. Active homosexuality, where the individual was abnormal only with regard to his love object, was a compulsion neurosis. Such individuals had precocious heterosexual experiences in childhood, but were severely reprimanded for them, and unconsciously felt impelled to seek the same sex because the opposite sex had become psychologically forbidden for them. Objective homoerotics showed all the mechanisms of a compulsion neurosis. Subjective homoerotics showed very few of these conflicts, were fairly content with their condition, and rarely sought medical aid.

Since most individuals preferred to conform rather than deviate from the norm, it was evident that homosexuality must be considered as a disease (one type a compulsion neurosis, and the other a biological anomaly) rather than a crime. Developmentally speaking, the homosexual was somewhat more advanced and less seriously affected than the profound autoerotic. From the study of intermediary phases of sex development the conclusion was reached that: First, autoerotism was not to be alleviated by rigid repression but was best handled by educating the individual to a psychic tolerance

of heterosexuality; second, that attempts to force either the confirmed active homoerotic or autoerotic into heterosexuality before he was adequately psychically adapted to it was most likely to result unfavorably, and that active homoeroticism in the male and its homologous condition in the female were best regarded as compulsion neuroses and, as such, offered a really hopeful field for therapy.

Dr. A. A. BRILL considered both masturbation and homoeroticism nothing but intermediary stages, and as far as masturbation was concerned, did no harm at all. The only harm associated with it resulted from conflicts that the individual had and these could be removed. On the other hand, there were a number of masturbators that continued the practice and they were usually of the dementia præcox type. The best way to obviate these abnormal deviations was through early education. Though masturbation did no harm in a physical or mental sense, psychologically it did harm for it made the person autoerotic. The average normal individual gave it up and turned to normal object love, and the other kind adhered to it for the rest of his existence. Masturbation in women had nothing directly to do with marital frigidity; frigidity was a characteristic of cultured women, the average woman being taught to ignore and suppress sex, and it was a well known fact that most newly married women were frigid. Women of the lower classes, such as the peasants in European countries, were not usually so. As far as homosexuality was concerned, it was well to remember that everyone was more or less homosexual, which enabled them to live in friendly relations with their fellow beings of the same sex, but on the other hand there was a pathological homosexuality in which the individual felt a sexual pleasure in persons of the same sex. Homosexuality could thus be divided into two groups. In the second group the defect could not be cured even if these people ever came for treatment, which they did not except when in some legal trouble. The ones who sought treatment were those who always struggled against it and many were of the compulsion neurotic type; they could usually be cured after a prolonged treatment. The problem could only be handled properly by starting in childhood and educating people in the various phases of psychosexual development.

Doctor LEINER said he cured a case of masturbation in a boy five years of age by putting him on an alkaline diet, assuming that there was irritability in the bladder. He also believed that many cases of homosexuality had their origin in a disturbance of the endocrine system and he thought that if such physiological data were taken into consideration in the study of many of these cases a solution of the problem might very often be achieved.

Dr. LEONARD BLUMGART said that the State Charities Aid Association had 1,500 children under their care, and masturbation presented itself prominently in the history of almost all these children. Doctor Brill's statement that education was a great factor in the cure of this practice had been borne out by experience with these children. If the child was made to feel that he was not committing a

crime by having this tendency, and time was devoted to presenting the matter in the proper light to the adults who cared for him, the number of cases rapidly diminished and a great many of the children stopped the habit. These children were all under the care of foster parents and boarding out in homes. The enlightenment of the guardians was more efficacious than trying to make an impression directly on the child.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting Held October 21, 1918.

The President, Dr. EDWARD E. CORNWALL, of Brooklyn, in the Chair.

(Concluded from page 747).

The Food Factor in the Causation of Disease.

—Dr. JOSEPH WINTERS read this paper. He began with reference to the fact that the metabolism of animal protein unceasingly produces leucomaines that are toxic, as well as uric and other poisonous acids which the intestines, liver, kidneys, skin, lungs, constantly eliminate. When animal protein was excessive or elimination defective, systemic poisoning resulted, an autointoxication which caused disturbances ranging from slight indisposition to dangerous, even fatal, illness. Food toxins caused disorders of the stomach, lungs, liver, kidneys and skin, disturbed the heart action and irritated the bronchial nerves. They caused headache, neuralgia, anemia, sleeplessness, drowsiness, vertigo, vomiting, nerve depression, mental aberration, irritability, nervousness, convulsions, ague, edema, arteriosclerosis, etc. Food toxemia was the dominant cause of mental and physical inefficiency. The lymph glands and tonsils were toxin centres that might become inflamed or suppurate. Autointoxication was the sole cause of many diseases, including gonorrhea, gout, pyorrhea, and decayed teeth. By taking out teeth and tonsils for rheumatism and other conditions the primary cause was neglected and the toxemia allowed to continue its deadly work. Correct diet with natural salts and vegetable protein, stopped intestinal fermentation and restored elimination. The scientific basis for the maintenance of health was chemical physiology. Doctor Winters then described a series of cases of diverse diseases, in which each patient was treated by correct diet and rhubarb and soda, and reported all greatly improved and most of them entirely cured.

Dr. THOMAS S. SOUTHWORTH said that the topic presented by Doctor Winters was very much in the medical mind today. It is clearly recognized that serious disturbances were set up by the elements of various food substances. That these did not do more harm was probably due to the fact that there was very wide individual tolerance. The modern table d'hôte and the public dinner were commonly tolerated though the protein was out of proportion to the other elements of the food. In infancy, the disturbances which come from the sugar, the fat, and the protein were prototypes of the more complex disturbances of later life, when other types of protein were introduced. It was quite as important

to detect those disturbances from subnormal tolerance of particular food elements as it was to detect disturbances from an excess through overeating. The term ptomaine poisoning had entered into popular language and had been greatly abused. Medical men habitually saw persons who had been told they had ptomaine poisoning when in all probability they were suffering from some type of subnormal food tolerance. The solution of these food disturbances involved a correct determination of the metabolic and chemical factors entering into them, and doubtless it also involved the ultimate abandonment of many of the theories that passed current today. As an example of the recent rapid changes in medical views, the metabolism of diabetes could be cited as superseding former theories. It would seem that the treatment of all conditions depended not so much upon the particular theory advanced as upon the thoroughness with which the therapeutic measures were applied. Theories changed from time to time, but the well established principles of treatment adjusted themselves to the changes in current theories and produced results from generation to generation.

Dr. GRAHAM LUSK considered that since Doctor Winters had laid emphasis upon correct diet, it would be interesting to have him describe that correct diet. Doctor Hindhede recommended as a proper dietary one which he claimed would give to mankind the old world peasant's immunity from such diseases as gout, rheumatism, and diabetes, a diet consisting of two pounds of potatoes, a pound of bread, a pint of milk, a little butter, and a pound of apples daily. The alkaline ash of the potato elevated it to a very distinguished place in dietetics. It had been stated that in Germany the amount of rheumatism and gout decreased with the meat consumption. One should also very carefully consider the psychological factor in this problem of food, for the pleasure of eating aided in the digestion of food. The experiments of Pavlov showed how decidedly psychology entered into the problem of digestion, and this factor should always be borne in mind. Not very much has been heard about these things from England, however, for the English people though they endured a hard winter last year bore it without outcry. There was little doubt that most people ate more meat than was necessary and could perfectly well get along with much less.

Dr. ALFRED F. HESS said that for years every one had realized that there was such a thing as autointoxication but the etiology, symptomatology, and treatment of the subject, however, were still vague. Doctor Winters's claim that arteriosclerosis might be due to food ptomaine poisoning appeared likely. So far as stated, the treatment advocated seemed to be mainly rhubarb and soda. That would make rhubarb and soda a very wonderful drug; salvarsan would not be comparable, for salvarsan cured only one disease. Doctor Hess said that Doctor Winters knew that he did not agree with his views that the symptoms of food poisoning ranged from rheumatism to asthma, epilepsy, skin disease, heart disease, etc. Nevertheless, it was well recognized that there was such a thing as intestinal food poisoning, which caused a varied number of

symptoms and symptom complexes. Not very much, however, was known about it. How was any progress to be made in preventing them? They could not be isolated from the canal, and there were such small quantities in the blood that they could not be isolated here. One would probably have to fall back on the laboratory and continue to use indirect methods, either animal experimentation or other biological methods by which to find out the presence of these toxins. It was difficult to see how any progress could be made merely by means of physical diagnosis.

Dr. WARREN COLEMAN thought that so many interesting points had been brought up by the speaker and by those who had followed him that it was difficult to decide what line of discussion to take, but he wished to express his agreement with Doctor Winters in regard to the importance of cultivating clinical observation. This was not said with the view of disparaging the work of the laboratory, for neither the physician nor the experimentalist was independent of the other in clinical research. The best results could be obtained by collaboration, not by antagonism. The tendency of medicine today, however, was to rely too much upon the laboratory. The fact was often overlooked that the personal equation entered into the laboratory report as well as into the work of the clinician. In considering the effects of protein, for instance, upon the kidneys, a distinction must be made between obviously diseased kidneys and the possible etiological relation of an excess of protein to chronic interstitial nephritis. The possible etiological relation of protein to chronic interstitial nephritis was still uncertain and difficult of solution, but there was a growing belief that toxic substances, developed during the digestion of proteins, played a conspicuous part in its development. The question presented a fertile field for investigation, but one which would require the collaboration of the physiological chemist, the bacteriologist and the clinician.

Dr. R. COLE NEWTON said that most of his knowledge in regard to diet was the result of experience in his own person. In years he was getting to be an old man, but in body he was still comparatively young, for he had always taken great care of himself. His experience had led him to believe that every one needed some meat. One reason why the men in the army felt so well and accomplished so much was that they were well fed. The matter of diet was an individual question, and would probably never be reduced to an exact science. Judging exactly what an individual man should eat meant measuring his energy and determining the amount and quality of food required to maintain it. This depended upon his digestive power and certain other factors, such as ventilation. Posture also had a great deal to do with digestion; people with lax abdominal walls were at a great disadvantage, not only as regarded digestion but in other respects, especially their circulation. It was necessary to have good elimination in order to have a good working machine. Each person would have to be studied individually.

Dr. ELIAS H. BARTLEY said that, as was his wont, the author of the paper had made some very pointed statements, but it seemed rather unfair to give some of these astonishing results and not describe the diet. Perhaps in closing the discussion he would do so. It would appear that the diet referred to was a vegetable one. Now a vegetable diet was by no means a new thing, for a large number of people the vegetable diet had proved unsatisfactory. Those peoples were the most energetic, the most successful, made the best soldiers and the best men and women generally who took at least a reasonable amount of animal proteins. It was very generally accepted that a certain amount of animal protein was a stimulus to metabolism that was below par and made the patient feel better, and it did not always poison him. Such a man might live to a good old age and probably as long as the vegetarian. The symptoms of food poisoning though the same in different individuals were due to different causes. They might be due to overeating, to an idiosyncrasy, to emotional disturbance, or to something else entirely outside of the gastrointestinal tract. It was to be hoped that in closing the discussion Doctor Winters would give an outline at least of what he called his "correct diet."

Dr. ELMER LEE said that he had some experience in the matter of dieting and its effect on health, and for twenty-five years had tried to establish correct diets, though not always successfully. Twenty-five years ago he began to study the question of diet, believing that wrong diet was the principal factor in causing disease. His work in the preparation of his own diet resulted in the selection of an all vegetable diet as the one best adapted to human needs. Vegetarian diet had not been satisfactory in general because its use had not been correctly understood and rightly employed. A vegetable diet, properly selected and correctly prepared, was worthy of thoughtful respect. One could eat anything according to the powers of digestion for a time without becoming diseased by keeping active enough to eliminate the waste from the system. Rheumatism, gout, skin affections, asthma, kidney trouble, and other forms of disease, even paralysis, could be traced to the use of a wrong diet. The matter of diet was not an individual one if the principles of correct diet were followed.

Dr. R. H. ROSE believed that the subject of diet could be greatly simplified, and would be if the medical profession would only take it up properly. The matter of tolerance varied a great deal. There was a great difference in quantity and kinds of food eaten by different people even in the same family. There was no doubt about the ill effects of over eating. One reason why there was so much indefiniteness on the subject of diet was because it was not often realized that it was a fact that "what's one man's food is another man's poison." Another reason was the varying degrees of activity among different people. Engines required coal according to the work to be done, and engineers considered all these differences and calculated fuel requirements accordingly. The physician should be equally painstaking and scientific in estimating food requirements. In the average diet of an American

taking seventy-five grams of protein, which was quite sufficient, it was evident that he got from articles not classed as proteins (bread, cereals, etc.), about fifty per cent. of his protein requirements. Therefore, if one wished to prescribe for a patient a certain amount of protein, he must calculate for only about fifty per cent. of protein to come from strictly protein food. This amount could be obtained from about one third of a pound of meat daily. One quart of milk gave thirty-five grams of protein and that much more was obtained from other articles, or six eggs could be given. The knowledge of food values was of great use in the treatment of nephritis, as well as autointoxication, high blood pressure, or meat idiosyncrasies.

Doctor WEINSTEIN referred to another side of Doctor Winters's paper which had not been covered in the discussion. Assuming that there was a certain number of persons who suffered from the diseases mentioned and who could be benefited by the so-called correct diet, there were a great many who were not affected by eating the incorrect diet, meat, etc. It was therefore reasonable to conclude that the factor in the causation of the various diseases did not reside in the ordinary diet accepted in civilized communities. Disease or malfunctioning of the digestive organs brought about changes in the partitioning of the protein molecules that were apt to cause deleterious effects on the general system. Insufficient detoxication on the part of the liver, defective digestion of food in the stomach or intestines, prolonged retention of food in the colon due to defective innervation of the muscular walls, or mechanical interference with normal peristalsis from any cause were a few of the factors in the etiology of disease due to food.

Dr. B. M. BRIGGS said that during the period of activity of influenza the physician did not do his duty unless he saw to it that his patients were well fed, for there was one universal pathological condition in this disease, and that was a loss of ten or twenty pounds in weight. Food never harmed any one by quantity if the rations balanced. But it should not be forgotten that drugs had their value as well as diet. They were the most efficient tool the physician had, but he must know how to use them.

Doctor WINTERS in closing replied to the question regarding the diet that he considered this had been answered by Doctor Newton. One patient required one diet; another a different one. It all depended upon the individual. The basis, as previously stated, was chemical physiology, chemical pathology. One patient who was a very thin man, had a generous diet, and he gained eighteen pounds. He had never previously done any business, but the following summer, one of intense heat, he came fifty miles to the city three times a week in connection with war work. Another was enormously stout and had had all kinds of treatment. He now said he had never been so well in his life. Diet was an individual matter. If a man prescribed the same thing for all his patients he would achieve few cures. The speaker was absolutely in accord with Doctor Lusk's statement regarding psychology. It was a matter of history as Doctor Bartley had ob-

served that the people of the countries which had a generous amount of meat in their dietary did the best work intellectually and physically. He agreed with Doctor Briggs that one must use drugs; one must have salicylic acid, for medicine could not be practised without it. A certain amount of stimulation of secretion, etc., was required. Why was it that salicylic acid was not regarded as the same specific today that it was when first discovered and that it still was in England? It was because the medical profession had allowed synthetic preparations to take the place of the others. With twenty grains of salicylic acid one should give forty grains of soda, and in twenty-four hours it would control the symptoms. That statement had been made by a great London physician and verified many times. The term ptomaine poisoning was often used carelessly and incorrectly as one speaker had observed, but ptomaine poisoning was a scientific term as described by Brieger and Aitken, and others all over the world, and the condition was a very real one.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Tumors of the Nervus Acusticus and the Syndrome of the Cerebellopontile Angle. By HARVEY CUSHING, M. D., Professor of Surgery at Harvard University; Surgeon-in-Chief to the Peter Bent Brigham Hospital; Formerly Associate Professor of Surgery at the Johns Hopkins University, etc. Illustrated. Philadelphia and London: W. B. Saunders Company, 1917. Pp. viii-296.

Doctor Cushing has already contributed much to neuroanatomy and neurosurgery. His monograph on the pituitary was a model of what such kind of study should be. It was not a dead textbook issue, but a record of live observations which would always run true to form. The present work on tumors of the acoustic and of the syndromes of the pontocerebellar angle is a similar type of work. A record of personal observation and a comprehensive and able summary of the observations of others as they bear on the subject of the monograph, it serves as a standard work for neurologists and surgeons alike. Personal observations on sixty-five cases of tumor located in the pontocerebellar angle are carefully detailed. The operative considerations which in his hands have brought the mortality down to less than fourteen per cent. should be consulted by the surgeon in the original, and it may be added by way of parenthesis that any surgeon who attempts this operation who has not thoroughly studied Cushing's work has not done his duty to himself or to his patient.

Cushing brings out the fact that pathologically a sharp differentiation between acoustic nerve tumors and meningeal endotheliomata should be drawn. This may not be done clinically, but in the presurgical diagnosis this point should be considered. X ray study is of paramount importance, and a careful study of the internal ear is highly important. Clinically speaking, the importance of the trigeminal symptoms is emphasized.

Corneal insensitiveness is quite frequently present. Vasovagal attacks and cerebellar attitudes and cerebellar fits are carefully discussed. Cerebellar crises, as Cushing terms them, are thought to be due to pressure of the cerebrospinal fluid in the arachnoid cisterns. Taken all in all, this work, like its predecessor, is a model upon which the attention of American physicians may well be focused. In the first place, it is a record of personal observations. Secondly, the author has taken a single and important subject and gone through with it. Finally, he has integrated the work of surgeon, of neurologist, of otologist, and of x ray examiner in a masterly manner. With patient persistence in the midst of what must be an extremely busy life he has set down with minute and careful exactness a series of observations which will stand for a long time. This kind of book is worth while.

Information for the Tuberculous. By F. W. WITTICH, A. M., M. D.; Instructor in Medicine and Physician in Charge, Tuberculosis Dispensary, University of Minnesota Medical School; Visiting Physician, University Hospital, Minneapolis, Minnesota. St. Louis: C. V. Mosby Company, 1918.

Some think, and with reason, that cooperation between patient and physician can only be attained by a rather complete understanding of the nature of his disease on the part of the patient. Most of the information here is good and profitable. Some seems unimportant in a book of this sort, as the assignment of a chapter to the differentiation between the terms sanatorium and sanitarium, tuberculous and tubercular, contagion and infection, etc. A little padding is harmless, as the chapter on Tuberculosis and the War. The book seems to be chopped up into a shocking number of chapters. Sinister expressions, such as, "the length of life does not depend upon which lung is affected," should be avoided. Mortality statistics and the chances against relapsed cases are not worth while information for the tuberculous. A little blue pencilling would make the book more valuable.

Monographs of the Rockefeller Institute for Medical Research. No. 9. The Use of Blood Agar for the Study of Streptococci. By JAMES HOWARD BROWN. Illustrated. New York: The Rockefeller Institute for Medical Research, 1910. Pp. 122.

In the preface to this monograph, which is the ninth of the series published by the Rockefeller Institute for Medical Research, Brown states that the purpose of the work is not so much the recording of results, but the description of methods. This has been accomplished in a highly satisfactory manner, and the book has been written with such exactitude and careful attention to the minutest of details that it must indeed prove a useful guide to the bacteriologist. Factors which are easily overlooked, but which may loom large in the successful cultivation of streptococci, are described in detail, so that accordingly one finds much space devoted to such topics as the influence of the amount of blood and agar used, the influence of the kind and age of blood used, and of that of the composition of the agar, including a discussion of the reaction, the kind of meat and peptone used, the influence of dextrose in the agar, etc. Full directions for preparing the medium which has given the most satis-

factory results are given. The streptococci are classified in four groups, depending on their appearance on blood agar: the *alpha*, *beta*, *gamma*, and *alpha prime* types, and in adopting a classification for streptococci Brown believes their appearance on blood agar should be recognized instead of dividing all streptococci into hemolytic and non-hemolytic groups. As a basis of classification he divides them into types in blood agar, groups according to fermentation of mannite, lactose, and salicin, and subgroups in respect to fermentation of saccharose, inulin, and raffinose. There is a very extensive bibliography, and the monograph is of great interest, providing as it does such a comprehensive description of methods which have proved reliable, and a full discussion of the characteristics of streptococci when grown in and on blood agar.

Births, Marriages, and Deaths.

Died.

AHEARNE.—In Lynn, Mass., on Thursday, April 17th, Dr. Cornelius A. Ahearne, aged seventy-eight years.

ASHLEY.—At St. Cloud, Fla., on Saturday, April 12th, Dr. John J. Ashley, of Brooklyn, N. Y., aged seventy-five years.

BALDWIN.—In Denver, Colo., on Tuesday, April 15th, Dr. Ashton M. Baldwin, Lieutenant, Medical Corps, U. S. Army, of Marion, Ind., aged twenty-five years.

BECKER.—In Catasauqua, Pa., on Tuesday, April 15th, Dr. Alfred J. Becker, aged fifty-eight years.

BETZ.—In Jamaica, N. Y., on Tuesday, April 8th, Dr. Herman Betz, aged sixty-three years.

CORNISH.—In Walworth, N. Y., on Monday, April 14th, Dr. Harris J. Cornish, aged seventy-three years.

CREGO.—In Buffalo, N. Y., on Wednesday, April 23d, Dr. Floyd S. Crego, aged sixty-five years.

DAVIS.—In Vineyard Haven, Mass., on Sunday, April 20th, Dr. Samuel Thomas, aged sixty-three years.

DWYER.—In Troy, Pa., on Tuesday, April 15th, Dr. Charles S. Dwyer, aged sixty-three years.

FRANK.—In Chicago, Ill., on Tuesday, April 22d, Dr. Mortimer Frank, aged forty-five years.

GRIFFITH.—In France on Tuesday, April 8th, Dr. Lewis T. Griffith, Lieutenant Colonel Medical Corps, U. S. Army, of New York, aged forty-six years.

HUNN.—In Hartford, Conn., on Thursday, April 17th, Dr. Paul Revere Hunn, aged seventy-one years.

LANGMAN.—In Cleveland, Ohio, on Monday, April 14th, Dr. William H. Langman, aged fifty-seven years.

MAY.—In New York, N. Y., on Saturday, April 26th, Dr. Calvin Sloane May, aged seventy-one years.

MILLER.—In Kokomo, Ind., on Friday, April 18th, Dr. Lewis C. Miller, aged seventy-five years.

MOTT.—In Atlanta, Ga., on Tuesday, April 8th, Dr. Kenyon Mott, aged fifty-one years.

NUSBAUM.—In Bremen, Ind., on Friday, April 18th, Dr. Charles Ernest Nusbaum, aged fifty-one years.

ORSER.—In Leonia, N. J., on Sunday, April 20th, Dr. Thomas S. Orser, Captain, Medical Corps, U. S. Army, aged fifty-two years.

PAIGE.—In Taunton, Mass., on Wednesday, April 16th, Dr. Nomus Paige, aged eighty years.

PFOHL.—In Buffalo, N. Y., on Tuesday, April 15th, Dr. Edward N. Pfohl, aged fifty-three years.

RAINEY.—In Salem, Ill., on Tuesday, April 8th, Dr. George S. Rainey, aged seventy years.

REID.—In Charlotte, N. C., on Sunday, April 6th, Dr. William Kirkpatrick Reid, aged fifty-two years.

WEEKS.—In Kearny, N. J., on Friday, April 25th, Dr. Granville M. Weeks, aged eighty-two years.

WELLS.—In San Francisco, Cal., on Thursday, April 17th, Dr. Charles H. Wells, of Shelton, Wash., aged fifty-nine years.

WORT.—In Kokomo, Ind., on Friday, April 18th, Dr. George B. Wort, of Bremen, Ind., aged seventy-three years.

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Original Communications

SPRING HAY FEVER: ITS CAUSE, PREVENTION, AND TREATMENT.

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Spring or vernal hay fever is also called spring-summer hay fever, as its duration, in many localities, is not limited to the early months. The term rose fever is also used, but should become obsolete as it tends to perpetuate the popular fallacy that the rose is responsible for hay fever (1). There are four principal types of hay fever which, from a seasonal standpoint, may be divided as follows:

1, Fall hay fever, the most common and best known form, usually occurring in August and September; 2, spring hay fever, occurring in May, June, and July; 3, spring-fall hay fever, which combines both the above forms; and 4, perennial hay fever, in which the attacks occur not only in the spring and fall, but also at other seasons.

From an analysis of 707 cases, treated in the hay fever clinic of the Charity Hospital and in private practice (series C and D), the proportion of spring hay fever to the fall hay fever was seven and thirty-eight per cent., respectively, but the number of cases that presented both the spring and the fall hay fever was forty-two per cent. The ratio, therefore, of patients who suffered from spring hay fever, either simply or in combination with the fall form, to those who suffered from the fall hay fever, either alone or combined with the spring form, was approximately two to three. It is evident, therefore, that the spring hay fever is much more common than is usually supposed. When the spring hay fever forms a stage of the spring-fall hay fever, the attacks are so much milder, and usually of so much shorter duration, that the patient attaches little importance to it. In our hay fever clinic at the Charity Hospital, however, all patients are carefully questioned on this point and in addition are tested for the various forms of hay fever, which enables us to obtain definite information as to their relative frequency (2).

Spring hay fever is naturally due to the pollens of plants or trees that pollinate early in the year. The period varies somewhat not only in the different States, but also in the same State on account of local causes. According to the records of the

American Hay Fever Prevention Association, the spring hay fever seasons in the United States are approximately as follows:

Alabama	April 15 to July 15	Nebraska	May 15 to July 15
Arkansas	June 10 to July 15	Nevada	May 15 to July 15
Arizona	May 5 to June 5	New Jersey	June 10 to July 24
California	May 5 to July 5	New Hamp.	June 10 to July 24
Colorado	May 10 to July 1	New Mexico	May 5 to July 15
Connecticut	June 1 to July 15	New York	June 15 to July 15
Delaware	May 5 to July 10	N. Carolina	May 15 to June 29
Florida	May 1 to July 1	N. Dakota	May 20 to July 15
Georgia	May 10 to July 5	Ohio	May 28 to July 15
Idaho	May 5 to June 10	Oklahoma	May 10 to June 24
Illinois	June 10 to July 20	Oregon	April 25 to May 29
Indiana	June 5 to July 15	Pennsylvania	June 8 to July 24
Iowa	June 2 to July 16	Rhode Island	June 3 to July 22
Kansas	May 16 to July 15	S. Carolina	May 10 to July 8
Kentucky	June 1 to July 18	S. Dakota	May 15 to July 20
Louisiana	May 5 to July 25	Tennessee	June 5 to July 22
Maine	June 6 to July 10	Texas	May 15 to July 22
Maryland	May 5 to July 10	Utah	June 22 to July 27
Massachusetts	June 5 to July 18	Virginia	May 15 to June 29
Michigan	June 8 to July 15	Vermont	June 1 to July 20
Minnesota	June 5 to July 10	Washington	June 15 to July 20
Mississippi	May 10 to July 10	W. Virginia	May 15 to July 20
Missouri	May 10 to July 20	Wisconsin	June 7 to July 15
Montana	May 15 to July 15	Wyoming	May 15 to July 15

The principal cause of spring hay fever is the pollen of the grasses, *Gramineæ* (Fig. 1). The records of the atmospheric pollen plates, which the biological laboratory of the American Hay Fever Prevention Association exposes at all seasons and in different sections of the United States, corroborate this fact that the grass pollens are the principal pollens in the air during the prevalence of the spring hay fever. In addition to the grasses, however, there are other pollens which, although of minor general importance, must be considered in this connection. The pollen of the oak, *Quercus* (Fig. 2), for instance, which is quite common in some localities, is responsible for minor attacks. In New Orleans, the oak pollen hay fever usually occurs from March 10th to 23d, as shown by the pollenometric records and by the clinical charts of the Hay Fever Clinic.

The mountain cedar, *Sabina sabinoides* (Fig. 3), is responsible for the occurrence of hay fever in North Texas in February; the black walnut, *Juglans nigra*, for hay fever in April and May, in sections in which it is common, and, locally, where it is used for shade or ornamental purposes. The poplars, *Populus*, cause hay fever in certain sections during April and May, especially where the western poplar, *Populus sargentii*, is the prevailing form. While these are the most common trees associated with hay fever, there are others which also have a certain influence. The requisite, however, is that the trees must be wind pollinated *Anemophilous* (3). Unless this is the case, even

if the pollen produces a reaction, it can not cause hay fever except on direct application to the nostrils. Insect pollinated trees, such as the apple, peach, dogwood, sourwood, and others, in which the presence of a pleasing scent of flowers indicates

form, we have tabulated the most common varieties that are found in the United States.¹

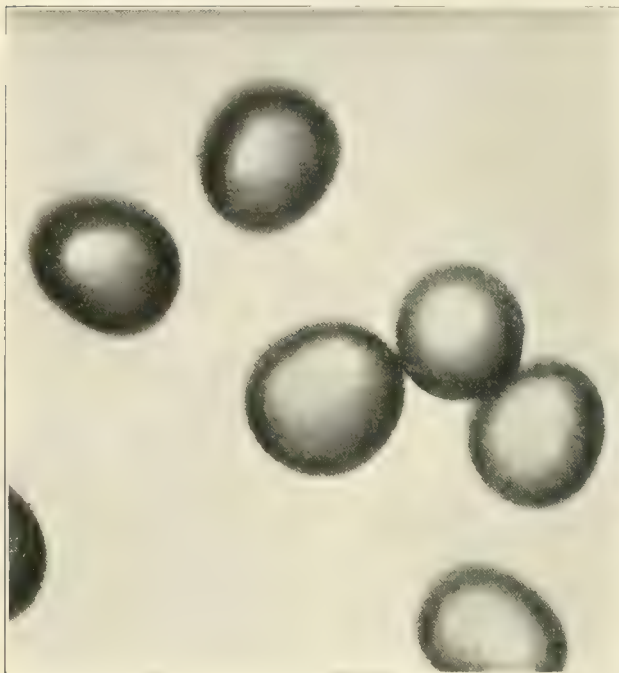


FIG. 1.—Pollen of Johnson grass, *Andropogon halapense*, fresh from the anther. Magnified 500 diameters.

that they are insect pollinated, are not responsible for hay fever. Other minor causes of spring-summer hay fever are members of the chenopod group (Fig. 5), *Chenopodiaceæ* (4), such as the docks, *Rumex*; amaranths, *Amaranthus*; and of the large goosefoot family, *Chenopodiums*. The most important member of this group is the Russian thistle, *Salsola pestifer*, which, however, does not pollinate until July to September, and, therefore, does not cause hay fever until that season. It covers a considerable area, and, although controlled by State legislation in some sections, is a common cause of hay fever from New Jersey to Ontario, the Northwest Territory, Kansas, and Washington.

THE GRASSES IN HAY FEVER.

The grasses are typical wind pollinated plants, and their pollen, at the pollinating stage and under suitable meteorological conditions, is usually in the air in considerable quantities, except in thickly populated areas, where suitable grass weed laws are observed, or in locations unfavorable to their growth. There are several thousand varieties of grasses, but our experience has shown that, when a subject is sensitive to the pollen of one variety, he reacts to all varieties tested, although to a different degree (5). This is an important factor in pollen therapy, as, otherwise, the large number of grasses that are usually found, even in the same locality, would make the question of developing an active immunity to hay fever a hopeless proposition. As the grasses bear the same important relationship to spring hay fever as the ragweeds to the autumnal

Northeastern United States.

Corn— <i>Zea mays</i> .	Salt reed grass— <i>Spartina cynosuroides</i> .
Wheat— <i>Triticum aestivum</i> .	Oat grass— <i>Arrhenatherum clatius</i> .
Oats— <i>Avena sativa</i> .	Rye— <i>Sécale cereale</i> .
Kentucky blue grass— <i>Poa pratensis</i> .	Orchard grass— <i>Dactylis glomerata</i> .
Redtop— <i>Agrostis alba</i> .	Tall fescue grass— <i>Festuca elatior</i> .
June grass— <i>Danthonia spicata</i> .	Couch grass— <i>Agropyron repens</i> .
Timothy— <i>Phleum pratense</i> .	
Millet— <i>Chatochloa italica</i> .	
Chess grass— <i>Bromus secalinus</i> .	

Northern Plains.

Corn— <i>Zea mays</i> .	Awnless brome grass— <i>Bromus inermis</i> .
Barley— <i>Hordeum vulgare</i> .	Wheat— <i>Triticum aestivum</i> .
Squirriltail grass— <i>Hordeum jubatum</i> .	Forked beardgrass— <i>Andropogon furcatis</i> .
Meadow barley— <i>Hordeum nodosum</i> .	Slender fescue grass— <i>Festuca octoflora</i> (has one stamen).
Grass grass— <i>Bouteloua gracilis</i> .	

Southeastern United States.

Bermuda grass— <i>Capriola dactylon</i> .	Johnson grass— <i>Holcus halapensis</i> .
Southern chess grass— <i>Bromus unioloides</i> .	Tall redtop— <i>Tridens flava</i> .
Yellow foxtail grass— <i>Chatochloa lutescens</i> .	Crab grass— <i>Syntherisma sanguinale</i> .
Sorghum— <i>Holcus sorghum</i> .	Brown beard grass— <i>Andropogon virginicus</i> and <i>scoparius</i> .
Sea oats— <i>Uniola paniculata</i> .	

Southern Plains.

Buffalo grass— <i>Buckla dactyloides</i> .	Schraders brome grass— <i>Bromus unioloides</i> .
Texas blue grass— <i>Poa arachinifera</i> .	False buffalo grass— <i>Munroa squarrosa</i> .
Hairy mesquite grass— <i>Bouteloua hirsuta</i> .	

Middle West—Wisconsin, Michigan, Illinois, Indiana, Iowa, Missouri, Etc.

Chess grass— <i>Bromus secalinus</i> .	Indian grass— <i>Sorghastrum acenaceus</i> .
Brome grass— <i>Bromus commutatus</i> .	Tall redtop— <i>Tridens flava</i> .
Wild rice— <i>Zinania palustris</i> .	Grass grass— <i>Tripsacum dactyloides</i> .
Wild redtop— <i>Panicum virgatum</i> .	
Canada lyme grass— <i>Elymus canadensis</i> .	

PREVENTION.

Weed control.—On account of the large size of the grass pollens, the prevention of spring hay



FIG. 2.—Pollen of live oak, *Quercus virginiana*. The ovoid form is common with the tree pollens. Magnified 500 diameters.

fever, by means of weed control, presents much less difficulty than that of the fall hay fever due to

¹We are indebted to P. L. Ricker, assistant botanist. United States Department of Agriculture, for valuable assistance in this classification.

the pollen of the ragweed. The difference in their potential radius is shown in the following table:

POTENTIAL RADIUS OF RAGWEED AND GRASS POLLENS.

Common name.	Botanical name.	Size in microns.	Form.	Potential radius in wind of twenty miles per hour.
Common ragweed...	<i>Ambrosia elatior</i> ...	15	Spiculated	2,430 ft.
Oats (Fig. 6).....	<i>Avena sativa</i>	35	Unspiculated	318 ft.
Foxtail grass.....	<i>Chenopodium glauca</i> ...	40	Unspiculated	288 ft.
Johnson grass.....	<i>Andropogon halepensis</i>	45	Unspiculated	188 ft.
Marsh grass.....	<i>Panicum repens</i>	47	Unspiculated	174 ft.
Corn (Fig. 7).....	<i>Zea mays</i>	80	Unspiculated	56 ft.

As the potential area is represented by the square of the radius, the enormously greater potential area of the common ragweed (Fig. 8), is apparent. As compared with the Johnson grass, for instance, it is 169 times greater. This is one of the principal causes of the greater prevalence of the fall hay fever. It also explains the greater ease with which the spring hay fever may be controlled. In New Orleans in 1916, for instance, as a result of the efforts of the city board of health and the department of public property, resulting in an active enforcement of the grassweeds ordinance introduced by the local representative of the American Hay Fever Prevention Association, the prevalence of hay fever was reduced to less than fifty per cent. of the average of former years (6). For the reasons stated, the enforcement of suitable grassweeds ordinance in cities will result in a prompt and marked reduction in the spring hay fever cases. In addition to this, persons subject to hay fever should avoid, as far as practicable, living in suburbs where there is an abundance of neglected grass and weeds. During the hay fever season, they should also avoid

vation of her hay fever after visiting a public park. On being questioned, she stated that she had sat on the grass under an oak tree. As both the grass and oak were then in the pollinating stage, and this patient had been found sensitive to both pollens by

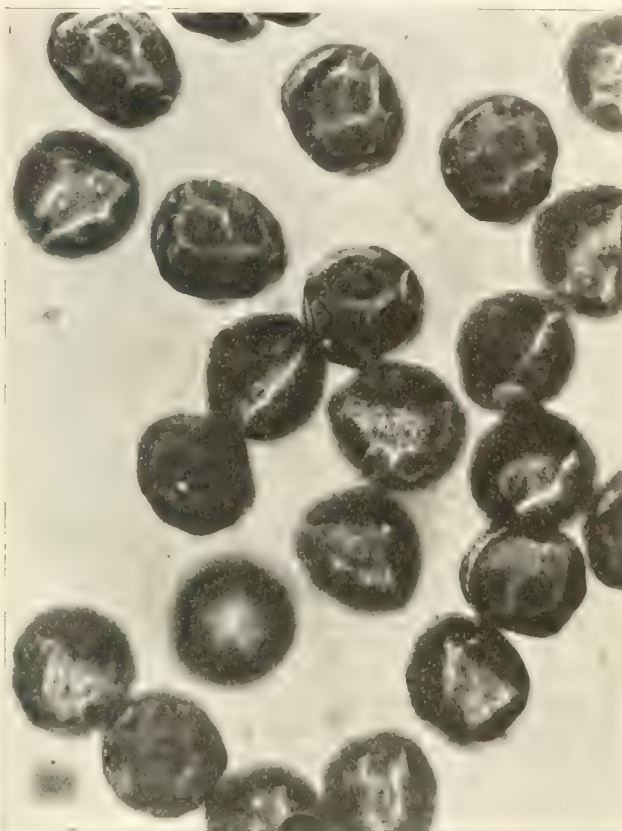


FIG. 4.—Pollen of black walnut, *Juglans nigra*. Easily recognized by the unusual markings. Magnified 500 diameters.

the intradermal test, the aggravation of her symptoms was easily explained.

CHANGE OF RESIDENCE.

One of the best known methods of preventing hay fever is by passing the hay fever season in some locality in which the patient finds relief. This is especially the case with the fall hay fever, when thousands of hay fever subjects sojourn to the so-called hay fever resorts (7), but there are also many who suffer from the spring hay fever, who obtain relief in this way. It is not always necessary to travel long distances to obtain relief from the spring hay fever. In many cases, we have simply advised the patient to move temporarily to a more central portion of the city for the hay fever season, and with entire relief. It must be understood, in this connection, that while persons not subject to hay fever can inhale large numbers of pollen without perceptible effect, even hay fever subjects can inhale a certain number without discomfort, the number varying with the degree of susceptibility of the patient. On this account, the lesser number of spring hay fever pollens that are found in the more densely populated portion of the city, is not sufficient to produce the hay fever attacks in these cases.

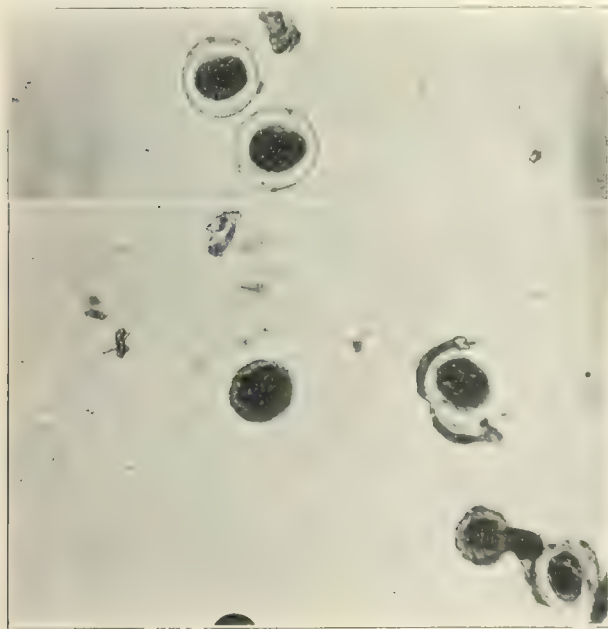


FIG. 3.—Pollen of mountain cedar, *Sabina sabinoides*. From atmospheric pollen plate, showing expansion of intine and rupture of exine from the glycerine. Magnified 500 diameters.

visiting localities where there will be undue exposure to such pollens. In the prophylaxis of hay fever, physicians should bear these facts in mind. Recently, a patient complained of the aggra-

TREATMENT.

Exercise.—A reasonable amount of exercise in hay fever is beneficial, but this should be taken without increased exposure to the hay fever

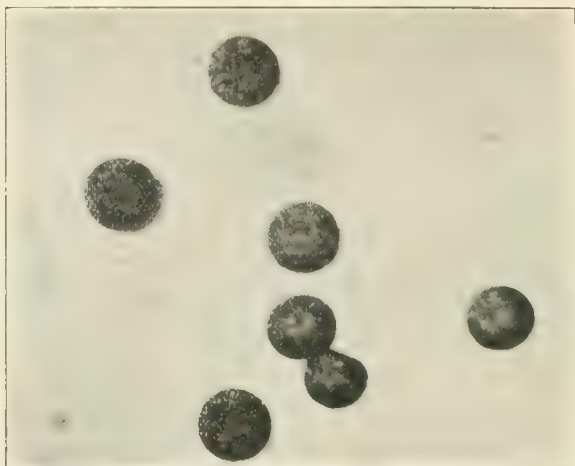


FIG. 5.—Pollen of spiny amaranth, *Amaranthus spinosis*. The appearance is characteristic of the chenopod group. Magnified 500 diameters.

pollens. Swimming, especially in salt water, is an excellent form of exercise.

Cold storage.—Considerable space has been given by the lay press regarding the benefits of cold storage treatment for hay fever patients. As practically all ventilation is excluded from these spaces, there is an absence of atmospheric pollens, which is the principal cause of the relief which these patients experience. The low temperature, however, instead of being of benefit, is really a source of danger, as we have had several cases of bronchitis which resulted from this exposure. In any event, the relief is only transient, and can be as well obtained in any room from which the pollen laden air is excluded.

The diet of hay fever subjects during the hay fever season should be light as regards foods rich in protein, such as meat, fish, eggs, cheese, and milk. Farinaceous food may be taken in moderation. Vegetables and fruits are of benefit. High seasoning should be especially avoided, as it frequently reacts on the membranes of the nostrils, already irritated by the pollens. Alcoholic drinks are injurious. In cases complicated by asthma, the rules regarding diet should be especially observed, and it is preferable in these cases to have the principal meal during the middle of the day. There are certain articles of food that should be avoided in special cases. These vary within such wide limits that no specific rules can be formulated. In one case, for instance, an attack of hay fever could be induced by a piece of watermelon; in another by peaches. Mustard and pepper should be avoided, and occasionally also tea and coffee.

Surgical methods.—Surgical methods of treating spring hay fever are rarely indicated, and should be limited to cases in which marked septal spurs, ridges, or deflections cause a concentration of pollen in the obstructed nostril. Even in these cases, the prognosis should be guarded, as the

sensitization, although influenced by this cause, will probably persist. In our series of 707 cases (series C and D), eight per cent. had been operated upon, and without apparent benefit.

Constitutional treatment.—Calcium chloride, or preferably, the less irritating calcium lactate, is occasionally of benefit in hay fever. It should be given in doses of fifteen grains, well diluted, after meals. In cases of hyperacidity, sodium bicarbonate, in the effervescent form should be administered. The dose is fifteen grains three or four times daily. In one of our cases, a seasonal cure resulted from the administration of ten grains of quinine three times daily. In other cases it was without benefit. This would indicate that, in this case, malaria was the predisposing cause, which was corrected by the quinine. In cases associated with asthma, sodium iodide may be administered, the dose being ten to twenty drops of a saturated solution three times daily and well diluted.

Local treatment.—Menthol, in the form of an oil spray is of benefit in some cases of hay fever, but aggravates the attack in others. Two grains to the ounce of liquid petrolatum is the usual proportion. The following formula gives temporary relief, but tends to establish the cocaine habit:

Epinephrine sol.,	1/1000;
Two per cent. sol. cocaine; }	.....āā fl. 3i.
Normal saline solution, ... }	

Sig.: Two drops into each nostril as directed.

Solutions of cocaine and of epinephrine tend to develop a turgescence of the nasal mucosa which aggravates the hay fever. They should therefore be used only to give relief in severe paroxysms. The epinephrine and cocaine may also be used in the

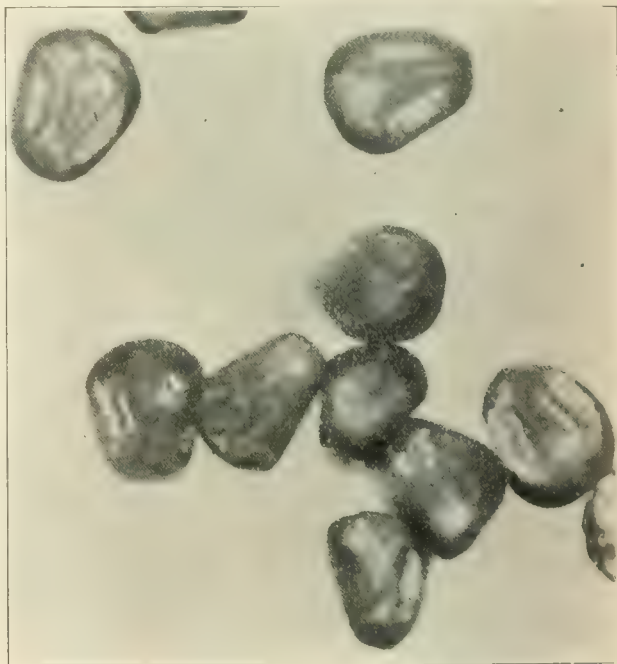


FIG. 6. Pollen of oats, *Avena sativa*. The shrunken appearance is due to loss of moisture after leaving anther. Magnified 500 diameters.

form of an ointment, but should be prescribed with the same precautions as the solution. For the conjunctivitis that frequently accompanies hay fever,

five per cent. argyrol may be used, or the following may be prescribed:

Sodii biborata, } ãã gr. xv;
 Acidi borici, }
 Sodii chlor., gr. iii;
 Aquæ dest., q. s. fl. ʒi.
 Sig.: For eyes as directed.
 (Dispense in Stearn's container.)

Passive immunization.—The first systematic effort to treat hay fever by immunological methods was by Dunbar in 1903.¹ He isolated a substance, which he believed to be a toxin, from the pollens and prepared an antitoxin, which he called pollantin, by the injections of horses and rabbits. He claimed that the blood serum of these animals, after a prolonged treatment, had the effect of neutralizing the effects of the pollen. The pollantin is applied to the nasal mucosa or conjunctiva of hay fever subjects, preferably before the beginning of the attack. Although reports of the successful use of pollantin were published for some time after its introduction, many unfavorable reports have since been made. It is toxic to hay fever subjects when injected hypodermically, and Weichardt has demonstrated that it possesses no more therapeutic effect than the serum from which it is prepared. It is no longer used to any extent.

Active immunization.—In developing an active immunization against hay fever, hypodermic injections are made of the extract of the pollen to which the patient is sensitive and to which he will be exposed. This is determined by injecting into (not under) the skin, five units of pollen extract, the extent of the reaction indicating the degree of sensitization of the patient. As the grass pollens are the most common cause of spring hay fever, this should first be injected. As a matter of routine, we also

ing of the spring fever season. The grass pollen extract for the prevention of hay fever should be injected two or three times weekly, commencing with ten units and increasing gradually to 100 units.

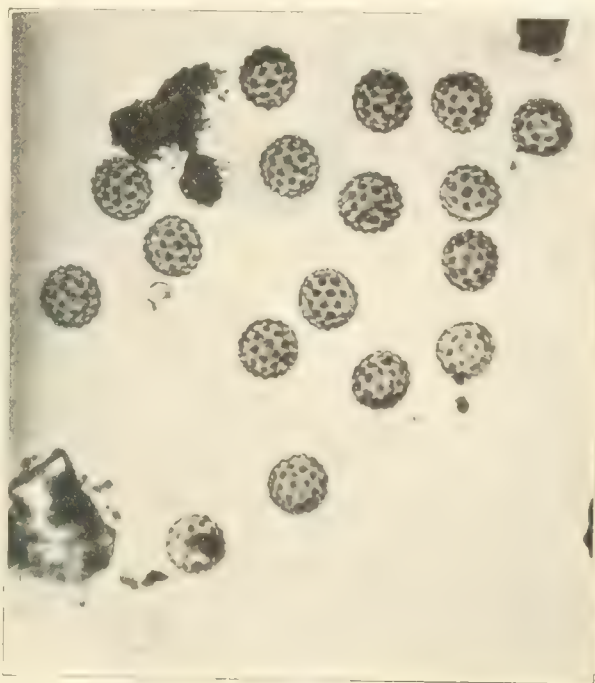


FIG. 8. Pollen of common ragweed, *Androsace elatior*, from atmospheric pollen plate. The spiculated appearance is characteristic of the *Androsace* group. Magnified 500 diameters.

As soon as the spring hay fever season is due the injections should be reduced to ten to twenty units, as the patient is now inhaling the atmospheric pollens.

Pollen and vaccine therapy.—Should a marked attack of hay fever develop in the patient during the treatment, benefit will be obtained by the injection of a suitable vaccine. When practicable, this should be autogenous. When, however, this can not be obtained, a mixed catarrhal vaccine may be injected. In the hay fever clinic we use a mixed vaccine prepared according to a special formula (9) which has given satisfactory results. After the acute symptoms have subsided, the pollen extracts are again injected until the patient is relieved.

Results of treatment.—From analysis of the results in 707 cases (series C and D), which include the spring, fall, and the combined forms of hay fever, there were seasonal cures in forty-nine per cent. of the cases, and marked improvement in forty per cent. or satisfactory results in eighty-seven per cent. of the total number. In four per cent. of the cases, there was little or no perceptible improvement, and seven per cent. of the patients discontinued treatment before the results could be noted. In no case was there any aggravation of the hay fever symptoms from the treatment, or other ill effect.

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FIG. 7. Pollen of corn, *Zea mays*. The large size of its pollens gives corn a restricted potential area in hay fever. Magnified 500 diameters.

make the diagnostic test for the ragweed pollen, but the immunization for the fall hay fever, for which this is responsible, need not commence until July (8). If the patient is found sensitive to the grass pollen, the prophylactic treatment should preferably be commenced six weeks before the open-

2. *Idem*: Susceptibility to Hay Fever, and Its Relation to Heredity, Age, and Seasons, *United States Public Health Reports*, July 19, 1919.
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THE DIRECT VISUAL METHOD IN THE TREATMENT OF FILIFORM STRICTURES OF THE URETHRA.*

BY LEO BUERGER, M. D.,
New York.

This is to be a short paper on a new method of instrumental treatment of lesions in the urological field. I thought it might be of interest to refer to a procedure that has been giving me great service for about two years, namely, the dilatation of filiform strictures of the urethra through my universal urethroscope. My own experience with this procedure has convinced me of the great value of the direct visual method of attacking strictures that heretofore were treated in a blind sort of fashion, and I hope you will pardon me, therefore, if I indulge again in a description of what I consider a very valuable instrument both from the standpoint of diagnosis and treatment.

The author's universal urethroscope consists of a straight endoscopic tube (Fig. 1), two obturators, a light carrier (Fig. 2), a telescope (Fig. 3), and a magnifying window (Fig. 4a). The straight tube is longer than that of the ordinary urethroscope (seven and a quarter inches) so as to be available for work in the bladder as well as in the urethra. Near the ocular end (Fig. 5a), a large catheter outlet, of the type used in the author's operating cystoscope, is fused into the tube. Through this, special operating devices, such as Rongeur forceps, fulguration electrodes, filiform and larger bougies, catheters, and applicators may be passed. And since the direction of this outlet, and, therefore, the exit of entering devices is downward, the operator can manipulate more satisfactorily through it than through a straight endoscopic tube, vision being undisturbed by an intervening hand or instrument. The endoscopic tube is reinforced at the ocular end by a flange, and admits the light carrier (Fig. 2) with a watertight joint. Two faucets also fit into the cuff. These give entry and exit to fluid for the distention of the urethra, making for an improvement in the clarity of the visual field, and for better manipulation of the instrument.

Two sizes of endoscopic tubes are provided, No.

24 and 25 French, these having been found most useful, and it is optional with the surgeon as to which instrument he will select for routine work. The obturators are designed either for work in the anterior urethra or in the posterior urethra and bladder. An obturator with a short, blunt, conical extremity serves for work in the anterior urethra. The short obturator must be chosen for the cases in which we desire to treat filiform strictures of the urethra, lesions in the anterior urethra, or where we wish to remove foreign bodies from the anterior or bulbomembranous urethra. The curved, beaked obturator is to be selected whenever the instrument is to be inserted into the bladder.

The light carrier (Fig. 2) differs materially in its construction from any other previously designed, in that it is composed of a sector of a thin tube that fits tightly against the inner wall of the endoscopic sheath, and bears the irrigating tubule. It is equipped with a delicate lamp, which extends beyond the carrier, being of such length that its rays can emerge and illuminate the usual endoscopic field. This type of light carrier possesses advantages over the usual forms, particularly in that its rigidity tends to maintain it in close apposition with the sheath. At the proximal end of the light carrier is the cuff (Fig. 2a) for the attachment of the electric contact (Fig. 2b) and its joint for the in-



FIG. 1.—Sheath or endoscopic tube of the author's universal cystourethroscope, with obturator in situ.

roduction of either the telescope (Fig. 3) or the magnifying window (Fig. 4a).

Occupying one of the furrows at the side of the lamp tube, is a fine tube, or tubule (Fig. 2d) that has its inlet at the faucet (Fig. 2e) and allows the irrigating fluid to escape at the objective end of the apparatus. Only in this way, is it possible to obtain adequate cleansing of the urethral field when the instrument lies beyond the internal sphincter. When the urethroscope enters the bladder, irrigation may be effected without recourse to this irrigating tubule. The normal flow of fluid with the instrument in the urethra then, is a current that begins at the far, or objective, end of the instrument, and flows back and out through the second faucet at the ocular or proximal end.

The telescope is of the direct, nonprismatic, forward vision type, and its lens system so designed that a sufficiently wide visual angle offers a view of operating instruments soon after they emerge from the sheath. It is held in a truncated conical fitting sheath that locks into the cuff receptacle of the light carrier tube. However, it is not rigidly held except when the washer screw is tightly secured (Fig. 3c), a forward and backward movement being permitted when the screw is loosened. This retrograde movement of the telescope is provided for the contingencies which arise when operative devices are thrust through the sheath and a better view of their working end is desired. It will be found that a considerable portion of an operative instrument must needs be exposed beyond the sheath for a

*Read before the Section in Genitourinary Surgery, New York Academy of Medicine, February 19, 1919.

good view. If we pull back the telescope, however, we may work the jaws of the operating device at a short distance from the tube, sacrificing merely a small portion of the field thereby, but in no way impairing the utility of the visual instrument.

In order to convert the telescopic instrument into an air inflating instrument, or an Elsner-Braasch cystoscope (Fig. 4), or into an ordinary straight tube urethroscope, a magnifying window is provided, which serves not only to close the tube for air inflation or water distention, but also magnifies the direct picture slightly, and obviates the necessity for accommodation of the eye at so close a distance. Thus, if we withdraw the telescope and attach the magnifying window, we may see the ureters according to the Elsner method, and examine the urethra by the same method, or, we may mop out the sheath, aspirate the contents of the urethra through the tubule (Fig. 2d) and in-

terized according to the well known principles of manipulating nonprismatic cystoscopes. When the neck of the bladder and urethra are to be examined with the water flowing, the instrument is slowly withdrawn, a periscopic view of the urethra being obtained, the supramontane, membranous montane,

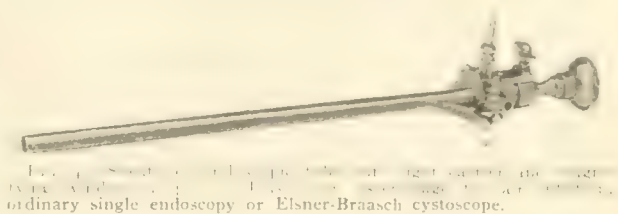


FIG. 2.—Light carrier of the direct telescopic cystourethroscope, or universal urethroscope; a, cuff; b, contact for electric light connection; c, looking fork; d, irrigating tubule; e, faucet for entry of irrigating fluid.

spect or treat according to either the air inflation or simple open air method.

In short, the instrument is universal in that it combines the uses of the following: 1, An open air anterior urethroscope and posterior urethroscope; 2, an air inflation anterior and posterior urethroscope; 3, a direct telescopic cystoscope (to replace the Brown); 4, a direct telescopic operating cystoscope; 5, an operating irrigating anterior and posterior nonprismatic telescopic urethroscope; 6, an Elsner-Braasch urethroscope and cystoscope and 7, a Kelly or Luys's endoscope and cystoscope.

TECHNIC WITH THE IRRIGATING INSTRUMENT.

This universal cystourethroscope is chiefly recommended as an irrigating telescopic instrument for the bladder and the posterior and anterior urethra. The technic of its use is as follows. The sheath fitted with the curved obturator is introduced into the bladder (Fig. 1), the obturator removed, and the bladder irrigated if necessary. The light carrier (Fig. 2) and telescope (Fig. 3) are now locked in place (Fig. 5) and the irrigating fluid allowed to flow through one of the faucets, a rubber tip or cap having been adjusted at the catheter outlet (Fig. 5). The trigone, ureters, basfond, and the posterior wall of the bladder may be adequately illumi-

bulbous and anterior urethra successively appearing. As soon as the membranous urethra is brought into view, it is well to grasp the penis with the left hand, whilst the right hand manipulates the cystourethroscope, in order to prevent reflux of the irrigating fluid, the amount of dilatation of the urethra being controlled both by the height of the irrigator, and the patency of the irrigating faucet.

Filiform strictures of the urethra have hitherto been treated in an amateurish, maladroit, and unskillful fashion. The old, well tried, venerable, but often nerve racking, frequently unsuccessful procedures recommended by our great masters of urology, consisted in the introduction of a number of filiform bougies, with the hope that one of these might surmount the intricacies of the scarred urethral passage and penetrate into the orifice of the coarctation. For further dilatation, the methods of LeFort and those of Phillips deserve commendation and support, for, by means of their bougies with the filiform once introduced, the subsequent dilatation becomes a simple procedure. Perhaps

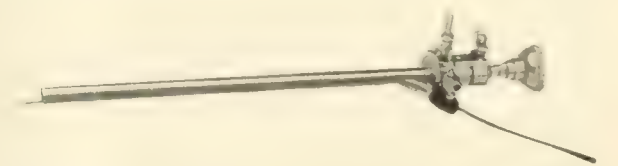


FIG. 5.—Complete assemblage; sheath, light carrier and telescope; a, large catheter outlet to which suitable rubber cap or tip must be attached.

the best of all the sounds for dilatation are the bougies or catheters of Phillips, made of shellacked silk.

But even this ingenious idea of the simultaneous use of multiple filiforms often fails, either because of the eccentric positions of the orifice of the stricture, of the intricacies of the urethral channel, or because of some other peculiar mechanical obstacle, which nullifies our efforts to reach the coarctated canal. A better and more reliable procedure, one that requires the exercise of more technical proficiency, more deftness and experience, is that which exposes the orifice of the stricture through an endoscopic tube, and calls for the insertion of the filiforms under the guidance of the eye. It has been my own routine for a number of years to proceed thus in the treatment of all strictures of the urethra and I do not at once allow of the passage of a small silk bougie. It is an error of judgment that sanctions the manipulation of numerous bou-

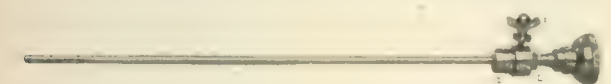


FIG. 3.—Telescope of the universal urethroscope; a, conical fitting; b, locking screw; c, washer or gasket, which tightens the telescope.

nated and brought into view, and we may then proceed with the examination of the neck of the bladder and urethra.

For those who employ the direct cystoscopic method by preference, both ureters may be cathe-

gies of different styles and magnitude through the urethra, in the hope that mere luck will lead one of these into the devious narrowed passage. For, in the clumsy, haphazard, random insertion of a variety of instruments, the chances of success are minimized and often completely nullified by the swelling, hemorrhage, and pain that are occasioned. And, when we consider that patients with filiform coarctation of the urethra very frequently seek our counsel and aid when retention of urine has taken place, success is of vital importance, spelling nonoperative relief and often cure, while failure means surgical intervention and its attendant evils, in a patient whose renal function is often considerably impaired. Therefore, I have completely abandoned the time honored introduction of multiple filiforms, except in those cases where, either because of the multiplicity or the deep situation of the strictures, the endoscopic method of approach is not applicable.

The finding of the orifice of the stricture, how-



FIG. 6.—Complete assemblage with Philips's filiform bougie in place.

ever, is not always easy, nor is success in the insertion of the filiform under the guidance of the eye given to any but those whose experience in urological work has been adequate for the execution of the more delicate and intricate maneuvers. In the search for a simpler and more easily executed method, one that could be carried out even by the tyro in the cystoscopic and endoscopic work, it occurred to me that the use of a specially constructed, direct vision irrigation endoscope might solve the problem. And, for this purpose, as well as for other intraurethral operative procedures, I constructed an operating endoscope which incorporates some of the features of the Goldschmidt and Geiringer instruments. It differs from the latter, however, in that it has a different optical system, a different type of endoscopic tube, and a different catheter outlet, and because it permits of the introduction of operating devices of ample magnitude; in fact, all those suggested for my operating cystourethroscope. Through this instrument it is feasible to pass filiforms of the Phillips type through the orifice of the stricture, directly under the control of the eye, and in my own experience, it is not difficult to enter strictures that would otherwise be regarded as impassable.

THE TREATMENT OF FILIFORM STRICTURE.

With the obturator designed for the anterior urethra in place, and the patient in the usual cystoscopic position, the sheath is introduced until it meets the resistance of the strictured area. The obturator is removed and the telescope with the filiform in place is inserted. While the assistant grasps the corpus cavernosum of the penis, in order to prevent reflux of fluid, the irrigating fluid is allowed to distend the urethra. The orifice of the stricture is now sought and can often be beautifully demonstrated as a sharply defined black hole, cen-

trally or excentrically placed, at times obscured by a shelf or scarred mucous membrane. By manipulating the filiform back and forth, just as one would a ureteral catheter, and by movements of rotation, it can be readily made to enter the stricture and the bladder (Fig. 6). The screw end of the filiform is now held or pushed inward and the telescope is withdrawn. The sheath or endoscopic tube is then removed, care being taken not to dislodge the filiform. The further procedure of dilating the stricture is too well known to require further comment.

Because of the relative shortness of the Phillips filiforms, it might be hazardous to attempt to use the regular lengths for work through the urethroscope. Therefore, specially long filiforms are recommended. If these are not available, the following expedient will permit the operator to accomplish a safe introduction of the filiform, provided that a No. 11 or No. 12 Phillips bougie or catheter whose trumpet shaped end has been cut off is used. With the telescope removed, carefully withdraw the endoscopic tube, pushing the bougie inward through the catheter outlet as the endoscope leaves the penis. Dilatation may then be continued with the Phillips catheter or bougie. Or, an Albarán or Maisonneuve urethrotome may be attached to the filiform already in the urethra, and the stricture cut in the usual fashion.

CONSERVATION IN THE MANAGEMENT OF TRAUMA AND DISEASES OF THE TESTES.

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The day of indiscriminate and haphazard surgery of the ovary has passed long since and with the better class of surgeons conservatism dominates. Various experiences and observations of surgical customs in the management of testicular injuries and disease have suggested to me that a word in behalf of the male sex glands may not be untimely. A condition in which the testis is often sacrificed is tuberculous testis. It is true that most surgeons do a conservative operation where it seems practicable to do so, but it is also true that a clean operation for removal of the epididymis often is impossible and any attempt to save a portion of the testis proper is defeated by unavoidable infection of the environments of the gland—either during or after the operation. In many cases drainage and curettage of the tuberculous foci constitute true conservatism, nevertheless, there are numerous cases in which partial or total ablation is the better part of wisdom.

It is assumed that, in all cases an attempt has been made to exclude syphilis before operation is advised. The Wassermann test alone does not permit an arbitrary opinion. It should be remembered that either tuberculosis or malignant disease may coexist with syphilis.

Before removing the entire testis in cases in which total ablation has been decided upon, a care-

ful examination should be made to determine whether or not any healthy portion of the gland still remains. If so, the author's rule is to resect the apparently healthy portion, cutting as wide of the infected area as possible. Then, instead of replacing the gland tissue in the almost inevitably infected scrotal cavity, it is implanted in the rectus muscle in the suprapubic region beneath the superficial fascia. Even if very small, such autoimplants preserve virility and, in addition, do their very important share in keeping the nervous functions and general nutrition at par—or near par.

Should the implant be infected and fail in its object, the resulting tuberculous (or purulent) area is quite easily accessible and amenable to surgical treatment. My friend, Dr. John Golden, informs me that he also, has successfully performed an autoimplantation as suggested above, following the method which I have advocated for several years. The importance of conserving virility by autoimplantation of testicular tissue in every case in which the procedure is practicable, is emphasized by the fact that we never can be assured that the opposite testis will not be lost eventually by injury or disease. That conservatism is imperative in cases in which both testes require operation, goes without saying.

Recent observations of men who have lost both testes from traumatism (notably several soldiers whose testes had been lost, either from gunshot wounds or the operation necessitated by such injuries) have suggested to me the possibility that in many cases of testicle traumatism where the organs are more or less extensively disorganized, the surgeon does not attempt to save and autoimplant such portions of the gland as may be salvaged from the wreck. For obvious reasons the surgeon in military practice is especially likely to forget the possibilities of testicle salvage and implantation in severe injuries of the gland.

As germane to the subject of conservative surgery of the testicle the author has long believed that epididymotomy should be performed in all cases of epididymitis, as a prophylactic of sterility from vas or epididymal occlusion or, perhaps, from pus infection. Small abscesses often develop very early in epididymitis, with later disastrous results not ascribed to the true cause, pus infection. Operation not only clears up the diagnosis, but relieves pain and promotes early and complete resolution. What seems to be a radical procedure, therefore, really is conservatism. In suspected or known malignant growths of the testicle, the highest degree of conservatism demands early and thorough operation. Malignant tumors of the testis are ultravicious and not to be trifled with.

It is the author's opinion that the prevalent notion of noninterference in hematoma of the testes is wrong. Opening the tumor and removing the extravasated blood offers the best prospect of preserving the testis. Pressure is relieved and the testis is protected from subsequent damage by tissue and fluid constriction. That operative incision of the tunica albuginæ is indicated in orchitis secondary to mumps should be obvious, yet it usually is neglected.

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WHAT IS NEURITIS AND HOW SHOULD IT BE TREATED?

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According to some medical authorities there is no such condition as neuritis, while others have applied the name to many types of pain in various parts of the body. Both of these groups may be absolutely wrong. Some writers of prominence state that neuritis is exceedingly rare, recognizing only the terminal stage of the condition as true neuritis. What this is before it reaches this stage they neglect to inform us. To the writer this is a very important thing. If it is not neuritis until atrophy occurs, what is it in the early stages? The name signifies an inflammation of a nerve or nerves and according to a leading authority (1), in acute neuritis "the peripheral nerve trunks which are affected are swollen and congested, not necessarily along their entire length but for a longer or shorter distance, so that they may present spindlelike swellings along their course. In such cases, there is an exudation into the connective tissues of the sheath affecting the endoneurium, perineurium, and epineurium. With this there may be more or less leucocytic infiltration, at times so extreme that there may be pus formation with or without localized hemorrhages, and where the inflammation is intense the action upon the nerve fibres leads to breaking up of the medulla and also of the axis cylinders. Purulent inflammation of the nerves usually occurs by extension from neighboring tissues. Such acute neuritis may be followed by connective tissue overgrowth, which, in its turn, by pressure, favors degeneration and atrophy of the included axis cylinder processes. Such neuritis, besides being of infective origin, may be traumatic, from wounds or compression."

The problem of the past seems to have been the difficulty in making a proper diagnosis early in the disease, recognizing only the later stage of atrophy, or when the reaction of degeneration could be elicited. Neuritis may be present for years without atrophy in certain cases, and again atrophy may take place after a few weeks of involvement, therefore it is not safe to depend upon this symptom, when there is a safe way of coming to the proper conclusion.

The etiological factors in the production of neuritis are now well known. Focal infections are now recognized as playing an important part, and traumatism, exposure, and various forms of poisoning, such as lead and alcohol, are recognized agencies. We have also the occupational types which are thought to be largely functional. These may be of a severe nature as the writer has experienced at various times, the severity being evidenced by the difficulty of cure. It is not my purpose to discuss the symptoms of neuritis, which are so well known, but to present the more modern method of diagnosis and the logical treatment of this troublesome condition which is so prevalent. In the terminal cases where the reaction of degeneration is present or the atrophy so evident that it cannot be mistaken, the method to be described will

not be necessary. Aside from the use of the x ray for differential diagnosis, it will seldom be necessary to use any other method. This use of the x ray applies to bursitis more particularly, in which condition the diagnosis cannot be otherwise made. It is also applicable to sacroiliac relaxation and arthritis, where the symptoms are so nearly alike.

In making the diagnosis of neuritis, the static machine plays an active part. The writer appreciates the fact that many physicians know little or nothing about this apparatus and its use, therefore feels it best to go into the matter in detail. The patient is seated upon an insulated platform and he is connected to the apparatus by a wire attached to a flexible metal electrode. This may be of any size selected by the operator, but the usual one is approximately two by four inches. This is placed over the area that is thought to be involved, and the machine started with the poles together, the wire attached to the positive side and the negative grounded. As the poles are separated, the current jumps across the spark gap causing interruptions which are carried to the patient under the electrode. These interruptions cause alternate contractions and relaxations, and are mechanical in nature. If the nerve under the electrode is at all inflamed, the amount of pain produced will be in proportion to the length of the spark. If there is no nerve inflammation, there will be no painful response, but merely a contraction effect of the part. This is a positive test of whether there is such a condition present or not, and should always be tried whenever possible. There are cases in which there are areas of pain in parts of the body other than where one would expect to find them. For instance, there may be pain in the ball of the foot due to a sciatic neuritis, and yet not felt in any other place. This will obscure the diagnosis, particularly when local conditions that would ordinarily be responsible for such pain can not be found. Testing the foot by the method just described would be futile, as the origin is not in the foot. Such cases should have the test made over the course of the nerve supplying the part. In the case of foot pain, the sciatic nerve should be tested, and it will generally respond to the test.

Recognizing that the pathology of neuritis is the same as that of any other inflammatory condition accompanied by an exudate, the treatment in order to be curative must take care of this exudate as well as the muscular spasm that occurs from the irritation of an inflamed nerve. The quantity of this exudate may be slight in recent cases, or it may be very great in long standing cases, and in the latter may form adhesions involving the muscular structures. An example may be cited in the difficulty of elevating the arm in a brachial neuritis. Again pain may exist at the nerve exit, causing pressure, which in turn will interfere with the sensory action, producing local anesthesia. In the cases with a great amount of adhesions which interfere with motion, it would appear that nature was intending rest of the part as a necessary element in the cure. We know differently, however, as all of those cases gradually grow worse and end with atrophy. It is of utmost importance

to relieve these patients as promptly as possible in order to avoid the terminal condition. It can be readily seen that in order to do this, a mechanical method is absolutely necessary. In the static current we have this, and it is practically the only method that will actually cure these conditions.

The treatment of neuritis varies somewhat according to the type and stage of the disease. In all cases the static current should be used, but not necessarily to the exclusion of other currents. In an acute neuritis in a nervous woman, it would be folly to start the treatment by the production of a sharp and painful treatment. When the static current is applied to the sore area it causes pain. It is preferable to start with a soothing application and continue this for a few days until the patient gets over the scare and novelty of the treatment. This soothing application may be one of radiant light and heat, given by a properly hooded high candle powered carbon filament lamp, and should be made to the point of producing active hyperemia. Following this, the high frequency current may be used to great advantage, as the effect of this is soothing and devoid of pain. This should be applied by the diathermic method. The d'Arsonval current is used for this, and is applied by the use of two electrodes of metal of suitable size properly placed. By this is meant, one over the painful area and the other on a part of the body opposing it, so that the current may pass directly through and heat the tissues to a certain degree, which must be determined for each case.

After some days of treatment by these means the soreness will be greatly diminished and the patient will be ready for the treatment which follows. The static current is then employed. The electrode is placed in the same fashion as described for the test, but the time of application is extended according to the needs of each case. The usual treatment consumes a half hour or more, and the place of application is changed as desired by the operator. As the treatment advances, the strength of the current may be increased, for the pain lessens and more current may be used before it is painful to the patient. In this way we know that progress is being made toward a cure. When the wave current treatment is ended, it is usually followed by indirect sparks. These are short sharp applications made by the use of a special applicator directly to the area involved, and guided by a special electrode. The results are quick sharp contractions which aid materially in breaking down adhesions. While they are most unpleasant in character, the result gained more than warrants their use.

The method of applying these indirect sparks is as follows. The patient remains upon the insulated stand, which is connected with a metal crook or rod to the positive side of the machine, the negative is grounded as with the wave current, but with both poles wide apart. The operator holds the sparking electrode which is grounded with a second ground chain attached to the water system or a gas pipe, and not to the apparatus. The machine is started slowly, and as the sparking electrode is applied near the surface, a spark jumps across the intervening distance, which produces a profound con-

traction of the tissues under treatment. If the spark is too strong for the patient's tolerance, it can be modified by slowing the speed of the machine, and even more so by placing the operator's foot upon the insulated stand. This has the effect of drawing off some of the current. When it is necessary to spark around small joints, such as the knuckles, a spark director held against the part will give the best satisfaction, as this can be sparked by the regular electrode instead of directly to the skin, and the spark will be finer and less painful.

In addition to the methods just described, we have other currents that may be used in some cases, but the majority of cases will be amenable to the treatment outlined. Some find the best results in the ionic method, and it is recognized as being of great value. It is particularly so in the cases associated with arthritis. This form of treatment will not be outlined, as it is a subject for a separate paper.

Every physician has his preferences in the treatment of these cases, and many use all of the forms at various times, as they may suggest the needs. Results may be had by the use of one or any of the kinds of currents, but it requires a fair knowledge of their physics and for their practical application. Electricity cannot be used empirically if results are desired, and for this reason, this branch of therapy should receive its just recognition and be properly taught in all of the medical colleges, instead of being neglected as it is by the majority of them.

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MARYLAND AND PACIFIC AVENUES.

MENINGITIS.

By HYMAN I. GOLDSTEIN, M. D.,
Camden, N. J.

(Concluded from page 765.)

Next to xanthochromia, the largest amounts of protein are to be found in surface infections of the meninges as the meningitides, due to meningococcus, pneumococcus, streptococcus, tubercle bacillus, and influenza bacillus. In acute anterior poliomyelitis the inflammation is primarily an interstitial meningitis rather than a surface infection and, therefore, do not usually find a large amount of protein in the cerebrospinal fluid. The Pandy and Noguchi or Kaplan tests or the Mayerhofer permanganate reduction index test may be used for the estimation of the protein content.

Malaria.—The enlarged spleen, the history of chills, the malarial plasmodium in the blood, the leucopenia would suggest malaria. Softening and enlargement of the spleen generally only indicate that some acute infection is present.

L. F. Barker states: "When a diagnosis is not clear in a patient with a high temperature, a blood culture should always be made. In the first week of typhoid fever a blood culture is positive in ninety per cent. of the cases. The same is true in lobar pneumonia. You can grow the pneumococcus from

the blood within twenty to twenty-four hours in a large proportion of pneumonia cases. In acute meningitis you may get in a blood culture the meningococcus, or some one of the other organisms, like staphylococci, or streptococci, that cause the disease—in one third of the meningitis cases within twenty-four hours. This point deserves to be especially emphasized, i. e., to take blood cultures early in fever cases. Bile bouillon or blood agar may be used as the culture medium. Blood agar is also a good medium for spinal fluid culture in suspected cases of meningitis. Barker states that herpes are a very common accompaniment of meningococcal meningitis; more frequent than in malaria.

In the differential diagnosis of the various forms of meningitis and such diseases as have already been mentioned, namely, malaria, typhoid fever, meningismus, uremia, and meningomyelitis, we must also include acute anterior poliomyelitis, especially the cerebral or meningeal form known as Heine-Medin disease, and finally sinus thrombosis and encephalitis lethargica.

Sinus thrombosis, extending to the meninges, with high fever and high cell count, could be ruled out by the absence of dilatation of the cranial or facial veins, absence of swelling of the eyelids, no cyanosis of the orbital or frontal regions, no protrusions of the eyeballs, no engorgement of the retinal veins, no mastoid signs; no otitis media, and nothing abnormal palpable in the jugulars. Brain abscess and acute encephalitis extending to the meninges may also be ruled out.

Heine-Medin disease.—This is the meningeal form of poliomyelitis anterior acuta. In these cases a meningitis may be caused by the localization of the infantile paralysis virus. Netter believes this type frequent in France, and may be mistaken for cerebrospinal meningitis. The symptoms of Heine-Medin disease include vomiting, sometimes for forty-eight hours, followed by rigidity of the neck with flexion of the head. The patient may be soporous. Ankle jerks, diminished. MacEwen's, Brudzinski's, and Kernig's sign may be present. These symptoms and signs point to meningeal irritation and may be due to cerebrospinal meningitis or other forms of pyogenic leptomeningitis, tuberculous meningitis, the meningeal form of poliomyelitis or simply to a meningismus. The diagnosis must be based chiefly on the blood culture and spinal fluid examinations and tests.

Josephine Neal, in October, 1916, before the New York Academy of Medicine, dwelt in detail on this subject. She stated that in the early stages of poliomyelitis the cerebrospinal fluid is clear, except in a few rare instances in which it is very slightly cloudy. It often shows a good fibrin web formation. There is a slight or moderate increase of albumin and globulin, together with a prompt reduction of Fehling's solution. The cell count is increased and as a rule eighty per cent. or even more of the cells are mononuclears, occasionally the polynuclears predominate where the fluid is slightly cloudy. There are certain large mononuclear cells present in poliomyelitis fluid which are more or less diagnostic.

In the early stages of ordinary meningitis the fluid shows varying degrees of cloudiness. The increase in globulin and albumin is usually greater than that which occurs in poliomyelitis and there is a poorer reduction of Fehling's solution. Finally, the cells in spinal fluid of purulent meningitis are largely polymorphonuclears and the meningococcus can usually be found on careful repeated search, but in some mild cases can never be found. In meningitis due to other organisms, you can practically always find it sooner or later in stained smears of the centrifuged specimen and in cultures of the spinal fluid. Netter attaches importance to complete loss of knee jerks at a very early stage in poliomyelitis and to the presence of severe pain and tenderness in the limbs, which he says is especially marked in the meningeal type of the disease. Neal says that in some of these cases of poliomyelitis, the spinal fluid can only be differentiated from tuberculous meningitis by means of animal inoculations. Paralysis occurs in due time, in the second or third week at most, even if limited only to the ocular or facial domain, and probably also in one or more of the extremities. A monkey could be inoculated with some of the cerebrospinal fluid and observed to ascertain whether Heine-Medin disease develops in the animal.

Before discussing the prognosis and treatment of meningitis, it is essential to have some clear knowledge as to the cerebrospinal fluid itself, and the effects of lumbar puncture. Normally, the cerebrospinal fluid is a secretory product of the choroid plexus. Some may also be derived from bloodvessels of the nervous tissues and probably also from the pituitary and pineal glands (7). The choroid plexus is the main guardian against infection of the tissues of the cerebrospinal system, although its defensive powers are easily disturbed. Flexner and Amos (8) have shown that the intraspinal injection of sterile horse serum or even simple spinal puncture, accompanied by some loss of blood, were sufficient greatly to reduce the resistance of the tissues to infection with poliomyelitis virus.

Kolmer says that lumbar puncture alone may so disturb the choroid plexus or other mechanism of defense of these tissues against infection as to favor infection of certain microparasites in the blood. Aseptic conditions and a suitable needle are of first importance. The pain produced during puncture can be prevented by preliminary infiltration of the tissues, along the passage the needle is to take, with 0.5 to one c. c. of a sterile one per cent. solution eucaïn. Avoid undue force. Arching of the back widens the intervertebral spaces. After the puncture the patient should rest in the prone position for an hour or two, to avoid headache and vomiting.

*The pressure of the cerebrospinal fluid varies directly with the pressure of the venous sinuses, and it oscillates with coughing, forced respiration, crying, and muscular movements. The pressure is four or five times higher when the patient is sitting up than when in the prone position on the left side. In children, according to Quincke, the normal and pathological cerebrospinal pressure is about one third less than in adults. Kolmer recommends the

use of the mercury manometer and the Landon technic, with the adult patient on the left side and quiet; the normal varies from six to ten mm. of mercury; average eight mm.; twelve to twenty mm. mercury or higher are pathological. Pressure is increased in acute and chronic, especially acute, forms of meningitis due to tuberculosis, meningococcal infection or poliomyelitis virus.

A marked decrease in the dextrose content of cerebrospinal fluid occurs in the acute infectious meningitides—in meningococcus meningitis, the fluid may even fail altogether to reduce Fehling's solution. In acute meningeal congestion or simple "serous meningitis" or meningismus, the amount of dextrose is usually unchanged. In the acute suppurative meningitis cases the increased number of bacteria and the large number of cellular products of inflammation, the red and white blood corpuscles, consume or absorb a portion of the dextrose. Fehling's or Bang's micromethod may be used for the dextrose estimation. Normally there is 0.725 to 0.75 per cent. sodium chloride in the cerebrospinal fluid. There is a marked reduction of chloride in tuberculous meningitis, to 0.5 per cent. and in acute purulent meningitis to 0.6 per cent. In subacute or chronic meningitis the reduction is much less.

Cytology.—Normally the cerebrospinal fluid contains a very few cells, the number varying from zero to eight to the cubic millimetre of undiluted fluid; fifteen cells is a definite increase or "pleocytosis"—these are usually small lymphocytes. The number, as stated above, is greatly increased in infective meningitides. The Fuchs-Rosenthal counting chamber is usually recommended for counting the cells.

The Weil-Kafka hemolysin reaction is based upon the fact that in suppurative meningitis the disintegration of leucocytes furnishes various substances of a bacteriolytic nature, and complements may be present. In cases of acute meningeal involvement there occurs also a greater transudation of serum or a hypersecretion of the fluid, and a decrease of selective infiltration with the result that antibodies are more readily transferred from the blood to the cerebrospinal fluid; and therefore, we find an increase in the antisheep hemolysin in the cerebrospinal fluid, and in meningitis this is present. Over ninety per cent. show natural antisheep hemolysin present in the blood; not present in the normal cerebrospinal fluid. Meningitis may exist without an increased temperature or leucocytosis, and would have to be differentiated from hysteria, but cannot be diagnosed unless headache, changes in cerebrospinal fluid, eye symptoms, ptosis, squint, and retraction of the neck are present (9).

PROGNOSIS AND TREATMENT.

Prognosis is based on the following signs of improvement after serum treatment: 1, Increase in consciousness of patient; 2, fall in temperature to nearly normal; 3, diminution in intensity of headache; 4, no decrease, or a marked increase in pulse rate; 5, no increase in the rigidity of the neck; 6, decrease in the globulin content of the cerebrospinal fluid. Many young infants do not respond to serum treatment as well as older children and adults. Cerebrospinal meningitis is more fatal in

adults than in children. Netter and L. F. Barker believe that antimeningococcic serum should always be used when there is any suspicion of meningococcus meningitis, without waiting for a positive diagnosis based upon bacteriological study of the fluid obtained by lumbar puncture. According to Osler (10), meningococcic meningitis is the only form of meningitis in which recovery takes place after treatment in fifty to seventy-five per cent. of the cases. Tuberculous meningitis is practically hopeless. The repeated removal of the fluid from the spinal canal and the consequent decrease of pressure is beneficial. Sterile horse serum or Flexner's serum may be used in the hope that a mistake has been made in the diagnosis as to the form of meningitis or urotropin in saline solution may be tried intraspinally. John Lovett Morse (11) regards these cases as absolutely hopeless.

Prophylaxis.—The isolation of cases is recommended, especially in camps or other places where many men are brought together. The isolation and proper treatment of meningococci "carriers" by disinfection of the nasopharynx, swabbing out of the upper air passages with various mild antiseptic solutions, liquor thymolis compositus or argyrol. Sophian and Black state that the injection of dead meningococci (vaccine) may confer considerable immunity.

George H. Weaver (12), of Chicago, advises the use of a face mask as of great protective value in the prophylaxis of meningitis, influenza pneumonia and diphtheria. He suggests that the gauze mask be used by physicians, nurses, and orderlies, in hospitals, camps, and households. It is advisable to wear a properly made gauze face mask, one which would also prevent infection through the eyes; lacrymation may carry infection into the nose. This eye, nose, and mouth protector is a useful precaution in influenza, pneumonia, and meningitis.

Captain Paul G. Woolley (13) makes the statement that "in the only organization which made use of systematic nasal sprays since the first of the year, not a single case of meningitis developed, and also that in those organizations in which sprays were resorted to after the appearance of the disease no other cases appeared." The spray used at this camp was dichloramine-T. Virtually, the same method of treatment was employed by Cary P. McCord, Alfred Friedlander, and Robert C. Walker, at Camp Sherman, in the treatment of diphtheria and meningitis. They state (14) that in the treatment of these carriers they inaugurated the use of chlorazene. They employed "an aqueous solution of .025 per cent. strength, administered as a gargle three or four times daily. In certain cases, the application was made by throat specialists to insure the reaching of remote points in the nasopharynx. The gargling was followed with an oily spray of dichloramine-T of two per cent. strength. The combined use of aqueous chlorazene solution and the oil solution of dichloramine-T promises to be of utmost value not only in preventing diphtheria and meningitis, but also as a prophylactic in pneumonia, measles, streptococcic sore throat and the other diseases originating in the nasopharyngeal tract.

Medicinal treatment.—Bromides may be given for insomnia and delirium either by mouth or rectum, and chloral may be added; veronal or barbitol may be used; or caffeine if stimulation is necessary. Strychnine should not be used. Whiskey or brandy may at times be of value, as an aid to nutrition. Ergot and iodides are of no value in cerebrospinal meningitis; helmitol or hexamethylenamine may be used—even given intraspinally, especially in the fatal forms of cerebrospinal meningitis for which no specific therapy has yet been found, as the tuberculous, pneumococcus and streptococcus forms and in those epidemic forms "resistant" to serum therapy. When pain is severe morphine or heroin may be used; fairly large doses are required. However, if pain can be controlled in any other way, it is better to avoid the use of morphine, as some of these patients are extremely sensitive to the depressing action of morphine. In very resistant cases and if the patient's condition is serious, the cerebral ventricle should be tapped after trephining the skull and the serum should be injected into the ventricles. This can be done much more easily in infants and young children as a last resort. In tuberculous meningitis there is no specific therapy. It is the most frequent of all the bacteriological types of cerebrospinal meningitis and is usually regarded as an absolutely fatal disease. Frequently repeated lumbar puncture is the only hope. Lumbar puncture is made usually between the third and fourth lumbar vertebra, one half inch to the right of median line, and the needle is directed slightly inward and upward. The needle should enter the spinal canal at a depth of two or three cm. in children and four to six cm. in adults. Charles H. Dunn recommends lumbar puncture immediately in every case in which epidemic meningitis cannot be excluded.

It must be remembered that antimeningitis serum is a specific immune serum, and is only of value in that form of cerebrospinal meningitis caused by the Weichselbaum diplococcus, and is of no value in any of the other forms of cerebrospinal meningitis. It is of no value when given subcutaneously. Of late, some men have been using the serum intravenously exclusively, or alternately intraspinally and intravenously in daily injections. The earlier in the course of the disease the serum is administered the better are the prospects of success. Antistreptococcic, antipneumococcic and antiinfluenzal serum can now be obtained for use in the forms of meningitis due to these specific organisms. Staphylococcic meningitis may be treated by vaccine therapy. An autogeneus or homologous vaccine is preferable, but if not obtainable a stock vaccine can be used. Dunn recommends the daily injections of serum as long as diplococci can be found in the cerebrospinal fluid. The amount of spinal fluid withdrawn should always be from five to ten c. c. greater than the amount of serum injected. The average dose for an adult is thirty c. c., but in very severe cases from which the fluid escapes readily, as much as sixty c. c. may be given. Usually given once in twenty-four hours until temperature is normal and the fluid practically clear. In severe cases it can be given every twelve hours.

Doctor Niles, of New York, emphasizes the importance of keeping a high concentration of the serum continuously in the subarachnoid space. The average case requires four to six doses, some cases require many more. The number of cells in the spinal fluid is often increased after the first injection of the serum, because of the irritation of the meninges by the horse serum. This is only transitory and the fluid gradually clears. In cases where there is a bacteriemia, fifty c. c. of serum is administered, also intravenously. Dunn states that the persistence of Kernig's sign, rigidity, and tenderness of neck, retraction of head or abnormalities of reflexes, in favorable cases is not serious and in itself does not indicate further injections. If, after four or five injections, there is still some fever and the persistence of headache, hyperesthesia, and any affection of consciousness, as delirium or apathy, the injection of serum had better be continued. Four injections, even in mild cases, are usually recommended and should the diplococcus reappear in the spinal fluid (after having once disappeared with improvement, at any time while under treatment) another course of four injections should be given. McKenzie and Martin have introduced the use of an autogenous serum. They withdraw the blood serum of a patient suffering from meningitis and inject it into the spinal canal of the same or another patient. This is an active bactericidal fluid. G. Marchetti (15) recommends and has tried the injection of the antimeningitis serum in eleven cases one day into the vein, the next intraspinally and he continued the injections in this way. All of the patients recovered, with one exception. This case was complicated with malaria and the patient was very weak.

W. W. Herrick (15) recommends the intravenous route for serum treatment. He gives from four to eight massive injections by vein, of from eighty to 150 c. c. during the acute stage in a period from two to four days. Desensitization by subcutaneous injection of one c. c. of serum one hour before the introduction of serum into the vein and the cautious injection of the first fifteen c. c. at the rate of one c. c. a minute. If dyspnea, cyanosis, pallor, vomiting or irregular pulse appear, stop the injection. He concludes that the average case requires 400 to 600 c. c. of serum by vein and about 100 c. c. intraspinally. Two hundred and sixty-five cases were treated and studied. The blood culture was positive in one third of the cases, showing there was a true septicemia or meningococcemia in a large number of the cases. Four per cent. of meningococcus blood infection cases, do not show meningitis and the serum, intravenously, rendered the blood sterile. If meningococcus meningitis is a metastatic or secondary local infection and inflammatory focus, the primary stages of the disease, the sepsis, or bacteriemia, should be recognized and treated. With the combined intravenous and intraspinal treatment, the meningococci are not found in the spinal fluid after the first forty-eight hours. In the 1904-5 epidemic, the mortality in New York city was seventy per cent. Paralysis, defective sight and hearing or mental impairment often followed as a sequel. Since the serum has become the main treatment, the mortality is only eighteen to twenty-

five per cent. In cases showing a tendency to become chronic, autogenous vaccines are given in all cases by the New York Department of Health.

E. M. Medlar (16) concludes and agrees with Major Herrick that epidemic cerebrospinal meningitis is not primarily a meningitis, and that all meningitides, exclusive of traumatic meningitis and brain abscess, is secondary to hematogenous infection. It is probable that if seen early enough, all cases of meningococcic meningitides would give positive blood cultures.

Herrick (17) emphasizes the fact that epidemic meningitis is primarily a generalized systemic invasion by the meningococcus—a sepsis—with possible secondary involvement of the meninges, joints, endocardium, pleura, and tonsils. Diagnosis in the stage of meningococcic sepsis may be made many hours before the meningococcus has time to develop its characteristic selective action on the meninges. In this stage of sepsis, before meningitis develops, it is important to administer intravenously anti-meningococcic serum in doses of from thirty to sixty c. c. every twenty-four hours during the first three or four days, and then if meningitis symptoms appear, the intraspinal injections should be used. Dangers of intraspinal injections are: 1, Anaphylactic shock—this can be avoided by giving a sensitizing dose subcutaneously before proceeding with the intraspinal injection; 2, cardiac or respiratory symptoms may develop during the injection, if so, stop, and drain off a few c. c. of serum. Artificial respiration and circulatory stimulants may be used. This accident is rare if serum is administered by gravity, which is the method recommended. A polyvalent serum and one of high potency should be employed.

McConnell, Morris, and Seehorn (18) report the results of their study of thirty cases of meningococcic cerebrospinal meningitis (19). The order of frequency of symptoms were: 1, Profound frontal headache; 2, stupor or coma; 3, rigidity of neck; 4, vomiting which was projectile or cerebral in type coming without previous nausea and without warning; 5, Kernig's sign; 6, increased knee jerk; 7, hyperesthesia; 8, slow pulse; 9, petechiæ; 10, slight increase in temperature.

Strabismus was not present as an early symptom; the headache was very severe in character, much more marked than in typhoid and nearly always frontal; Kernig's sign was + in nearly every case; knee jerks were exaggerated in most of the cases, as were the plantar reflexes; Babinski's sign was absent; hyperesthesia was marked and at times a *tâche cérébrale*; the pulse in nearly every case was slow, sixty to seventy-nine or less; herpes was a common symptom, present in practically all of the cases, usually most extensive on the lips at the mucocutaneous junction. The gravity method was not employed by these men at Camp Pike. Instead, a Luer syringe of forty c. c. capacity was used, with rubber tubing for connection with the syringe and needle. The serum was injected very slowly. Doses of forty c. c. were usually given at twenty-four hour intervals. Adrenalin solution or epinephrine may also be used in conjunction with the desensitizing subcutaneous injection of serum prior to intraspinal or intravenous serum injection.

Injection of oxygen or air.—Ramond and Francois (20) state that tuberculosis is essentially curable, especially when it involves serous membranes. The injection of air has been found useful in tuberculous pleurisy and peritonitis and Ramond has found it effectual also in arthritis, orchitis, and meningitis. After forty c. c. of cerebrospinal fluid is removed by lumbar puncture, patient reclining, the air is drawn into a Roux syringe through a long, redhot platinum needle. This sterilizes and warms the air, and it is then slowly injected through the puncture needle which has been left in place. The amount of air injected should not be over one half or two thirds of the amount of fluid withdrawn. The injection of air can be repeated for five or six consecutive days or oxygen may be used for longer periods. Air or oxygen may even be injected into the lateral ventricles. Injections of iodoform emulsion intraspinally may be tried. The cerebrospinal fluid is alkaline, and the intrathecal injection of solutions of urotropin does not act, because urotropin requires a distinctly acid medium.

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Fracture from Absorption of the Callus of a Previous Fracture.—J. Soler Julia (*Revista de Ciencias Medicas de Barcelona*, December, 1918) reports a case of fracture of the middle third of the radius in a girl of nine, in the location and from the resorption of the callus of a fracture in the same location six months before. The exact cause of this is unknown although many authors give many explanations. For instance, Schilling attributes it to grave infectious diseases, Walter and Budd to scurvy, Norris and Ferret to erysipelas especially localized in the fractured part, while Tillaux ascribes it to syphilis.

SYPHILIS OF THE STOMACH.

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The great war brought many troubles and problems, not the least of which was the appalling increase in the prevalence of venereal diseases, especially among the troops who went overseas. As a causative factor the germs of syphilis played a most important part. This increase in the number, as well as the proportion, of persons infected with lues will, of course, result in an increase in all the manifold activities of these organisms. Although the pale spirochete multiplies within the bodies of many



FIG. 1.—Case I, A. H. This picture was made immediately after the administration of bismuth meal; the filling defect is quite evident. The three hour plate, which was accidentally broken, of the patient's stomach, also showed the filling defect very plainly. The condition was diagnosed as carcinoma of the stomach. (Reprinted by Miss Lucille MacSweeney).

million people, and although no organ or tissue within the human body, except possibly the prostate gland, is immune to the causative organism of syphilis, the stomach apparently suffers rather infrequently as the result thereof. The apparent rarity of syphilis of the stomach is due to the fact that this condition is not considered in some of the textbooks of medicine, and also to the fact that it is often overlooked or diagnosed as carcinoma, ulcer, and various other common afflictions. Such mistakes are excusable, because the symptomatology and clinical findings, in this disease, have not yet been put upon a sound diagnostic basis.

But the clinical picture of gastric lues is becoming better known.

One of the reasons why a diagnosis of syphilis of the stomach is not easy is the fact that syphilis manifests itself in a number of lesions. The fol-



FIG. 2. Case II. Another case of syphilis of the stomach. (Röntgenogram by Dr. George M. Niles.)

lowing types have been described: 1, Gastric ulcer of syphilitic origin; 2, syphilitic tumor of the stomach; 3, syphilitic stenosis of the pylorus; 4, syphilitic cirrhosis of the stomach; 5, chronic gastritis, and 6, perigastritis. It is evident, therefore, that the symptoms resulting from such a multiplicity of lesions will be varied in character and in severity. The symptoms most frequently encountered are pain, emaciation, tenderness; less frequently occur, in addition, hematemesis and melena. In some cases, vomiting and pain after eating are the principal symptoms, as in the following case:

A. H., colored, male laborer, aged thirty-three, complained of inability to keep anything on his stomach, he stated that he vomited everything he

ate. Family history negative. Sleeps poorly, is constipated, has not had a bowel movement for a week, no nocturia, does not use tobacco or drugs, formerly drank much whiskey and beer, but none during the last three or four years. During childhood, he had measles, pertussis, mumps, and typhoid; has had gonorrhea several times; had a chancre on the penis about six years ago; he received antisyphilitic treatment and thinks he recovered.

Present trouble began two years ago. He has no nausea, but vomits almost everything he takes by mouth, all food, milk, and soups; but he retains coca cola. Vomiting is of the projectile type. He has vomited no blood and has not had any tarry or bloody stools. When he rests in bed, the attacks are less frequent and less severe than when he is at work. He "spits up sour water" quite frequently. He can eat a full meal, but he vomits soon afterward. His appetite is good. Presence of food in the stomach causes some pain which is relieved by vomiting. A solution of mercury and potassium iodide, which he took by mouth, caused a "gripping pain" in his stomach. He has lost considerable strength and about thirty-five pounds in weight.

Physical examination.—Patient well developed but thin; posterior cervical and epitrochlear glands palpable; right pupil fixed; tongue has slight grayish coating; cardiac apex not seen or felt; heart sounds somewhat muffled; abdomen was very flat and tenderness on palpation present over the entire epigastric area, especially in the midline and extending downward, for several inches, in the midline; no mass was palpable; the liver spleen, and kidneys were not felt; there was a scar on the prepuce; all the reflexes, excepting those of the right pupil to light and accommodation were normal.



FIG. 3. Case III. Syphilis of the stomach. (Röntgenogram by Dr. George M. Niles.)

LABORATORY FINDINGS.

Stomach analysis.—Analysis of stomach contents after a test breakfast showed the presence of considerable mucus, no free hydrochloric acid, com-

bined acidity fourteen, a small amount of lactic acid, total acidity of eighteen, but no organisms.

Urine.—Clear, amber, 1,018, alkaline, no albumen, no sugar, no indol, no casts, no epithelium, a few pus cells, crystals of calcium oxalate and amorphous phosphates.

Blood.—Hemoglobin eighty per cent.; red corpuscles, 4,000,000; white cells, 8,000; normal differential. Wassermann test on blood was ++++ positive. Röntgenologist's report on plates of the stomach "probably gumma."

After studying several cases, and after reviewing much of the literature on this subject, we come to the conclusion that syphilis of the stomach has no clear cut symptomatology and no certain clinical findings; that the diagnosis is best made by the process of exclusion; that the x rays are of great assistance in arriving at a correct diagnosis. I feel certain that many cases of syphilis of the stomach have been diagnosed as peptic ulcer or gastric carcinoma. And I believe that every case of ulcer of the stomach which does not yield to treatment by the usual dietetic measures should have a course of antisyphilitic treatment before any surgery is done; and, likewise, that every case of suspected gastric carcinoma should be given a short, intensive course of antiluetic treatment, in the hope that such a therapeutic procedure will establish the diagnosis of syphilis, if it is present. The treatment of syphilis of the stomach should be the same as the treatment of syphilis in other organs. In those cases in which pyloric stenosis occurs, gastroenterostomy is usually indicated, in addition to the antiluetic treatment.

1010 CANDLEY BUILDING.

SYMPTOMS IN A CASE OF BRAIN ABSCESS.*

Operation and Recovery.

By WESLEY C. BOWERS, M. D.,

New York.

Mr. F. P., aged twenty-one, while on a visit at his home over Sunday, came to me for the purpose of having a mastoid wound dressed. He gave the history of having had a primary mastoid operation on the left side, two months previously and a secondary mastoid operation by another physician one month previously. He complained that some days he felt very badly, at which time he always had a severe headache. Other days he felt very well. He also said that for several weeks he had been unable to flex his right foot. Later the young man's father stated that his son's disposition had been entirely changed after the first operation. Whereas he had formerly been a very quiet sort of boy, he became hard to control and very unreasonable.

Examination showed a very dirty granulating wound over the left mastoid with considerable discharge of pus; rough bone at bottom of wound; drum membrane thickened and lusterless, no discharge from the meatus; temperature 100.3°, pulse 80. He was absolutely unable to flex his right foot, knee jerks active, no eye symptoms, no errors in pointing, labyrinth normal, hearing 10/20, no

aphasia. At this time I advised operation, but it was necessary for him to return to his duties. He returned one week later, and placed himself in my hands. He then had a severe headache, temperature 101°, pulse 82, and was still unable to flex his right foot.

I did a secondary mastoid operation and found that both previous operations had been very poorly done. There was at least a quarter of an inch of necrotic bone over the floor of the middle fossa, and apparently the antrum had not been entered. There was a considerable number of cells at the tip and a large number of cells in front of and posterior to the sinus. It was a very large mastoid and at both previous operations the operator had simply drained the centre. I exposed the middle fossa in the hope of finding some point of entrance of the infection. The dura was absolutely normal, in every respect. The sinus was exposed and the dura in the posterior fossa was exposed. Both were found to be normal. Not having any localizing symptoms, I decided to wait. The first two days following operation the patient's temperature remained at 102°, then for a few days it was 101°, then dropped to normal. He still complained of headache and after the third or fourth day he began to be stupid. During this time he showed absolutely no other symptoms. On the ninth day after operation he first showed signs of amnesic aphasia, which came on during the night. I operated immediately, making a large temporal decompression; removing all the bone over the dura corresponding to the mastoid wound. The dura was perfectly normal in appearance but under pressure. I made a crucial incision in the dura directly over the mastoid cavity. A grooved director was passed inward, slightly upward and forward. Nothing was obtained. The director was then passed directly inward and upward. It had penetrated about one and a half inches when there was a rush of serum followed by a large quantity of pus twice filling the large mastoid wound. A cigarette drain was inserted into the abscess cavity, and kept in place for two weeks; this was necessary because of the large amount of pus coming from the abscess cavity. The patient immediately began to improve. His headache disappeared, the temperature remained normal. It was interesting to note the return of his powers of connecting the two centres. He had completely lost all power of remembering the names of persons, places, or things. His memory, however, gradually improved and at the end of two months was apparently normal. He regained forty pounds in weight which he had lost prior to the operation and regained his power to flex his right foot.

There are several striking things about this case. One being the remarkably poor work done at the first two operations. It seemed astounding that such work should be done by any one who is allowed to call himself an aural surgeon. In the next place, it was astonishing that the man should have been allowed to go about with the symptoms displayed with apparently no suspicion of the actual conditions. (On the day he came to my office with a temperature of 101° and a severe headache, he

*Read at the New York Academy of Medicine, March 14, 1919.

was told that in another week he would be entirely well.) Third, it is a question whether under the conditions observed one should immediately operate and look for an abscess, instead of waiting, as was done. I am inclined to think that if I had gone in and had not found the abscess, I would have blamed myself. There did not seem to be any great risk in waiting, for he had been suffering from the condition for two months.

THE PATHOLOGY AND CLINICAL FORMS OF CEREBRAL ABSCESS.

BY CHARLES GREENE CUMSTON, M. D.,
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We will consider the question of the pathology and clinical forms of cerebral abscess of otogenous origin, particularly from the standpoint of the teachings of the French school. Several types of lesions may be encountered at necropsy in subjects dying from cerebral abscess due to otitic lesions, namely, those of the bones, meninges, and brain. Of the first little need be said, as they are found in all cases of osteitis of the petrous portion of the temporal bone. They particularly involve its antero-superior surface, which appears red and friable with numerous orifices resulting from necrosis.

It is an easy matter to detect meningeal lesions, because they represent the well known picture of a generalized suppurating leptomeningitis or a focus of pachymeningitis limited to the primary site of the osteitis. The meningeal lesions may be encysted or diffuse, situated on either the dura or the arachnoid. Occasionally a fungoid thickening of the dura is found in the neighborhood of the focus of osteitis or, instead, an area of pus may be present. Or there may be a large encysted abscess of the arachnoid space. But of all the cerebral lesions the most important are represented by abscess formation. In the vast majority of cases a cerebral abscess of otogenous origin is single, as a circumscribed encysted pus focus, but some cases are on record in which several abscesses were found. Such was Picqué's case, where a second smaller abscess having no connection with the principal pus collection was found.

When multiple abscesses are present the starting point of the infection is no longer a localized one, the process being one of pyemia; or the primary abscess having been incompletely treated surgically a reinfection of the cerebral substance has taken place. Therefore, as has been pointed out by Wicartan, otogenous cerebral abscess, which is a curable single focus, should be distinctly separated from abscesses resulting from pyemia whose multiplicity renders operative interference useless.

The following are Barr's statistics of seventy-six cases as regards the site of the abscesses: Median lobe, seventy-two per cent; cerebellum, twenty-three per cent.; brain and cerebellum, three per cent.; cerebellar peduncle and pons, one per cent.

The statistics of Picqué and Férrier comprise 119 cases, as follows: Median lobe, eighty-two cases; frontal lobe, one case; occipital lobe, two cases; cerebellum, twenty-four cases; brain and cere-

bellum, four cases; pons, three cases; cerebellar peduncles, one case; white cerebral matter, two cases.

The statistics of Lefort and Lebemann comprise 458 cases, as follows: Brain, 327 cases; cerebellum, 113 cases; brain and cerebellum, eleven cases; protuberance, five cases; cerebral peduncles, one case; fourth ventricle, one case.

From these figures it will be seen that the brain is the most frequently involved and the sphenotemporal lobe is the commonest site for otogenous abscess. This fact explains why the symptomatology is vague, and therefore the difficulty of diagnosis in these cases. In the present state of our knowledge no important part has as yet been attributed to this particular cerebral area and very large abscesses may develop in this region without giving serious functional disturbances. In size the abscess varies from that of a walnut to a hen's egg, so that when the pus collection attains such dimensions the destruction resulting may be very extensive.

These abscesses are more apt to be encysted, the pus being walled off by a zone of interstitial encephalitis, which forms a sort of limiting membrane between the abscess and normal brain substance. If the abscess is of recent date this zone will be found soft and injected on account of its very considerable vascularization, but as the abscess becomes older the limiting zone thickens, becomes sclerous and compact, perfectly isolating the pus collection in the brain substance and in some cases it becomes indurated from calcareous deposit. Now, should a further infectious process arise this limiting membrane may rupture from overdistention, giving exit to the pus, with the result that another abscess is formed.

A section of the brain carried through the site of the lesion will show macroscopically, going from the white matter in the neighborhood of the abscess to its centre, a normal whitish zone which gradually becomes darker as the limiting membrane is reached. At this point the cerebral tissue is changed, becoming grayish in color and offering brown patches and striæ which are nothing other than dilated vessels gorged with blood. Then comes the limiting membrane, dark red in color, and sometimes five or six millimetres in thickness.

The histological study of these cerebral abscesses was first carried out by Klippel and further completed by Wicart and Milhit, who describe three zones which are, going from the centre to the periphery, a zone of necrosis formed by the abscess *per se*, next a zone of encystment which is one of defense limiting the infectious process, and finally, a zone of irritation of the peripheral structures. The latter varies in thickness. It is narrow where the pus is encapsulated but very thick at those points where the encystment is thin. Obturations involving the cells, nerve fibres, neuroglia, and bloodvessels are seen. The nerve cells become globular and have undergone a diffuse chromatolysis. Both the finer and coarser nerve fibres present enlargements at certain spots, while the cells of the neuroglia proliferate and multiply for defensive purposes. Lastly, the vessels are greatly

dilated, gorged with leucocytes, lymphocytes, and a few plasma cells. The middle zone, or zone of encystment is divided into two layers. The external layer, which is nearest to the zone of irritation, is composed of young connective tissue cells and is not vascular, while the internal layer is very rich in its vascular supply. It is here that the blood spaces described by Klippel are to be found and which are merely dilated venules. Finally, the central zone, or the abscess properly speaking, is composed of a layer of polynuclears heaped upon each other among which an occasional mononuclear can be detected.

The pus of these abscesses is sometimes a blood stained serum but is more apt to be thick, greenish in color, and with a very offensive odor. Clearly these characters depend upon the nature of the bacterial flora present because the pus may be sterile. When bacteria are present they are usually found in association, streptococci, staphylococci, and anaerobic organisms. The pus is sterile in cases of toxogenous abscess or when the pathogenic agent belongs to some as yet undiscovered organisms. In order of frequency the bacteria most frequently found are: The streptococcus, staphylococcus and lastly, diplococcus. According to Hasslauer the acute abscess is to be distinguished from the chronic types in that they are usually monomicrobial, the streptococcus, diplococcus or the staphylococcus being present, when they are polymicrobial these three organisms are the ones met with.

In chronic abscesses, on the other hand, the mixed forms predominate with various bacteria, such as the pyocyanus, proteus and *Bacillus coli*. These data confirm Lentert's theory that the vitality of the bacteria, very marked in the beginning, rapidly decreases so that they are superseded by organisms of putrefaction in the form of saprophytes coming from the buccal cavity.

The differences in the bacterial flora appear to play an important part in the genesis of the abscess pocket as well as in its clinical evolution. The diplococcus favors the formation of a capsule, the anaerobic types favor the development of a diffuse abscess with necrotic walls. When several forms of bacteria are present the form possessing the greatest virulence will give the particular pathological type and clinical evolution to the pus collection. The presence of the anaerobic varieties in the pus is an index of great gravity.

In the majority of cases lesions in the neighborhood consist of compression and the forcing back of the surrounding cerebral substance. There is no necrosis or direct involvement of the nervous tissue but simply a deformation. The evolution of these abscesses can be conveniently divided into four types, the first of which is absorption, but this outcome is very infrequent. However, it is not an impossibility and traces of a former cerebral pus collection have been found at autopsy. In this case the abscess will have undergone transformation into a cyst with thick walls, containing a clear fluid or a caseous magma. Then the abscess may open into the ventricles and this purulent ventricular inundation is quickly followed by death. In the

third instance the abscess may open into the arachnoid space, where it either forms adhesions and becomes walled off or a purulent leptomeningitis results in death. Finally a progressively increasing compression from increase in the purulent contents results in a fatal issue from interference with the cerebral functions.

As may readily be surmised all the classic symptoms are rarely present in the same case. The French otologists maintain that there are two distinct symptomatologies in otogenous cerebral abscess, the first a virtual picture, but very complete, offered by a total and terminal syndrome in which operative measures are out of the question. The second is real outline but essentially incomplete. It is composed of scattered clinical data which the physician must know how to group together for diagnostic purposes and if correctly interpreted will indicate operation, usually with a successful result. Therefore, it is essential to be cognizant with the various clinical forms of these abscesses, of which there are six principal ones, in order to treat the case properly.

The first and classical type is that where a patient with a chronic otorrhea is suddenly taken with chills and a temperature attaining about 104°, accompanied by headache and backache. There will be found a slight stiffness of the neck, occasionally Kernig's sign will be present, as well as vasomotor disturbances. Otherwise there are no symptoms, the pulse and respiration remaining normal. This state of affairs lasts for a few days and then things return to normal. The temperature falls but the headache persists. The appetite returns but the patient becomes emaciated. Then without any warning the patient dies suddenly or a terminal coma develops. This classical clinical picture seems in accord with the pathological evolution of the brain lesion.

The primary phase is pathologically characterized by the meningeal inflammation of the encephalitis present, recalling that of meningitis, and usually lasts about ten days. This is the febrile phase.

Next comes the phase of remission. The pus becomes encysted and the majority of the symptoms disappear, but the temperature never becomes normal and may even show oscillations corresponding to infectious lesions which form around the pus focus. The only persistent symptom is headache. The third, or terminal phase is sudden. The pus empties either on the surface of the meninges or into a ventricle, with sudden death or terminal coma.

The typhoid form of cerebral abscess has a slow development. There is prostration, continued headache, occasionally epistaxis, with a temperature ranging around 104° F. Sometimes there is mild delirium or slight aphasia, but there is nothing that might lead one to suspect a cerebral abscess unless the ear lesion is discovered. The evolution of this clinical form, which is not common, is fatal. The meningeal form can be readily accounted for, because there is hardly a cerebral abscess which does not set up more or less extensive lesions of the meninges and if in all cases the phenomena of meningeal inflammation do not completely dominate

the clinical picture, in certain cases at least, they are so apparent that they alone attract attention, the temperature is irregular.

In the latent form of cerebral abscess there are no early phenomena of an infectious process. There are no marked motor or sensitive disturbances and a slight headache is about all the patient complains of. Death suddenly occurs without any premonitory symptom. The medicolegal aspects of these cases are important to bear in mind. In the remittent form, the early phase is less silent. The patient complains of general fatigue, headache, intellectual fatigue, all this with a slight temperature. Then these phenomena disappear until the day when an epileptiform attack occurs, the patient dying in coma. The last clinical form of cerebral abscess is that in which the process assumes the picture of brain tumor. There is a slow pulse, headache, vertigo, and vomiting but the case progresses with apyrexia and only an examination of the ears will lead one to suspect a brain abscess.

Such are the views and teachings of the French school today on this interesting subject and I trust I have been sufficiently complete in my exposé of the question.

MEDICAL, SURGICAL, AND SANITARY ASPECTS OF THE NEWPORT NEWS, VA., PORT OF EMBARKATION.

The Creation, Maintenance and Operation of the Organization for the Medical and Surgical Treatment, Physical Examination, Classification, Transportation and Health Protection of Embarking and Debarking Troops.

We have been so occupied with the affairs which have been going on close to us that we have not realized that there was any other port of embarkation except New York. The other day, a staff representative of the NEW YORK MEDICAL JOURNAL visited the Tidewater District of Virginia in search of relaxation and was amazed to find there a port of embarkation and debarkation of the first magnitude functioning with the quiet efficiency of a perfectly organized machine. From that time forward the sought for relaxation took the form of tours of inspection of the general headquarters, camps, hospitals, and docks which go to make up the Newport News Port of Embarkation.

When Major General (then Colonel) Grote Hutcheson arrived at Newport News, Va., on July 7, 1917, there were no instrumentalities or utilities for discharging the enormous military responsibilities devolving upon a port which was destined to forward to France thousands of men and animals and several million tons of freight. A little ship-building city of 30,000 inhabitants expanded three fold over night and the work of creating *de novo* all the complex machinery for housing, feeding, clothing, examining, sanitating, treating, and shipping troops, was put in motion. Colonel Jere B. Clayton, of the Medical Corps, was detailed as surgeon of the port, July 14, 1917, and served in that capacity until March 6, 1918, when he was relieved by Colonel Charles Lynch, Medical Corps.

The difficulties which attended the construction period of the port were enormous. Newport News is situated on a peninsula lying between the York and the James Rivers. The rim of the peninsula is higher than the centre which is thus converted into a swamp. Drainage for the control of malaria carrying mosquitoes was imperative. The entire area became muddy from the smallest shower. The nearest military hospital was located at Fortress Monroe, nine miles away and patients could only be transported over a frightfully bad road. Only one railroad supplied the region and in a short time this was overcrowded almost to stagnation by military supplies for which there were no warehouses; horses and mules for which there were no sanitary corrals, and troops for which there were no adequate camps. The harbor was crowded with ships requiring conversion into freight, animal, and troop transports. The summer was hot and dusty when it was not wet and muddy and the winter which followed was so unprecedently cold that the river became ice bound. And through this almost chaotic situation there flowed an uninterrupted stream of men, animals, and supplies.

The organization of the surgeon's office was of such simplicity that it permitted expansion in exact proportion to needs as they arose. At the head was the surgeon who was responsible for all the medical, surgical, and sanitary activities of the port. He was the coordinating focus for a host of civilian activities having a bearing on the moral, mental, and physical health of the troops and was the liaison with the United States Public Health Service which was in charge of the sanitation of the civilian extra cantonment area. To him reported the surgeons of the four camps, Camp Morrison for the Air Service, Camp Alexander for the colored (stevedore) organizations, Camp Hill for Motor Truck and Tank Service as well as for general troops and Camp Stuart for all arms of the service. The Pig Point Ordnance Depot, the Army Supply Base, and the Engineer Depot, all located on the Norfolk side of the James River, were also under his medical and sanitary jurisdiction. In addition, there were several smaller outlying camps used in connection with a number of projects for increasing the water supply which was wholly inadequate. To complete the chain of his functions, there were, in addition to the camp hospitals and infirmaries, three large hospitals aggregating 6,000 beds, Embarkation Hospital at Camp Stuart, Debarkation Hospital No. 51 at Hampton, Va., and Debarkation Hospital No. 52 at Richmond, Va.; and the Port Laboratory at Camp Stuart.

The surgeon was assisted in the discharge of routine duties by the executive officer, Lieutenant Colonel Howard H. Baily, and the sanitary inspector, Lieutenant Colonel James G. Cumming. The remainder of his staff consisted of Captain Moses T. Knappenberger, the adjutant, Major A. J. Colcord, the hospital inspector, Major H. S. Bartholemew, the chief medical examiner, Major N. E. Krowstep, the chief of transportation, Surgeon W. C. Rucker, U. S. P. H. S., the epidemiologist and historian, Captain Charles B. Spruit, the port bacteriologist and four supervising specialists as follows: Ortho-



FIG. 1.—Headquarters, Embarkation Hospital, Newport News.

pedic, Captain C. W. Betzner, psychiatric Major E. D. Bond, dental, Major B. H. Sherrard, and venereal, Major George H. Day. The Embarkation Hospital was commanded by Colonel William C. Terriberry, Debarkation Hospital No. 51 by Lieutenant Colonel W. H. Richardson, and Debarkation Hospital No. 52 by Major William R. Galbreath.

Lack of space renders it impossible to more than indicate the enormous work which was accomplished by Colonel Lynch and his staff. Colonel Clayton laid the foundation during the trying period of construction; Colonel Lynch completed and perfected the organization and administered it during the time of greatest embarkation activity, and when the homeward movement began, adapted it to meet the necessities of debarkation and the reception, classification, treatment and entrainment of the overseas sick and wounded. It was a stern, relentless task devoid of all the romantic and spectacular features of war, yet meriting all the praise and rewards which have been accorded for more conspicuous but not more valuable service on the firing line.

MORBIDITY AND MORTALITY.

The constant ebb and flow of population makes the collection of morbidity and mortality data extremely difficult at a port of embarkation. Military organizations come in, leave their sick and depart. This makes the calculation and rates perplexing and to a certain extent, incorrect. The diseases discovered have been contracted prior to arrival at the port and the only way to check up the spread of infection at the port is to consider the rates in the permanent garrison and in departing troops during their transatlantic passage. The morbidity and mortality rates of a port of embarkation therefore do not furnish a reliable index of the sanitary state of that port and are only comparable with those of another port of embarkation.

Practically, there was an absence of the fecal borne diseases. Despite the fact that the camps

were for the most part of necessity pitched in close proximity to swamps, there was an almost entire absence of malaria. The sputum borne diseases furnished the great bulk of the sickness and death and with the exception of the venereal diseases, constituted the major epidemiological problem. The following table shows the incidence of the sputum borne diseases from April, 1918, to December, 1918. This period is chosen on account of the greater accuracy with which morbidity data were collected during that time.

MONTHLY INCIDENCE PER THOUSAND, SPUTUM BORNE DISEASES, PORT OF EMBARKATION, NEWPORT NEWS, VA.

Month	Pneumonia.	Influenza.	Measles	Mumps.	Cerebro-spinal Meningitis.		
					Diphtheria.	Scarlet Fever.	itis.
April	3.06	4.50	3.40	16.94	.48	.12	.72
May	2.02	1.61	2.17	10.36	.19	.09	.06
June	1.63	1.11	.93	8.83	.06	.03	.09
July	2.30	1.52	1.07	8.68	.17	.08	.08
August	2.08	2.30	2.02	6.16	.19	.00	.06
September	2.58	35.51	.91	4.09	.14	.00	.10
October	30.40	83.72	1.72	3.44	.16	.04	.36
November	2.08	11.21	5.65	3.50	.28	.00	.13
December ...	2.40	9.41	2.54	6.10	.57	.00	.24

The following table shows the monthly mortality rate per thousand of strength from the same disease group.

MONTHLY MORTALITY RATE PER THOUSAND, SPUTUM BORNE DISEASES, PORT OF EMBARKATION, NEWPORT NEWS, VA.

Month.	Pneumonia.	Cerebrospinal Meningitis.
April	1.32	.16
May .....	.25	.06
June .....	.15	.03
July .....	.30	.04
August .....	.27	.07
September .....	.24	.10
October	9.26	.04
November .....	.39	.07
December .....	.24	.00

There were no deaths from uncomplicated influenza, diphtheria, measles, mumps, or scarlet fever.

Eighty-six and one tenth per cent. of the deaths were due to the sputum borne diseases, .37 per cent. to fecal borne disease, .18 per cent. to malaria, 2.9



FIG. 2.—Laboratory of the Port of Embarkation, Newport News.



Typical ward, Embarkation Hospital, Newport News.



FIG. 4. Rear view of wards, Embarkation Hospital, Newport News.

per cent. to external causes, 2.2 per cent. to cardiovascular, .92 to nephritis, and 7.35 to miscellaneous.

Of 260,919 men handled in 1918, 493 died. Of this number 261 were whites and 232 colored. The average monthly strength for this period was 19,238 whites and 5,884 colored. On this basis the death rate per thousand was, whites 13.5, colored 39.4. On the basis of total men handled, the death rate per thousand was, whites 1.4, colored 2.9.

The magnitude of the sputum borne diseases was such as to occupy the earnest attention of Colonel Lynch and the Sanitary Inspector, Lieutenant Colonel Cumming. An attempt was made to control all avenues by which sputum could travel from the sick to the well. In the studies which were made, all the ordinary factors were considered, intimacy of contact, common drinking cups, and promiscuity through inanimate objects. Particular attention was paid to the sanitation of messing and it was discovered that the method of washing eating utensils played a major rôle, particularly in the dissemination of influenza. The correction of the unsanitary way in which mess kits are ordinarily cleansed, resulted in a lowering of the incidence of the sputum borne diseases.

The venereal disease problem was a vexatious one. At least twenty per cent. of the colored troops arrived at the port with chronic venereal disease. These were not allowed to take ship over seas and as a result they accumulated at the port until at one time there were over 4,000 under treatment. This hampered very greatly the medical and sanitary administration. Finally a complete survey was made, the nonefficients were discharged and the balance were placed in special treatment battalions and retained for domestic service only. Out of 4,770 cases of chronic venereal disease thus treated 29.5 per cent. were reported as cured. The percentage of each specific venereal disease to the total was: Syphilis 1.7 per cent., gonorrhea 89.2 per cent., chancroid 9.1 per cent. Out of 4,426 hospital ad-

missions for venereal disease, 443 were white and 3,983 colored. The camp infirmaries handled 7,340 cases. Out of 3,000 colored troops picked at random, the venereal rate was thirteen per cent.; out of 21,309 white troops the rate was .6 per cent. Neither of these figures accurately represents conditions for the total; twenty per cent. for the colored troops and .3 per cent. for the white is more nearly correct.

The acute venereal disease rate was never high. It fell from an annual rate of 24.7 per thousand in June to 4.5 per thousand in November, 1918, after which it rose rapidly to 18.1 in February, 1919. This rise was probably due to the abolition of the law enforcement program in December, 1918, and the relaxation of the mental and moral tension after the signing of the armistice.

The control of the insect borne diseases was under the charge of Major William B. Herms. The size of the problem which confronted him is shown by the fact that in malaria control work alone 51,760 linear feet of new ditches were dug, 57,625 linear feet of old ditches were maintained, 456 cubic yards of fill were made and 19,678 gallons of oil were used. This officer was also responsible for the destruction and prevention of flies—an enormous problem by reason of the presence of thousands of horses and mules awaiting overseas shipment. The delousing of arriving and departing troops was also a considerable problem, particularly after repatriation began.

In order that the manpower of the army should arrive in France at the peak of physical efficiency it was necessary that all troops be subjected to a thorough weeding out prior to embarking. Under the direction of the surgeon, Major Bartholemew and a corps of specially trained assistants conducted a preliminary physical examination immediately on the arrival of shipments of troops from the interior. This eliminated at once the physical nonefficients and the diseased. The troops were then put into a



FIG. 5. Debarkation Hospital No. 1, Hampton, Va. The buildings are part of the Hampton Normal Institute, which have been taken over for hospital use during the emergency.

close quarantine, usually for about ten days, during which they were subjected to a rigid daily physical inspection. Twenty-four hours before sailing, a final preembarkation physical examination was given and all men who were not physically fit or



FIG. 6. Delousing station, Debarkation Hospital, Newport, N. H.

who by reason of a communicable disease might endanger the health of the command, were rejected. A careful gangplank inspection ensured that rejected men did not sail and removed any who might have fallen ill after the preembarkation examination. A corps of specialists assisted the regular examiners for the detection of orthopedic and neuropsychiatric cases. As a final checkup on the efficiency of the work, reports of diseases occurring *en voyage* were made by the Naval Transport Surgeons.

Under the direction of the surgeon, the chief of transportation, Major N. E. Knewstep, discharged a valuable function in connection with embarkation, debarkation and evacuation. He was responsible for the sanitary inspection of transports and in this connection served on a board for determining the fitness of freight ships for conversion into troop ships. He made the assignments of medical personnel to army transports and superintended the outfitting of army troop ships with medical and surgical equipment and supplies. He conducted the final medical inspection of embarking troops at the gangplank and aboard ship, and superintended the care and removal of those taken ill on board prior to sailing. His duties in connection with debarkation and evacuation covered both land and water transportation of patients arriving from overseas. He was responsible for the sanitary condition of railway equipment and made the necessary arrangements for the routing of patients; the times of loading and dispatching patients; the number and character of cars required and the provisioning of kitchen cars. Certain classes of patients were transferred direct from the transports to Debarkation Hospital No. 51 by water. For this purpose the U. S. S. *Montauk* was used as an ambulance ship. She was loaded direct from the transport and at Hampton was met by ambulances which delivered the patients to the wards of the hospital. Patients destined for Debarkation Hospital No. 52 were loaded directly from transports on trains which ran into the dock sheds. Patients for the Embarkation Hospital were placed in ambulances which ran to the foot of the gangplank.

The specialties were looked after by a corps of experts in the surgeon's office and at the various camps and hospitals. Lack of space forbids detailed mention of their activities. As an example of the amount of dental work required the following report of the operations of the dental surgeons for the months of September, October, and Novem-

ber, 1918, may be quoted. Total patients treated 7,016; total sittings given 10,715; permanent fillings inserted 6,281; unserviceable teeth extracted 3,509; prosthetic restorations 273; root canal fillings 633. The orthopedic department operated in the hospitals and as expert examiners of embarking, debarking and demobilizing troops. The records show that from March 4, 1918 to December 31, 1918, they examined 163,169 men for embarkation and that of this number 148,151 or 90.7 per cent. were found normal. They board all ships carrying sick and wounded troops and inspect casts and dressings to correct or note their condition. The neuropsychiatrists assisted in the mental examination of embarking and debarking troops and as consultants to the hospitals and infirmaries. They also conducted the psychological examination of officers and men and made special studies on the mentality of women arrested by the military police.

The epidemiologist and historian, Surgeon W. C. Rucker, U. S. P. H. S., is responsible for the collection of morbidity and mortality data and other information relative to the occurrence of disease. He makes special studies looking to the prevention and control of the communicable diseases. He is the editor of the history of the surgeon's office. The port bacteriologist, Captain Charles B. Spruit, conducts the bacteriological and pathological work of the port. Under his direction the port laboratory has grown since December, 1917, from one small room and an equipment consisting of a microscope, a few stains and a meager amount of glassware to a two story tile building containing twenty rooms and all the equipment of a modern laboratory. During the calendar year, 1918, 53,056 examinations were made in this laboratory in addition to the accomplishment of a large amount of valuable research work.

Although the conduct of the service of medical supplies is now removed from the medical department, it functioned for a considerable time under the direction of the surgeon. It has handled for local consumption and overseas shipment over \$25,000,000 worth of medical property, of which the following items are only a small portion; 836 motor ambulances, 150,000 folding hospital cots, 1,633,870 yards of gauze, 4,898,000 first aid packets,



FIG. 7. Debarkation Hospital, Newport, N. H.

3,560,000 individual dressing packets, 8,960,000 one ounce packages of absorbent cotton, 3,881,540 gauze wipes and 12,370,000 packets of sublimated gauze.

During the calendar year, 1918, the Embarka-

tion Hospital admitted a total of 32,769 patients of which 10,990 were overseas sick and wounded. This institution has a bed capacity of 4,000 and is modern in all respects. It has a staff of ninety-four medical officers, seven dental officers, five sanitary officers, two chaplains, 155 nurses, and an enlisted personnel of 1,064 men. It has served as a hospital for the permanent garrison since its completion in January, 1918, in addition to being the hospital for embarking and debarking troops.

Debarkation Hospital No. 51 was formerly the National Home for Volunteer Soldiers and was transferred to the medical department by act of Congress December 12, 1918. It is ideally situated on a beautiful tract of land overlooking Hampton Roads and has accommodations for 21,000 patients. Hampton has been used for hospital purposes in almost all of the wars in which our country has en-

by Captain Walter A. Allen; and at the Army Supply Base one of 164 beds commanded by Major B. F. Duckwall. The entire chain of hospitals and infirmaries is inspected at frequent intervals for the correction of defects and the improvement of the service, by the hospital inspector, Major A. J. Colcord.

The Ports of Embarkation at New York and Newport News were in reality a part of the American Expeditionary Force. Had they been less efficiently administered our overseas operations would have been tremendously handicapped. The men who labored so unceasingly to keep the stream of healthy soldiers, well conditioned animals and adequate supplies moving continuously to France have received none of the rewards which come from European service, yet they merit and should be given the sincere praise and high respect of a grateful nation.



COLONEL CHARLES LYNCH, M. C.
Surgeon of the Port of Embarkation, Newport News.

gaged, beginning with Braddock's Expedition in 1755. At present this institution is used exclusively for the reception, classification and treatment of overseas patients.

Debarkation Hospital No. 52 is located on the James River, nine miles west of Richmond, Va. It occupies what was formerly the Westhampton and Richmond College and is situated in a large tract of rolling, wooded land. It was occupied on June 10, 1918, as General Base Hospital No. 22 but on December 8, 1918, was placed under the control of the surgeon of the port of embarkation as a debarkation hospital. Its 800 beds were largely used for convalescent overseas patients. Its use was discontinued March 1, 1919.

Smaller hospitals are located at several of the more isolated camps; at Camp Morrison one of 300 beds, commanded by Major Benjamin J. Butler; at Camp Hill one of thirty beds commanded by First Lieutenant James E. Carson; at Pig Point Ordnance Depot one of thirty-eight beds commanded

Drainage in Thoracic Empyema.—J. Christopher O'Day (*Surgery, Gynecology, and Obstetrics*, April, 1919) takes up the question of negative pressure versus free open drainage in thoracic empyema. Negative pressure drainage had for its object certain phases, and advantages, which showed in the ultimate results which did not belong to other phases of drainage. It reestablished and maintained the normal relationship between the lungs and affected cavities during the period drainage was required, and afterward left the lung capable of filling the space it filled prior to the onset of the infection; it prevented pneumothorax, and prevented the possibility of the introduction of secondary infections. The most successful plan was to realize that each case had peculiarities of its own and to adjust drainage according to the exigencies present. When an unresolved pneumonia of the opposite lung was present drainage might prove hazardous. Here negative pressure drainage was called for. When a normal lung was compressed, it did not lose its elasticity, but when an inflammatory process was present it prevented reexpansion. It is considered that the success attending pneumothorax in tuberculous lungs was due to this fibrosis. In dealing with chronic empyema cases the presence of a considerable dead space is expected and a chronic fistula may be present. It may require an Estlander or Schede operation to remedy these conditions. These would be prevented by appropriate initial treatment. In the cases recognized early in the disease an effort should be made to minimize the impairment of function by adequate drainage. The lengthened excursions of exaggerated respirations are possible with wide open drainage. Another advantage is the forced inflation when the outward excursion gathers up and sweeps the pus to the outlet. Chest abscesses simulate bone cavities; they do not fall together after incision. The integrity of the lung must be preserved. Drainage must not be haphazard but free enough so that no resistance is offered to the outward excursion of the lung by the escaping contents having to compress against the increased velocity of too small an opening.

Editorial Notes and Comments

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THE HYSTERICAL FACTORS IN DISEASE.

The fact that hysterical symptoms may be engrafted upon those of organic disease has long been known, but the frequency and importance of such a combination have not been widely recognized, and seldom fully appreciated. Probably the fundamental characteristic of the person in whom it is likely that one or more of the evidences of hysteria will develop is the existence of a state of abnormal suggestibility. With such a predisposition, among other elements in the makeup of the potentially hysterical person, it is not difficult to understand how hysterical manifestations become engrafted upon many of the disturbances caused by organic lesions. For example, the very slight disturbance of locomotion which may occur in the early stages of tabes or of disseminated sclerosis may serve to provide the suggestion which results in a marked hysterical paraplegia. Or in the case of any one of the many acute injuries or diseases of the central nervous system an initial organic paralysis or weakness, the cause of which may be only transitory and which may soon disappear, the originally organic manifestation may be perpetuated and even exaggerated in the form of a hysterical paralysis.

That the hysterical factor actually does play a very important rôle in the production and perpetuation of many symptoms which have their

origin in some organic disturbance has been demonstrated quite dramatically of late, largely as the result of studies made upon injured soldiers in the present war. In civil practice the same has been repeatedly demonstrated to be the case in not a few instances of incipient organic diseases of the nervous system, and it has even been suggested with considerable plausibility that many of the remarkable results secured in tabes by the reeducation methods of Frenkel are largely, if not wholly, due to the rapid removal of the purely hysterical elements.

Although it is not possible to go into any great detail in a review of the studies which have so far served to direct attention to the hysterical factors in certain organic diseases, enough has already been said to indicate the need of a more extensive and intensive investigation of this interesting problem. The illustrations cited deal with diseases and injuries confined to the central nervous system, but it does not require much effort to see many ways in which the symptoms of a very large proportion of both acute and chronic diseases of all types might serve to provide the stimulus of suggestion which would result in the development of a variety of hysterical symptoms. Thus in a potentially hysterical person the pain and disability of an acute arthritis might easily lead to the development of a hysterical monoplegia, or a more restricted hysterical palsy.

Attention should be called to the difficulty of excluding the hysterical element in such cases as show definite physical evidences of an organic disease which, itself, is sufficient to cause all the symptoms found. Probably the only means now available for the determination of the presence and extent of the hysterical factor in such cases as we are discussing is by giving the patient a thorough trial of what is now broadly termed psychotherapy. Of course, such treatment may fail to remove the hysterical manifestations entirely, or may remove only a small proportion of them, when present, and in such cases it would be practically impossible, in the face of certain definite physical signs of organic disease, to prove the extent, or even the presence, of the hysterical element in the symptomatology.

It must be borne in mind that research designed to evaluate accurately the rôle of the hysterical factor in organic disease should prove both profitable and deeply interesting. The problems which at once come to mind are so numerous that we shall

not even attempt to enumerate them, but we feel impelled to remark that they can all be approached and solved without the need of either laboratory or special technical appliances and are therefore within the reach of all.

MUSIC AND MEDICINE.

It is an attempt to express the inexpressible to state the service of music to the human mind. Music has uttered the aspirations and griefs, the desires and efforts and disappointments of all ages until culture took it in hand and mighty men with messages of strength and power caught it and built it into a marvelous orderly structure only to set it free to express the desires and aspirations of mankind. In the face of such a history it is easy to be led astray. Any individual intelligence or group of intelligences held under the limiting laws of ordinary thought and conception may snatch out one or two or three separate facts from the luminous mass which makes the whole of the history and influence of music. They may wrench and twist these as if they formed the one lever of all power. Music is the last field where this can honestly and successfully be done. Perhaps it is the last field but one where such a narrow course could be of any value. The field of psychotherapy, as modern psychiatry is coming to view it, is that other field, where any one element can be interpreted without all the others.

It is then a double calamity when something is narrowly snatched from either sphere and the two are brought together in a blind experiment. Is it not on the one hand a tampering with a science full of the widest possibilities and responsibilities toward human health and well being, and on the other a degrading of the noblest, most widely embracing art? No one would for a moment deny that music and mental and nervous therapy had many points of contact. Surely this is so if music represents such a great and varied expression of man's striving, an unlimited pathway up to his healthy self expression. It is the art which can touch man at the greatest number of points and, as one of its greatest exponents has said, enter most deeply into the inner life for which the way out to reality is otherwise too thoroughly barred.

So far so good. But what shall be said of an attempt to draw a few narrow deductions in the manner of logical thought, which is particularly characterized by ability to see only in one limited line at a time? Columbia University in her recently established course in musicotherapy and

reeducation proposes to discover or to point out the "specific musical instruments for specific ailments" in the "psychoses and neuroses of shell-shocked men"; the "effects of key, rhythm, dynamics, timbre, color, pitch, and vibratory musical massage for curative results." Is the course to proceed upon the assumption, fast becoming obsolete we had thought, that a few specific features constitute a neurosis or a psychosis, for which a violin tone or a softly fluted note or any other single agent or several agents could form the means of a complete revolution back to health and complete psychic readjustment? The word "curative" occupies a conspicuous place in the stated aims of this course.

Is it not high time, especially in so serious a department of life as the restoration from mental disorders, to give serious consideration to man as a whole rather than to continue separating his interests and disorders into narrow separate groups, thinking that they can be thus adequately dealt with? The musicians who most sway mankind are those who could not tolerate such separateness and disunion in their art. It is setting ourselves against their ideals to drag out specific musical features for specific ailments. Have not neurology and psychiatry a lesson to learn here from the artistic genius which always runs ahead of science? Neurology and psychiatry can only be successfully attacked with the conception of man's psychic life as the great and varied whole. Music strives to be recognized as such, and only with such a grasp of it and not in these falsely conceived applications can it be expected to have genuine therapeutic effect.

SYMPTOMATOLOGY OF RUPTURE OF THE CARDIAC¹ VALVES.

Any case of rupture of a valve of the heart, no matter of what type, produces a functional syndrome of a highly dramatic form and is always serious in nature. Pain and oppression occupy the foreground. The former is sudden, violent, and agonizing and located in the pericardiac region, frequently but not always radiating toward the epigastrium and back, toward the left shoulder and arm. The patient describes it as a tearing sensation in the cardiac region or as if a dagger had been implanted in the heart. The dyspnea, which occurs suddenly at the same time as the pain, is of great severity and not uncommonly there is also a tendency to lipothymia and occasionally a transitory state of syncope. Shortly after, a distressing cough occurs with bloody expectoration or perhaps even a true hemoptysis.

In some instances the cough and hemoptysis have been known to last for several days. Finally, an abnormal intrathoracic noise has been noted by some patients.

In the vast majority of cases these disturbances immediately follow the trauma or effort resulting in rupture of a valve, but it is to be remarked that some observers have mentioned an interval of several days before the onset of these phenomena; in one case the lapse of time was one week. In these cases the symptoms, which ordinarily are sudden in onset, develop progressively, almost imperceptibly, and therefore it is quite possible that Rannelletti's hypothesis is correct, namely, that the trauma cause a simple fissure in the valve and that from the blood pressure and movements of the valve, there is finally a complete rupture. The physical symptomatology varies. Immediately after the accident cardiac erethism is often noted, with epigastric pulsation and arrhythmia. But what is particularly characteristic is the development of heart murmurs of a very special tone. They are harsher and more intense than murmurs found in the endocarditides, and still more, they have a metallic, musical, piping tone quite evident at a distance of several inches or even several feet. These characters are in relation to the vibrations of the valvular shreds floating in the blood current, and this fact explains the frequency of very noisy murmurs in cases of rupture of the aortic sigmoids. The low tone often heard in mitral rupture is without doubt due to the fact that a completely ruptured cordage freely floats in the blood current.

As a result of valve rupture there is an insufficiency of the valve involved, so that in the case of the aorta and pulmonary artery the murmur will be diastolic and systolic for the mitral and tricuspid. However, it may happen, although most exceptionally, that the vibrations of a fragment of an aortic valve will give rise to a systolic murmur. Very frequently an intense vibration, either systolic or diastolic, occupying the area of the valve involved, can be noted. The time of appearance of these murmurs is rather difficult to estimate because the patients are usually examined some time after the receipt of the injury, but they probably occur very soon, as has been experimentally shown by Ferannini. It is, however, possible that in certain cases the insufficiency arises gradually by a progressive widening of a simple valvular fissure.

A most important point from the viewpoint of legal medicine is that the noisy piping character of the heart murmurs may disappear after a few weeks and there will be nothing by which

to differentiate them from those resulting from a nontraumatic lesion. This is important from the point of view of a late diagnosis which the expert must often be obliged to make. The evolution of traumatic valvular affections is, generally speaking, more rapid and serious than those of nontraumatic origin. This is a clinical fact, founded on an observation of many cases, but is not in accord with experimental work. The duration of life after rupture of some set of cardiac valves may be logically said not to exceed a year, but there are some exceptions to this statement.

The most common complications of valve rupture are embolus, sudden death, and progressive asystolia, and lastly a posttraumatic endocarditis. Ruptures of the mitral usually end in death in a few hours or weeks, rarely in a month or more. The evolution will be all the more rapidly fatal when the valve is already the seat of a pathological process.

THE SURGEON IN THE AIR.

The introduction of the airplane into war has opened up interesting possibilities for the surgeon. In the first place experience has demonstrated that the effective life of an aviator is a short one. The nervous tension under which he works frequently produces a condition of unstable nervous equilibrium which destroys his usefulness as a pilot at the front, though his experience still renders him of great value as an instructor. The training of an aviator is rather an expensive undertaking and he therefore becomes a valuable asset to the army and must be carefully looked after. For this reason it has been found worth while to attach flight surgeons to each aviation field whose duty it is to supervise the work and recreations of the flyers and to prevent their too rapid deterioration by a careful watch of their physical and mental conditions.

We recently published a description with illustrations of the aerial ambulances devised by our own air service, along lines laid out by the French surgeon aviator Chassaing. Indeed, the French have made considerable use of the aerial ambulance in the Sahara Desert and in other parts of Africa, where a regular line was established, enabling the surgeon to send patients over 500 miles in two days over a country almost impassable to ambulances both by reason of its rugged nature and the frequent raids of the enemy along the lines of communication. Even if unmolested it would have taken seven days by automobile or twenty-one days by camel train to move the wounded over this route, and they would have been subjected to great hardship on account of the rough character of the road.

Still another aspect of the medical use of airplanes is given by Professor Tuffier, the distinguished French surgeon in the May issue of *The Military Surgeon*, in which he describes his experience in sending surgeons from distances varying from ninety to several hundred kilometers to the assistance of a wounded general, who eventually was transported by an airplane a distance of ninety kilometers to a well equipped hospital, where under advantageous surroundings he made a prompt recovery. It is probably premature to contemplate the introduction of aeronautics into the curriculum of the medical schools, but we may look forward with certainty to the time when distinguished civilian surgeons will be asked to make journeys of hundreds of miles by airplane just as the French military surgeons were called upon to do in the desert.

THE NATURE OF SYMPTOMATIC ZONA.

An examination of the clinical and pathological data now at hand leads to the conclusion that zona may be compared very properly with Heine-Médin's disease and that the term acute infectious posterior poliomyelitis is perfectly legitimate. In both processes the pathological agent is unknown, nevertheless the study of acute infectious anterior poliomyelitis has recently entered into a new and fruitful phase. The experimenters who have endeavored to obtain decisive results in zona have not been able—on account of the benign evolution of the process—to work with the nervous elements in order to isolate a virus by culture or passage through animals. Therefore, they have selected the cerebrospinal fluid, the blood, or the liquid derived from the vesicles, and, although they have sometimes been able to discover a figured agent in these fluids, the fact remains that they have as yet never been able to reproduce even a beginning of the zona syndrome in animals.

The same cannot be said, however, of the results obtained by Raymond and Lot. These writers have been able to isolate a coccobacillus from the blood of two patients suffering from zona, and in one instance they were able to grow and inoculate it. The organism was rather polymorphous and its young elements were cocciform. The diplobacillus type predominated. They took the Gram stain and did not liquefy the gelatin medium, while the bacillus grown by Dopter from a case of zona gave rise to a cupule similar to that produced by the cholera bacillus. The colonies grown by Raymond and Lot on gelose were at first yellow and then turned

brown. Raymond and Lot hope to have found a means of proving the specific nature of the bacillus by the reaction of fixation. They obtained a deviation of the complement four times by employing the patient's microbe and serum as antigen and antibody, while once the deviation was positive with the bacillus from this same patient and the serum of another, in whom a figured element was found but could not be cultivated.

Finally, they endeavored by inoculation to demonstrate the zosterigenous power in both animals and man. Rabbits and guineapigs inoculated in the heart presented neuralgic symptoms and vesicular eruptions whose nature was confirmed by a histological examination of the nerve ganglions. More than one point of this interesting work requires confirmation. Sicard took up these experiments with monkeys, but he was unable to confirm the results obtained by Raymond and Lot. Therefore, the hope which was raised by these researches on the nature of zona, given the decisive progress made in spinal paralysis, has not been realized. What we know of zona as a disease is comparable to our knowledge of eruptive fevers and not of rabies or anterior poliomyelitis, whose experimental study is a model of exactitude and elegance.

THE NEW DEAN OF THE COLLEGE OF PHYSICIANS AND SURGEONS.

Colonel William Darrach, who has been appointed dean of the College of Physicians and Surgeons, of Columbia University, to succeed Dr. Samuel W. Lambert, has served as a surgeon in the British and American Expeditionary Forces for the past two years. Colonel Darrach was commissioned as surgeon in May, 1917, and left for the Western front with Base Hospital No. 2 on May 14th. He served at a British casualty station in France from July 20 to September 14, 1917, and from February until July, 1918, was in command of General Hospital No. 1 of the British Expeditionary Forces. He was then transferred to the American Expeditionary Forces and made consulting surgeon to the First Army Corps until October, when he was attached to the First Army, and a month later was made senior consulting surgeon at the Third Army headquarters. He was made a lieutenant colonel in June, 1918, and was promoted to the rank of colonel in March, 1919, for distinguished services. Colonel Darrach was born in Germantown, Pa., on March 12, 1876. He was graduated from Yale University in 1897 and from the College of Physicians and Surgeons in 1901. He has been connected with both the Roosevelt and Bellevue hospitals and had established a reputation as a surgeon and as an administrator before he entered the service.

News Items.

Return of Doctor Blake.—Dr. Joseph A. Blake, who has returned to America from France, is planning to resume his surgical practice here after a summer's rest. Doctor Blake was formerly professor of surgery at the College of Physicians and Surgeons.

Flight Surgeons to Meet.—The annual meeting of the National Association of Flight Surgeons, which includes all medical officers in the Air Service of the United States Army, will be held in Atlantic City, during or immediately preceding the meeting of the American Medical Association.

Influenza at Bellevue Hospital.—During the epidemic of influenza, more than 3,000 patients were cared for at Bellevue Hospital in three months. The daily census showed over 1,100 patients, principally in the medical wards. During this time, 144 nurses were ill, six of whom died, and there was a shortage of ninety-five head nurses.

Annual Meeting of Railway Surgeons.—At the annual meeting of the Association of Railway Chief Surgeons, held in New York during the past week, the following officers were elected: Dr. C. W. Hopkins, of the Chicago & Northwestern Railway, president; Dr. Duncan Evans, of the St. Louis, Chattanooga & Tennessee Railway, vice-president, and Dr. Louis J. Mitchell, secretary and treasurer. The surgeons visited the Army Base Hospital No. 4 on Staten Island.

Changes in the Medical Staff of Columbia University.—Dr. William Darrach has been appointed dean of the College of Physicians and Surgeons, to succeed Dr. Samuel W. Lambert, who resigned recently. Dr. William E. Studdiford has been appointed professor of obstetrics and gynecology, to succeed the late Dr. Edwin B. Cragin. Dr. Allen O. Whipple, associate in surgery, has been appointed assistant professor of pathology. Dr. Benjamin P. Farrell, instructor in orthopedic surgery, has been made assistant professor in the same branch of surgery. Dr. Louis Casamajor, associate professor of neurology, has been made a full professor, and Dr. Oliver S. Strong, assistant professor of neurology, has been made associate professor.

Ophthalmic Examinations.—The American Board for Ophthalmic Examinations will hold its fifth examination at the Wills Eye Hospital, Philadelphia, Friday and Saturday, June 6 and 7, 1919. This board is composed of representatives of the American Ophthalmological Society, the Section in Ophthalmology of the American Medical Association, and the Academy of Ophthalmology and Otolaryngology. By arrangement with the American College of Surgeons, the board has become the ophthalmic credentials committee of the college, and conducts the examinations of the ophthalmic candidates for fellowship in the college. Further information may be had upon request from the secretary, Dr. William H. Wilder, 122 South Michigan Avenue, Chicago.

United States Patients in England.—The total number of American soldier patients in hospitals in Great Britain during 1918 was 47,862. About one-fifth of them were wounded or injured, the remainder ill. When the armistice was signed, 9,310 American ill and wounded were being cared for in American hospitals in London.

Medical Association of the State of Alabama.—The fifty-second annual meeting of this society was held in Mobile on April 15th, 16th, and 17th, under the presidency of Dr. William F. Betts, of Evergreen. The following officers were elected: Lieutenant Colonel James Somerville McLester, of Birmingham, president and Dr. Walter Stratton Britt, of Eufaula, vice-president. Next year's meeting will be held in Anniston.

Personal.—Dr. Abraham Jacobi, dean of New York's physicians, celebrated his eighty-ninth birthday on Tuesday, May 6th.

Dr. William H. Welch, of Baltimore, has been awarded the gold medal of the National Institute of Social Science. The presentation was made formally, in absentia, at the annual dinner of the institute on April 25th by Mr. Theodore Marburg. Doctor Welch is now abroad attending the Red Cross conference at Cannes, France.

Interns Wanted at St. Elizabeth's Hospital.—The United States Civil Service Commission announces examinations open to both men and women, to fill vacancies in the post of medical intern at St. Elizabeth's Hospital, Washington, D. C. These examinations will be held at various places throughout the United States on June 4th and July 9th. Applicants must be graduated from reputable medical colleges, must be unmarried, and be twenty years of age or over on the date of examination. For further particulars, address the Civil Service Commission, Washington, D. C.

Eastern Medical Society.—A stated meeting of the society was held at the Hotel Brevoort, Friday evening, May 9th, under the presidency of Dr. Gustav G. Fisch. Dr. A. Strachstein, corresponding secretary of the society, read a paper on the venereal peril, and Dr. Boleslaw Lapowski read a paper on syphilis. The subject was discussed by Dr. W. S. Gottheil, from the standpoint of the syphilologist; Dr. E. Libman, from the internist's point of view; Dr. Israel Strauss, from the neurologist's viewpoint; and Dr. A. L. Garbat and Dr. G. L. Rohdenburg, from the point of view of the serologist. A general discussion followed.

Symposium on Alcoholism.—The Section in Neurology and Psychiatry of the New York Academy of Medicine has arranged the program for the stated meeting of the Academy to be held on Thursday evening, May 15th, with Dr. Joseph Byrne in the chair. The program, which consists of a symposium on alcoholism is as follows: What Constitutes an Intoxicating Beverage, by Professor C. P. Sherwin, of Fordham University; Alcoholism and Personality, by Dr. A. A. Brill; Some Psychological Aspects of Alcoholism, by Dr. L. Pierce Clark; Alcohol in Its Social Compensatory Aspects, by Dr. Smith Ely Jelliffe. The discussion will be opened by Dr. Bernard Sachs.

Canadian Associations.—The Canadian Public Health Association will hold its eighth annual meeting in Toronto on May 26th, 27th, and 28th., and will be a joint congress with the Association of the Officers of Health in Ontario. The annual meeting of the Canadian Medical Association will be held in Quebec City on June 25th, 26th, and 27th, at which Dr. Jasper Halpenny, of Winnipeg, will deliver the address in surgery.

New York Pathological Society.—At a regular meeting of this society, to be held in the New York Academy of Medicine, Wednesday evening, May 14th, under the presidency of Dr. Eli Moschowitz, the following program will be presented: Carcinoma of the Uterus in a Mouse, by Dr. William H. Woglom; Congenital Bilateral Hydronephrosis in an Infant, by Dr. I. Mufson; Extensive Bone Formation in the Thyroid, by Dr. Willy Meyer; Primary Carcinoma of the Fallopian Tube and Chorioepithelioma of the Fallopian Tube, by Dr. L. W. Strong; Is There a Parallelism Between Normal Agglutinins and Hemolysins of Human Blood, with Special Reference to Transfusion Tests, by Dr. R. Ottenberg and Dr. F. Kraenow.

Meetings of Local Medical Societies.—The following medical societies will meet in New York during the coming week:

MONDAY, May 12th.—Society of Medical Jurisprudence; New York Ophthalmological Society; Yorkville Medical Society; Williamsburg Medical Society.

TUESDAY, May 13th.—New York Academy of Medicine (Section in Neurology and Psychiatry); Manhattan Dermatological Society (annual); New York Obstetrical Society (annual).

WEDNESDAY, May 14th.—Medical Society of the Borough of the Bronx; New York Pathological Society; New York Surgical Society; Alumni Association of the Norwegian Hospital; Brooklyn Medical Association.

THURSDAY, May 15th.—New York Academy of Medicine; New York Celtic Medical Society.

FRIDAY, May 16th.—New York Academy of Medicine (Section in Orthopedic Surgery); Clinical Society of the New York Postgraduate Medical School and Hospital; New York Microscopical Society; Brooklyn Medical Society.

American Women Physicians in the Balkans.—Nineteen American women doctors are now in the Balkans, assisting the American Red Cross in its work of caring for the sick and destitute. These doctors are from the American Women's Hospital in New York and are located in Serbia, Montenegro, and Albania. Already their work has earned the warmest commendation of the government, and some of them have received decorations or been cited for conspicuous service among the soldiers and refugees. In Serbia the following women physicians are at work: Dr. Marjorie Burnham, of Ashtabula, Ohio; Dr. Mary H. Elliot, of New York; Dr. Harriet M. Gervais, of Dorchester, Mass.; Dr. Alberta M. Greene, of Judith Bay, Mont.; Dr. Lulu Peters, of New York; Dr. Marion C. Stevens, of Reading, Mass.; Dr. Regina Flood Keyes, of Buffalo, N. Y., and Dr. Mabel Flood, of Elmira, N. Y. Dr. Catherine M. Cook, of Washington, Pa., and Dr. Dora E. Bowman, of Kansas City, Mo., are assisting the American Red Cross doctors in Montenegro, while Dr. Nell G. W. Bartram, of Huntington, Pa.; Dr. Mary J. Hyndman, of Philadelphia, and Dr. Sarah E. Foulks, of Burlington, N. J., are doing similar work in Albania.

Medical and Chirurgical Faculty of Maryland.

—At the 121st annual meeting, held in Baltimore, on April 22d, 23d, and 24th, the following officers were elected to assume office on January 1, 1920: Dr. James E. Deets, of Clarksburg, president; Dr. Arthur M. Shipley, Dr. Thomas R. Boggs, and Dr. E. F. Jones, vice-presidents; Dr. John Staige Davis, secretary (reelected); Dr. Charles E. Brack, treasurer; Dr. Randolph Winslow, of Baltimore, delegate to the American Medical Association, and Dr. Lewellys F. Barker, of Baltimore, alternate.

Medical Association of the State of Tennessee.

—At the eighty-sixth annual meeting of this society held in Nashville on April 8th, 9th, and 10th, under the presidency of Dr. Richmond McKinney, of Memphis, the following officers were elected: Dr. Andrew F. Richards, of Sparta, president; Dr. Julius C. Brooks, of Chattanooga, first vice-president; Dr. Nicholas S. Walker, of Dyersburg, second vice-president; Dr. Albert W. Harris, of Nashville, third vice-president; Dr. Olin West, of Nashville, reelected secretary; Dr. Joseph F. H. Gallagher, of Nashville, reelected treasurer. Chattanooga was named as the next place of meeting.

Medical Society of the State of North Carolina.

—The sixty-sixth annual meeting of this society was held at Pinehurst, April 15th, 16th, and 17th, under the presidency of Dr. Cyrus Thompson, of Jacksonville, who gave an address on the Art of Living. The following officers were elected: Dr. Carl V. Reynolds, of Asheville, president; Dr. Herbert D. Walker, of Elizabeth City, first vice-president; Dr. F. Stanly Whitaker, of Kingston, second vice-president; Dr. Thomas I. Fox, of Franklinville, third vice-president; Dr. Benjamin K. Hays, of Oxford, secretary-treasurer; Dr. Chase P. Ambler, of Asheville, and Dr. Hubert A. Royster, of Raleigh, delegates to the American Medical Association. It was decided to hold the next meeting in Charlotte.

Civil Service Examinations.

—The United States Civil Service Commission announces three examinations on June 3d, open to men only. One is for an assistant to the medical director of the United States Employees' Compensation Commission, at \$2,000 a year. Applicants must have graduated from a medical school of recognized standing and have had at least one year's experience in federal, State, and municipal employ. Another will be for an assistant epidemiologist in the United States Public Health Service, at \$2,000 to \$2,500 a year. The duties of this position will consist of making epidemiological and sanitary surveys to determine the prevalence and causation of disease, conducting laboratory studies in relation thereto, and recommending measures to prevent and control outbreaks of disease. Candidates must have had experience in epidemiological work and laboratory technic, especially in regard to malaria and typhoid. The third examination will be for consulting physiologist in the Bureau of Mines, Washington, D. C., at \$10 a day when employed. The duties of the appointee will be to study the physiology of gas poisoning. For full particulars regarding these examinations address the Civil Service Commission, Washington, D. C.

Miscellany from Home and Foreign Journals

Symptoms of Hyperthyroidism in Exhausted Soldiers.—W. Johnson (*British Medical Journal*, March 22, 1919) directs attention to the fairly frequent occurrence of definite symptoms of hyperthyroidism in soldiers suffering from marked exhaustion. The most marked and constant of these symptoms include exophthalmos, subdued mental excitement, prominence of the eyes, lagophthalmos, constant fine muscular tremor, rapid pulse, sweating, and various subjective symptoms such as throbbing headache, nervousness, disturbed sleep, fatigue, and some digestive disturbances. Actual definite enlargement of the thyroid gland was uncommon. All of these symptoms diminished greatly, or totally disappeared, after several weeks of rest in bed, full diet, tonics, and the occasional use of a sedative. Among the more characteristic physical signs, aside from those referable to the eye, were variable but generally rapid pulse, elevated blood pressure, while the adrenalin test and deep pressure on the eyeball did not yield concordant results. The mechanism of the condition is suggested as being due to the accumulation in the body of toxic substances due to the prolonged hyperactivity of the thyroid, which in turn results from prolonged strain of life in the trenches. The various emotional responses associated with fear and rage are there continually provoked, while the opportunity of giving vent to the feelings is infrequent. This leads to continued hyperactivity of the several organs of internal secretion and the victim is deprived of the normal method of reaction so that the effects become perverted.

Experimental Investigation in Rickets.—Edward Mellanby (*Lancet*, March 15, 1919) cites certain clinical investigations which have shown the great prevalence of rickets among school children, its incidence running up to eighty per cent., and among children of a younger age, who also showed a very high frequency of the disease. He also points out that the commonly recognized bony deformities are only a small part of the lesions of rickets, which also include permanently defective teeth and a reduced resistance to various diseases, the latter accounting in very large measure for the high death rate among children in districts in which rickets is very prevalent. All of the changes common to rickets in the human can be observed in dogs and can be produced by appropriate dietary restrictions. Various theories as to the causation of rickets have been suggested and urged on the basis of insufficient evidence, but all of these can be shown to be untenable in the light of careful animal and human observations. The one chief factor so far discovered lies in the dietary and is concerned with a deficiency of those food substances which are known to contain the fat soluble A fraction. It has been possible to feed puppies in such a way that they maintain a normal rate of growth and preserve normal health, while at the same time they develop a progressive rickets. Such diets are always deficient in the foods containing the fat soluble A fraction and the addition of this substance to the diets

will check the development of the disease. It is not proved by such experiments, in the present state of our knowledge, that it is the lack of the fat soluble A fraction which is responsible for the development of the disease, for it has not been possible to exclude the coexistence with this food factor of some other factor which is specific for rickets. A careful study of the dietaries and living conditions of those families in which rickets appears agree with the dog experiments in showing a deficiency in the foods carrying the fat soluble A fraction. It has been contended that confinement, lack of exercise and unsanitary surroundings are the important causative factors in rickets, but it has been impossible to dissociate the occurrence of such factors from conditions which also lead to deficiency in dietary, and in animal experiments those factors have been proved not to cause rickets in the presence of an adequate diet. Such elements, however, do tend to diminish growth and seem to serve as added factors in causing the more rapid development of rickets when the diet is also specifically deficient. The occurrence of rickets in babies at the breast is attributable to a deficient diet on the part of the mothers, and the disease is known to be specially frequent in nursing infants in localities in which milk and other animal fats are costly and difficult to secure in sufficient quantities. Of the antirachitic foods the most active are good milk, codliver oil, suet, butter, and to a less extent meat and some vegetable juices. It is, however, to be borne in mind that milk may be very low in antirachitic properties when it comes from a deficiently fed mother, or from cows fed very largely on vegetable oil cakes and other substances to the exclusion of fresh grass.

Regulation of Quinine Treatment in Malaria.—H. Gros (*Paris médical*, February 8, 1919) asserts there is as yet no evidence tending to cast doubt on the possibility or even the frequency of a complete cure of malarial infection with quinine, no matter how long the infection has existed. The chief test of complete cure is whether, in a malarial country, and with the patient under observation for two or more years, symptoms fail to reappear in the warm season of the second year, after treatment with quinine in the preceding year. This test, however, is too time consuming, and it is more convenient to be able to recognize the advent of recovery by direct observation of the symptoms. From this standpoint, fever is the most inconstant among the ordinary manifestations of malarial infection. Last winter the author found parasites in the blood in many men back from Salonica who were in a condition of complete and lasting apyrexia. Splenic enlargement is also an uncertain sign. Anemic pallor is more constant, yet sometimes passes off without constituting a definite indication of improvement. Changes in the body weight are among the most reliable tests of the effect of quinine therapy. Impaired nutrition and loss of weight are the rule even in larval malarial infection, and regular weighing of the patient is

one of the best means of controlling the treatment. A fraction representing the amount of weight gained over the number of days required to secure the gain constitutes what the author terms the "index of renutrition." This index affords a means of exact comparison between different modes of administering quinine. The most constant and certain criterion of improvement, however, is the degree of abnormality of the red and white blood cells and the hemoglobin content—the latter most readily estimated with Hénocque's hemospectroscope. Treatment should be controlled by frequent microscopical blood examination. A modified Romanowsky method of staining, with azure blue substituted for methylene blue, is best and most convenient, though its efficacy depends upon the possession of a good preparation of watery eosin. With the oil immersion objective, altered shape of the erythrocytes, their coloration, metachromatism, the presence of basophilic granulations, and the existence of lymphocytosis and leucopenia, should be systematically studied and recorded. As soon as recovery takes place, all these blood changes disappear, while as soon as malaria is about to recur, they return.

Susceptibility to Quinine.—Regendanz (*Archiv für Schiff und Tropen Hygiene*, No. 21, 1917) describes cases in which the patients were very susceptible to quinine and were given the drug at the dose of ninety centigrams for prophylactic purposes. While under observation in these patients there developed a rather uniform clinical picture consisting of an urticaria with a scarlatiniform exanthema or a diffuse redness of the skin, and a generalized edematous swelling of the face and ears with fever ranging from 102° to 104° F. If only thirty centigrams of quinine are given daily for prophylactic reasons these quinine disturbances from idiosyncrasies will be avoided.

Differential Diagnosis of the Eruptive Fevers.—R. Fortier (*Bulletin médical de Québec*, April, 1919) dwells on the difficulty sometimes met with in distinguishing mild variola in a vaccinated subject from varicella. Typically the period of invasion in varioloid lasts at least three days, with fever, headache, and vomiting, whereas in chickenpox this period lasts but twenty-four hours and the symptoms are very mild. In some cases of varioloid recently encountered in the province of Quebec, however, the constitutional symptoms were slight or absent, and the diagnosis had necessarily to be based solely on the characteristics of the eruption. The eruption of varioloid begins on the face, in a single crop, lasting, on an average thirty-six hours, and the vesicle contains turbid fluid from the start, whereas in the varicella vesicle there is clear fluid. An indurated and bright red inflammatory areola about the lesion, together with umbilication, indicate varioloid. It should be borne in mind, however, that already on the second day chickenpox may show pustules or vesicles containing turbid fluid; but these pustules are superficial and do not involve the dermal layer, though at times these are umbilicated as in variola. In case of doubt lesions of different ages should be sought in various parts of the body as an indication of varicella. If doubt,

still exists the patient should be vaccinated once or twice with good vaccine and the results noted. Infectious or toxic erythemas suggesting scarlet fever are always somewhat polymorphous, morbilliform or urticarial aspects of the eruption being noticeable in certain regions; the throat and tongue are but slightly affected or not at all. Scarlatinoid erythemas in diphtheria generally appear rather late, but when they occur early desquamation of the tongue or skin must be awaited before the diagnosis is decided on, and the diphtheria bacillus in addition sought. In cases of incomplete scarlatina without desquamation or scarlatinal sore throat without eruption, the decision had better be made in favor of scarlatina, in order to avoid exposure of the patient to grave complications. The two really characteristic features of German measles which assist in its differentiation from measles and scarlatina are engorgement of the lymph nodes of the posterior and inferior aspects of the neck and of the axillae and inguinal regions; and the simultaneous presence of a morbilliform eruption on one part of the body, e. g., the face, and a scarlatinoid eruption elsewhere, as on the trunk. Ocular, nasal, and bronchial symptoms are lacking in morbilliform or rubeoliform erythemas of infectious or toxic origin.

The Normal Arterial Tension.—Claes Julius Enebuske (*Boston Medical and Surgical Journal*, March 6, 1919) draws the following deductions from his observations: Inasmuch as mental diseases in acute or subacute state, psychopathy, and pulmonary tuberculosis do not exist in persons who have stable arterial tension at a level higher than 140 mm., not exceeding 150 mm. Hg.;

Inasmuch as is in cyclothymia of manic as well as depressive state and in cyclothymoid schizophrenia the arterial tension during periods of remission becomes spontaneously reduced to a level higher than 140 mm., not exceeding 150 mm. Hg.;

Inasmuch as in pulmonary tuberculosis improvement is associated with a slow and gradual approach of the frequency maximum of all radial arterial tension values observed to a level ever nearer the value of 150 mm. Hg.;

Inasmuch as in schizophrenia, other mental diseases, psychopathy, and also in pulmonary tuberculosis, the arterial tension is promptly reducible, by chemotherapy, to a level higher than 140 mm., not exceeding 150 mm. Hg.;

Inasmuch as, during periods of remission in cyclothymia, and also in remissions of cyclothymoid schizophrenia, the maximum tension of the radial artery is found continuously at a level higher than 140 mm., not exceeding 150 mm. Hg.;

Inasmuch as in cyclothymia, in schizophrenia, and other mental diseases in acute or subacute state, as well as in pulmonary tuberculosis, the frequency minimum of all radial arterial tension values found is between 140 and 160 mm. Hg.;

And, finally, inasmuch as in healthy young adults of sound habits the frequency maximum of all radial arterial tension values found is at a level higher than 140 mm., not exceeding 150 mm. Hg.;

It stands proved that a maximum tension of the radial artery at a level higher than 140 mm., not over 150 mm., Hg., is the normal arterial tension.

Typhoid Carrier for Thirty-seven Years.—S. T. Champaloup (*British Medical Journal*, March 22, 1919) records his observation of a man seventy-two years of age who had always been in excellent health, but who was found to be a typhoid carrier. He suffered an attack of typhoid fever thirty-seven years before, from which time he had evidently been a chronic carrier, although he had never at any time had any illness or any evidences of gallstones or intestinal disturbances. During this period he had quite evidently been the cause of several local outbreaks of typhoid fever, the first occurring shortly after his recovery and involving about fourteen cases; the second took place two or three years later, three of the man's mates being then infected; the third occurred after another interval of three years and involved several persons, the fourth occurred about two years ago, his associate in work having been the victim; while the last instance was in 1918 and again involved an associate. Examination of the carrier revealed a fairly high serum agglutination both for his own bacillus and for the Oxford standard culture. The urine was always found to be free from typhoid organisms, but repeated examinations showed the stools to contain the organisms in numbers varying from several colonies to a culture up to almost pure cultures. Various efforts to cure his condition failed utterly.

Injections of Cherry-Laurel Water in the Treatment of Chronic Bronchitis and Pulmonary Tuberculosis.—Arthur Grimberg (*Paris médical*, February 8, 1919) maintains that the benefit observed from selenium and copper salts in tuberculosis was due largely to the cyanide radical with which the metals were usually combined. His own clinical observations showed that benzoyl cyanide in oily solution gives better results than the metallic cyanides. More recently he has been using the official French cherry-laurel water, which contains about one milligram of free hydrocyanic acid in every mil of solution. Experimentation in the lower animals showed that the preparation is relatively but slightly toxic. Symptoms of poisoning did not appear until a dose of .2 mil per kilogram of animal was reached. The heart continued beating a long period after respiration had ceased, and elimination of the poison was very rapid. Clinically intramuscular and intravenous injections were used in about twenty cases, and the present paper is in the nature of a preliminary report. The intravenous injections seemed to yield more rapid results. The injections were given twice daily, with a dose of one mil. No local reactions followed. In cases with hemoptysis some caution is necessary in employing the treatment; in cases with fever no rise in temperature was ever induced. Improvement appeared after six to eight injections, the symptoms being relieved in the following order: Dyspnea, cough, anorexia, and insomnia. Patients with fibroid tuberculosis seemed to experience the most relief from the treatment. Chronic bronchitis, whether tuberculous or nontuberculous, was regularly improved. In some instances a notable gain in weight followed. Generally the temperature was reduced, though only after about twelve injections.

Clinical Study of War Nephritis.—H. B. Day (*Archives of Diagnosis*, January, 1919) in a paper based on study of fifty cases in the early stages, points out that the course of war nephritis is marked by more or less evident changes at regular intervals of five or six days. The only other disease prevalent in the war that exhibits a similar periodicity is trench fever. The question therefore arises, whether war nephritis is not merely a complication of trench fever. Certain cases of war nephritis show all the signs of trench fever. A mild type of trench fever has been very prevalent, and the liability of trench fever to recur months after apparent recovery is notorious. The types of fever encountered in war nephritis and its modes of onset may be paralleled in trench fever. Albumin, often accompanied by microscopical amounts of blood, is frequently present in the urine during the initial stage of trench fever, while certain patients show a remarkable oliguria independently of the pyrexia and possible early albuminuria. The urinary flow may be almost suppressed for a period of twelve to twenty-four hours. The author thinks it highly probable that this renal injury may progress to actual nephritis under unfavorable circumstances, e. g., during cold and exposure. A large proportion of milder cases of trench fever do not report sick, and during his illness the patient may, therefore, continue to experience all the hardships of life at the front, being exposed to cold and wet and having a full meat diet. A strain is thus thrown on kidneys injured by trench fever infection, and nephritis may result.

Preliminary Thyroid Operations.—Goethe Link (*Journal of the Indiana State Medical Association*, March 15, 1919) describes two procedures to be employed in cases of thyrotoxicosis in which thyroidectomy would endanger the patient's life: one is injection of boiling water into the gland, the other ligation of the thyroid arteries. The injection of boiling water into the gland destroys a portion of the secreting substance and thus reduces the amount of thyroid secretion and the toxicosis. The chief objection to the method is that subsequent thyroidectomy is extremely difficult as the gland is held solidly in the neck by adhesions and the hemorrhage is severe. Its use should be limited to those cases in which we never expect to be able to do thyroidectomy. His technic for boiling water injections is as follows: With local anesthesia a horizontal incision one inch long is made through skin and platysma in the middle of the line of the regular incision for thyroidectomy. The gland is uncovered on each side over as great an area as possible by blunt dissection. Two or three injections of boiling water, one half to one ounce each, are made into each side, one in the middle of the lobe and one toward each pole. The syringes are taken out of the boiling water and the injection done as quickly as possible so as to get the full effect of the heat. To facilitate the handling of the hot syringes three pairs of gloves are worn, rubber, chamoisette, and rubber. Glass syringes with asbestos plungers are best. At the instant when the boiling water is injected there is pain; this may be obviated by a few inhalations of gas.

Transplant for Saddle Back Nose.—Penn G. Skillern, Jr. (*Annals of Surgery*, December, 1918) presented two cases of operation for the correction of the deformity of saddle back nose by rib cartilage transplant. The cartilage transplants were selected because they were never absorbed while bone transplants, unless they were in intimate contact with the bone and periosteum could not be relied upon and were ultimately more or less absorbed. Another advantage which was ascribed to cartilage was the ease with which it could be obtained and molded into the required shape. The elasticity between the intervening ends served to take up the slack which was present in the skin. It was supported by the frontal bone above and the septal cartilage below filling the latter to the required level without causing undue tension. The graft in this instance was not subject to fracture as would have been the case if a bone graft had been employed. The upper end of the graft was buried beneath the periosteum of the frontal bone with the idea of more firmly fixing the graft *in situ*.

Postoperative Complications of Tonsillectomy.—R. Imhofer (*Monatschrift für Ohrenkrank und Lar-Rhinologie*, 1917, Nos. 11 and 12) states that tonsillectomy offers a little less danger for postoperative hemorrhage than tonsillotomy, but that it is liable to be followed by postoperative infection. In one of the writer's cases the right tonsil could be easily enucleated, but the left tonsil extended along the velum far upward to the base of the uvula. The pillars were so intimately bound to the tonsil that a part of the anterior pillar had to be sacrificed. At the end of three days an inflammation on the right side developed, similar in type to a phlegmonous angina and the pillars became approximated to each other to such an extent that it was with difficulty that a little cloudy, nonpurulent liquid could be forced out. The patient recovered in eight days. In a soldier, enucleation of the right tonsil was done, but the removal of the fellow organ was postponed. Five days later a lacunar angina appeared on the left side with a peritonsillar abscess which necessitated incision.

Postoperative Parotitis.—Clifford V. Collins (*Surgery, Gynecology, and Obstetrics*, April, 1919) states that out of four patients in whom parotitis developed in 1915, three died. In the examination of the records it was found that out of 6,100 patients who had been operated upon, parotitis had developed in seven. In one patient parotitis with a fatal termination occurred while awaiting operation. Five of these patients were males and three females. All the patients had had abdominal operations and complications. In five of the patients both glands were involved and the right gland only in the remaining three. In six of the patients there was no evidence of suppuration in the glands. Three of the patients died so quickly parotitis did not have time to develop. The seven patients operated upon had received 1/100 grain scopolamine and one sixth grain morphine prior to operation. Scopolamine dries up the secretions of the mouth and salivary glands, but the one patient who died prior to operation had not received scopolamine

All the patients had been on the Ochsner treatment and for several days nothing had been administered by mouth. In 470 patients treated by oral starvation it was found that twenty-one cases of parotitis had developed while in 530 patients who were allowed something by mouth there were two cases. These two had been on rectal feeding but had been allowed to suck ice. The conclusions were as follows: 1, Secondary parotitis may complicate cases of gastric ulcer treated medicinally by oral starvation; 2, it occurs ten and a half times more frequently in such cases of gastric ulcer than in cases allowed fluid by mouth; 3, that it is the outcome of the dry condition of the mouth and that mouth washes do not prevent its recurrence; 4, that it is more often unilateral than bilateral; and 5, that suppuration occurs in about one fourth of the cases and is a grave complication. It is believed that the infection ascends Stenson's ducts. It has been attempted to stimulate the flow of saliva by giving patients various things to chew upon, e. g., raw meat or rubber teats. The latter seemed to have the desired effect, keeping up a constant supply of saliva and in this way the mouth was kept clean and moist. Another author, who is quoted sums the situation up as follows: 1, It is highly probable that secondary parotitis is due to an ascending infection of Stenson's duct; 2, the onset of this complication may be prevented by keeping the mouth clean before and after operation; 3, when the swelling does not show any tendency to decrease in size in about four days, it is advisable not to wait for fluctuation, as the pus located is beneath the dense parotid fascia.

Osteomyelitis of the Frontal Sinus.—G. Hofer (*Monatschrift für Ohrenkrank und Lar-Rhinologie*, 1917, Nos. 11 and 12) reports an interesting case of a patient who showed a swelling the size of a thumb over the superointernal aspect of the left orbit which was painless but depressible on pressure. The ocular globe was forced outward and downward. Vision was good and the fundus oculi normal. There was pus in both the left and right middle floor of the nose. Radiological diagnosis was osteomyelitis or new growth of the left frontal sinus. Operation exposed a large purulent cavity communicating with the left frontal sinus and in which a nonadherent sequestrum was floating which had become detached from the lower wall of the sinus. The posterior wall of the sinus was scraped in three places, while the right frontal sinus and both ethmoidal and sphenoidal sinuses were cleansed. Recovery. In a second case the patient presented a tumor the size of a hen's egg below the left eye. Operation showed that the lower and anterior walls of the frontal sinus were completely necrosed with the presence of nonadherent sequestra. There was also a sequestrum from the posterior wall of the right sinus. Death in forty-eight hours. Necropsy revealed an acute edema of the brain, pyencephalitis and an acute meningitis of the base and convex aspect of the brain. The osteomyelitis was the result of pus retention; the inflammation of the mucosa and development of polyp on the mucous membrane prevented the flow of pus from the sinus.

Technic of Quantitative Estimation of Urea, Ammonia, and Total Nitrogen in the Urine.—Howard D. Haskins (*Northwest Medicine*, March, 1919) presents a detailed series of directions for the performance of these three important quantitative estimations, in which he has both simplified the technic and reduced it to a series of procedures so direct that the average clinician can carry out the estimations himself. The necessary apparatus employed has also been simplified to the point of its being neither bulky nor expensive. The tests themselves are the classical ones, the technic alone having been modified to meet the limitations of the practitioner. The only exception in this respect being the substitution, in the ammonia test, of a titration method in place of the colorimetric determination after Nesslerization. In this titration method the ammonia is determined by titration against one seventieth normal sulphuric acid, sodium alizarin sulphionate being used as the indicator.

A Peculiar Affection of Upper Incisor Teeth.—Louis Dubreuil-Chambardel (*Bulletin de l'Académie de médecine*, January 21, 1919) has met with about forty instances of a condition clinically so uniform as to warrant its recognition as a separate nosological entity. About the fourteenth year of life there appears a process of decay involving simultaneously the upper four incisor teeth. The remaining teeth are normal at the time, as was observed in twelve subjects less than twenty years of age. The process is one of dry caries, which leads usually within four or five years to destruction of these four incisors. Anatomical studies seemed to show that the condition was related to a failure of union of the superior maxillary and incisor bones, a true synarthrosis having been found between them in nine skulls exhibiting caries of the four upper incisors. The author also suspects that the condition is favored by imperfect development of the anastomoses normally present between the anterior and posterior dental arteries—the vessels from which the blood supply of the affected region is derived.

Fecal Fistula Following Strangulated Hernia.—William D. Haggard (*Annals of Surgery*, September, 1918) in citing a number of cases of strangulated hernia states that practically all cases which are unrelieved by operation, terminate fatally from shock or peritonitis. He estimates that about five per cent. of these patients recover. In rare instances the destructive process will penetrate the sac and the skin and the patient will recover with a fecal fistula and an artificial anus. Five cases of this type are reported. Four of these occurred in women and one in a boy of six. Three were femoral and two were inguinal. The period preceding the perforation was from ten days to two weeks. Two ruptured spontaneously and the remaining three were opened for the resulting abscess. All drained fecal matter. Two healed naturally, two after freshening the margins of the opening, and one required abdominal section with detachment of the intestinal loop from its entrapped position in the femoral ring and suture of the opening. The patients all recovered.

The Treatment of Medical Cases by Deeply Penetrating X Rays.—Stepp and Wirth (*Therapie der Gegenwart*, May, 1918) consider the principal indication for this treatment, other than in the leucemic processes, to be tuberculosis and principally tuberculosis of the peritoneum and afterward that of the genitourinary tract and of the lymph nodes. It is likewise advantageous to combine the x ray treatment with the quartz lamp. The results of this treatment in Basedow's disease and goitre are far less certain. The writers also obtained very remarkable results in cases of chronic arthritis which unquestionably had a bad prognosis.

Arsenical Eruptions.—Darier and Jamin (*Presse médicale*, January 27, 1919) observed twenty-nine cases of arsenical eruption among Tunisian malingersers who had ingested a mixture of thapsia and arsenic trisulphide. In the milder form, unaccompanied by fever, the eruption resembled that of measles and was localized on the extensor surfaces of the extremities, especially in the distal parts. Recovery occurred in three days. In the severe form, with fever and gastrointestinal manifestations, the morbilliform eruption of the onset extended and became scarlatiniform. At the end of six days there appeared a desquamation in broad flakes in which arsenic was recovered. The urine was aluminous and also contained arsenic.

Insusceptibility of Monkeys to Blood from Measles Patients.—Andrew Watson Sellards and John A. Wentworth (*Bulletin of the Johns Hopkins Hospital*, March, 1919) are unable to confirm the work of other investigators, who have reported the transmission of measles to monkeys by the inoculation of blood from cases of measles. In their work three monkeys were so inoculated, two of them receiving a second injection, and none of the animals developed symptoms which could be interpreted as measles. The blood from one monkey was inoculated into a volunteer, who likewise remained well. It therefore seems that progress in the investigation of the circulating blood for the virus of measles cannot be satisfactorily accomplished by the inoculation of monkeys.

Investigations on the Origin of Tumors in Mice.—A. E. C. Lathrop and Leo Loeb (*Journal of Cancer Research*, April, 1919) report the continuation of their studies of mice strains in which the tumor rate for earlier generations was determined. In later generations the constancy of this rate is remarkable, although in a few cases it increased and in several there was a distinct fall. These changes are considered due to either the result of long continued inbreeding, so that certain characteristics of a strain change, or else to differences in resistance to disease, or in prolificness in certain families of the same strain, which causes some families with a different cancer rate to preponderate to an unequal degree in different generations. Hence an apparent change in the whole strain would be only due to the effect of selection among certain constituents of the strain. In general, these recent observations show the tendency of tumors to appear late in life in mice with a low tumor rate, and early in life in those with a high rate.

Picric Acid Disinfection of the Skin.—Charles L. Gibson (*Annals of Surgery*, February, 1919) in seeking for a substitute for tincture of iodine as a disinfectant for the skin, on account of the disagreeable caustic effects which the iodine had produced, found that a five per cent. solution of picric acid was a satisfactory substitute. This method has been the routine mode of disinfection in the British Armies for some time. It did not cause irritation of the skin. It has been used for about 100 cases at the New York Hospital and there is not a case recorded where a patient had the slightest tendency to skin irritation or any evidence of discomfort. The use of picric acid had all the advantages of tincture of iodine and none of its disadvantages.

Syphilis in Hepatic Cirrhosis with Ascites.—Courtois-Suffit and René Giroux (*Presse médicale*, January 30, 1919) report the clinical histories of four patients admitted with the diagnosis of alcoholic cirrhosis of the liver and presenting a positive Wassermann reaction both with blood and the ascitic fluid. The authors consider that in Laënnec's cirrhosis syphilis plays, in some instances, an important rôle in the production of ascites, as does also alcohol in tuberculosis. Their four patients recovered after intensive specific treatment comprising intravenous injections of cyanide of mercury and iodides in large doses. In every case of cirrhosis of the liver, even in the absence of a positive Wassermann reaction, it is advisable to institute a systematic and prolonged course of antisyphilitic treatment. Slow but progressive recoveries are thus sometimes obtained.

Susceptibility of the Skin to Dichlorethylsulphide (Mustard Gas).—E. K. Marshall, Jr., Vernon Lynch, and Homer W. Smith (*Journal of Pharmacology and Experimental Therapeutics*, December, 1918) calls attention to the enormous differences in sensitiveness to this substance in different individuals. Two experimental methods were used in the study of these differences. The first consisted of exposing the skin to mustard gas vapors under constant conditions and determining the minimum time of exposure necessary to produce a visible reaction within twenty-four hours; the second consisted of applying to the skin a series of drops of standard solutions of the compound in paraffin oil—usually one per cent., 0.1 per cent., and 0.01 per cent. solutions—for a period of ten minutes and observing the appearance or absence of erythema at the points covered by the several drops twenty-four hours later. The results showed that the skin of one man may be about 600 times as sensitive to mustard gas as that of another. In a large group of white men tested, there were found to be about two or three per cent. of hypersensitive men and twenty to forty per cent. of resistant men. The negro race proved to be much more resistant to the gas than the white race. Sweating and moisture increase the sensitivity of the skin to the gas. Again, one may become more sensitive from continued exposure to the gas, especially when severely burned. The authors believe the increase of sensitivity from continued working with the substance to be of an anaphylactic nature.

Moving the Duodenum to the Left.—P. Clairmont (*Zentralblatt für Chirurgie*, Nos. 14, 15, 1918) shows from experiments on the cadaver and on the living that it is possible to move the duodenum starting at the left. The transverse colon and the proximal loop of the jejunum are retracted and the plica duodenojejunalis becomes tense. The latter is then incised, the peritoneal leaf is retracted and the duodenal portion is dissected off with the fingers from the raised retroperitoneal connective tissue.

Prophylactic Value of Leary's Vaccine.—Harry Lee Barnes (*Journal A. M. A.*, December 7, 1918) sought to determine the value of this influenza vaccine as a prophylactic, observing all factors of control so that the results should be clear cut and definite. The vaccination apparently lowered very slightly the morbidity from influenza among exposed persons as compared with nonvaccinated persons. Its administration, however, had no influence upon the mortality among those who contracted the disease.

Deformity of the Head of the Humerus in Recurring Shoulder Dislocation.—L. Bazy (*Presse médicale*, January 16, 1919) describes a hatchet or mallet like deformation of the head of the humerus in subjects with recurring shoulder dislocation. In the subjects referred to, the same anatomical peculiarity was noted in the humerus of the sound side, suggesting that the deformity is not the result but rather the predisposing cause of the dislocation.

Two Cases of Dislocation of the Teeth.—H. Mearns Savery (*Lancet*, March 1, 1919) reports two cases, in each of which two of the front teeth were completely dislocated from their sockets. In one the teeth were removed, placed in saline, the sockets carefully cleansed, and the teeth reinserted. One or two marginal sutures were placed in the gums and the jaw bandaged shut so that the teeth were held in place by biting on a lint pad. In the other case the sockets were cleansed and the teeth replaced without previously removing them from their still considerable attachments to the gums. In both cases the teeth became solidly fixed in their original positions and both patients could use them for normal biting a few months after the accident.

The Production of Tetany by Sodium Bicarbonate.—George A. Harrop, Jr. (*Bulletin of the Johns Hopkins Hospital*, March, 1919) reports the case of a colored woman who swallowed two seven and a half grain tablets of bichloride of mercury. From the time of her admission to the hospital she passed blood in the urine and stools. The usual vigorous measures to secure a large fluid intake and to eliminate the mercury were instituted. She became totally anuric, and remained so until her death. She was given intravenously on two successive days 500 and 700 c. c. of a five per cent. sodium bicarbonate solution, which made a total of sixty grams of sodium bicarbonate administered intravenously. Following the last infusion she suddenly grew pale, became apprehensive, had great inspiratory difficulty, numbness and tingling of fingers, with the hands assuming the typical obstetrical position. There was pedal spasm and Chvostek's sign and Trousseau's phenomenon was elicited.

Epidemic Somnolence.—Beverley R. Tucker (*Virginia Medical Monthly*, March, 1919) applies this term to the cases of epidemic encephalitis or encephalitis lethargica reported at various times from Europe, South America, and the United States—a condition marked by rigidity, cranial nerve involvement, occasional headache, and vomiting and marked somnolence from which the patient can be momentarily aroused. The author reports having had seven cases under his observation, and refers to others recently encountered in Virginia. The disease does not seem to be particularly contagious, nor is it very fatal, as recently none of the patients died. The somnolence comes on with a slight rise in temperature, an increase in intracranial pressure, various cranial nerve involvements, and sometimes spasticity or automatism. At times there is headache, nausea, and vomiting. The patients can be aroused for a few minutes at a time, lie in one position, and there is incontinence of urine and feces. Several of the patients have recovered in a few days, but others remained somnolent for many weeks. No specific causative organism has been found.

Autogenous Vaccines in the Treatment of Wounds.—L. Julien and De Lareinty-Tholozan (*Presse médicale*, February 6, 1919) report a case of wound of the thigh, closure of which was prevented by the repeated formation of furuncles in the surrounding skin. A sensitized autovaccine, prepared from the staphylococci obtained in pure culture from the wound, checked the furuncles completely after two injections, administered at an interval of forty-eight hours. This favorable result led the authors to extend the treatment to certain other classes of cases, e. g., sluggish wounds with streptococcic pus, suppurating for weeks or months without improvement, and wounds infected with *Bacillus pyocyaneus*, an organism sometimes rendering fruitless, even for long periods, all attempts at secondary suture. The vaccine is made from material collected from the depths of the wound with a platinum loop and inoculated on an agar slant. The tube is incubated for forty-eight hours, and the colonies formed, then scraped off and made into an emulsion with five mils of Leclainche and Vallée polyvalent serum. Contact of the germs with the serum results in the production of a sensitized vaccine, which is advantageous in that it possesses both the rapid immunizing properties of serums in general and the property of lasting immunization characteristic of vaccine therapy. While lasting immunization in the treatment of war wounds is not necessary, use of a nonautogenous polyvalent serum alone might not antagonize the particular strains of organisms present in the individual case, and the authors therefore prefer the use of sensitized autogenous vaccines. The bacterial emulsion is incubated for at least an hour and a half, centrifugated, the sediment washed twice with normal saline solution, and the emulsion heated twice at 56° to 60° C. for an hour each time. The bacteria are then counted and the preparation adjusted to fifty million organisms per mil. One mil is injected as the initial dose. The authors present curves illustrating the benefit obtainable from vaccine treatment in pyocyaneus and streptococcus wound infections.

Chemical Means of Curbing the House Fly.—Géorges Boye and René Guyot (*Bulletin de l'Académie de médecine*, January 21, 1919) found caustic alkalies or acids and sodium cresylate (cresotate) the most efficient chemicals for destroying fly larvæ. A mixture of potassium permanganate and formaldehyde solution also proved useful. As for the adult flies, substances having certain odors and tastes were taken as guides in the experiments. Formaldehyde, with or without addition of milk or casein; pyrethrum powder and cresol tend merely to drive away the insects rather than destroy them. A mixture of formaldehyde, pyrethrum powder, and denatured alcohol, sprayed in a sick-room, soon drove out the numerous flies that had been infesting it. As destructive agents, black arsenic or cobalt, and castor oil, gave excellent results. The former, placed even in very small amount in a dish containing water, attracts hosts of flies which die in it or a short distance away. Other arsenical products, such as sodium arsenate, potassium arsenite, Fowler's solution, sodium cacodylate, atoxyl, etc., gave little success, and arsenic trioxide proved far less efficacious than black arsenic. Apparently the alliaceous odor of the latter accounts for the marked attraction it exerts on flies. Salts of lead, zinc, copper, and mercury were found wholly useless; likewise, powdered squill, quassia, opiates, belladonna, resorcinol, picric acid, and other phenol derivatives. On the other hand, castor oil gave striking results, with or without addition of syrup or sugar. The flies were attracted and dropped dead into the oil in large numbers, the remainder succumbing a short distance from the plate. The best agent of all proved to be castor oil, thirty grams, with croton oil, two drops, added. Flies are killed almost instantly by this combination, which possesses the further advantage over arsenicals that it is not poisonous to man. Olive oil and peanut oil proved valueless. The castor and croton oils may therefore be supposed to possess a specific toxic influence upon the house fly.

Functional Paralysis of the Diaphragm with Acceleration of Respiration.—Alexander Watson and J. S. Meighan (*British Medical Journal*, March 15, 1919) say that attention has recently been directed to the rapid, shallow type of breathing found in late cases of gassing. The condition has been associated by Haldane with an exaggeration of the Hering-Breuer reflex. The condition has also been observed in patients in whom nervous symptoms developed as the result of shell shock. Two cases are recorded in considerable detail, both patients showing a marked acceleration of breathing, the rate varying between 50 and 80 a minute, associated with considerable subjective dyspnea. Careful study served to eliminate any pulmonary condition or infection as the cause in either case, but respiratory tracings taken simultaneously from the chest and the abdomen showed quite distinctly the presence of paralysis of the diaphragm which was believed to be due to a functional disturbance of the centre of the phrenic nerves. In one of the cases the tachypnea persisted throughout sleep, while in the other the respiratory rate fell to about normal when the patient was asleep.

Proceedings of National and Local Societies

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting Held Wednesday, April 2, 1919.

The President, Colonel WILLIAM J. TAYLOR, in the Chair.

Advancement in the Treatment of Wounds and Infections Resulting from the War.—Dr. John H. Gibbon, late colonel, M. C., U. S. Army, and consultant in surgery, A. E. F., said that as a result of the war the treatment of wounds and infections had been enormously advanced and this must of necessity influence the practice of civil surgery. Regarding the question of new antiseptics, there was not, nor in his opinion would there ever be an antiseptic that could supplant the aseptic treatment of wounds. The war had definitely taught the one great lesson in the prevention of wound infection, immediate and complete mechanical cleansing—what the French call *débridement*, and what we might call mechanical antisepsis. To express in a single term just what was meant the word “excision” had been employed, and Crile had made use of the term “revision,” but neither was comprehensive. Doctor Gibbon believed that this mechanical cleansing was the most important step in wound treatment, and the care with which it was carried out determined the proportion of wounds which might be immediately and completely closed, and the proportion of infections and deaths from infections. There must of necessity be a large majority of wounds which could not be immediately closed. The lapse of time for the occurrence of infection, the presence of comminuted bone, and the necessity for immediate transportation were factors rendering immediate suture unsafe. One of the difficult things to give up was partial closure of wounds with the introduction of drainage. Partial closure, however, was an error, because it was much easier to sterilize and close a wound secondarily which had been left wide open, than one which was partially closed with a drain. Primarily, the credit of successful wound sterilization was due to Carrel and Dakin, but the surgeons in the American service owed much to Depage, LeMaistre, Duval, and others who had either elaborated or simplified the technic.

Doctor Gibbon said that he had never appreciated what the Carrel-Dakin treatment was capable of accomplishing until he saw it properly employed in Carrel's own hospital at Compiègne. He was not prepared to say that other agents, such as dichloramine-T would not sterilize infected wounds, but he did think there was no method so universally applicable and reliable as the Carrel-Dakin treatment. This statement was based not upon his own experience alone, but upon a fairly wide observation in many American, French, and British hospitals. The two criteria for judging the germicidal power of any of these agents were the fall in the bacterial count and the ability to close the wound completely. In no field of war surgery had the advance been so remarkable as in the treatment of gunshot wounds of joints. At the end of the war a surgeon who

did not close a gunshot wound of the knee joint was open to the criticism of not doing up to date surgery. In the treatment of gunshot wounds and infections of the chest the advance had been second only to that of joint surgery. Probably the greatest improvement in the treatment of pleural infections was due to Depage, who sterilized the pleural cavity with Dakin's solution. The gas bacillus was the cause of more amputations and deaths than any other organism. The tetanus bacillus was practically destroyed by the systematic use of prophylactic injections.

Medical Impressions of the War.—Dr. GEORGE WILLIAM NORRIS, late colonel, Medical Corps, United States Army, said that in his opinion trench fever, the new, specific, definitely established disease of unknown etiology was the greatest incapacitating factor in the British Army. Its transmission by the body louse was universally accepted. It was virtually unknown in the American Expeditionary Forces, except in the experimental volunteers. A ward full of trench fever patients was one of the gloomiest spots on earth compared with the cheer of the surgical pavilion. Experimental investigations had shown that the disease was a specific entity, due to a filterable virus, present especially in the plasma of the blood. The infective agent might also be found in the urine and sputum of trench fever patients. Major J. E. Sweet had had good results from the intravenous administration of collargol, although the number of patients treated was small owing to the scarcity of the drug. The term trench foot had been applied to the vasomotor, nervous, and trophic disturbances of the feet of soldiers exposed to wet trenches. It was possible to relieve pain and hasten cure by the administration of sodium iodide, in doses of twenty grains, three times a day.

Influenza apparently differed not at all from that seen in the United States. It was especially fatal among those who did not promptly report at sick call. At ports of debarkation the most harrowing scenes were witnessed. On one transport there were 500 cases of pneumonia. It was reported also that on the *Olympic* alone on one occasion there were 1,500 cases of influenza and on the *Leviathan* there were 1,200 cases and over 100 corpses on board. Ships upon which the procedure of masking was rigidly carried out had practically no influenza. In only about two of ten chest wound cases sent to the evacuation hospital had surgical intervention been required, as aspiration of the intrapleural blood was generally sufficient unless infection was present. The physical signs in these cases differed greatly from those seen in civil life. Nearly always the diaphragm was high on the affected side, which produced a tympanitic note at a level above that at which such a sound was normally encountered. Tympany over an injured lung was very common, and might result from free intrapleural air, relaxed lung, high abdominal viscera, or gas bacillus infection. Hemothorax, pulmonary

collapse, or both might occur without penetration of the chest wall, or on the side opposite to that of the injury.

One of the commonest mistakes made by one not familiar with war wounds was that of diagnosing a pneumonia on the unwounded side. Cardiac displacement was one of the most important criteria for judging the location and size of an effusion. A field hospital full of freshly and badly gassed men was the most horrible and ghastly sight of the war. To see a hundred or more men, hale and hearty a few hours before, slowly strangling to death from pulmonary edema was a sight never to be forgotten. The cyanotic patients were promptly bled one pint, sometimes two, and the ward looked like a shambles. Oxygen was administered. Opium was not used, as it checked a cough which was often life saving. Digitalis administered intravenously with timely bleeding had snatched many a man from the jaws of death. For the victims of the mustard gas little could be done. Their faces were red and blistered, their eyes swollen shut, edematous, and weeping pus. With the removal of their clothes there came large areas of skin. Fever was present, with dyspnea, chest pain, delirium, and incessant cough. These patients died a lingering death from bronchopneumonia, and in their terminal delirium they fought their battles, cursed the Hun, or called to loved ones at home. No one could go through the last twenty months of the war abroad without being profoundly influenced and broadened, but that the internist had profited by the acquisition of professional experience and knowledge was, to say the least, doubtful.

Dr. JOSEPH SAILER said that the opportunities in clinical medicine offered by the army base hospitals here and abroad had been exceptional in the matter of the very large number of cases of individual disease presented for our observation. In this way it had been possible to test various methods of diagnosis and treatment. At Vichy hotels had been used for hospitals, and while they were well equipped they were not ideal. The fearful labor of climbing the stairs was a great disadvantage. The stretcher bearers in the hospital centres were deserving of much praise. Perhaps 600 bed cases in a consignment of 1,200 patients would be carried from the first to the sixth floor, only to be carried down again to the x ray room. Not in all the Vichy hotels was there an elevator large enough to carry a stretcher. Great difficulty was encountered in attempting to isolate the various cases, the pneumonia from the influenza and gas cases. Another difficulty was in handling the infectious diseases. During an epidemic of diphtheria, by masking everybody in the hotel and taking cultures of every one at intervals of twelve hours it was possible to minimize the number of cases.

Dr. JAMES E. TALLEY said that in fifteen months serving with the Navy in France he personally saw but one case of typhoid. That was in a man of fifty-five in an American hospital, who did not take the prophylactic treatment since it was not required of men of his age. He was attacked with typhoid and died of perforation. In the early part of the war it was necessary to treat infectious diseases in

one shack, separated only by curtains. There were cases of measles, diphtheria, scarlet fever, mumps, and cerebrospinal meningitis, but no case of crossed infection.

Dr. CLIFFORD B. FARR stated that not all mustard gas cases were so severe as those described by Doctor Norris. After seeing with Doctor Norris a group such as he had mentioned, Doctor Farr said that he had seen some 200 cases slightly gassed with "mustard" gas in which hardly a death occurred. At the experimental field histological studies of tissue had been made from exposed animals, also pathological studies of human material sent from the gas hospitals. In practically all the cases of mustard gas poisoning (human) destructive changes had taken place in the larynx, trachea, and bronchi, even down to the smallest bronchi the epithelium was entirely destroyed. Infection followed, so that in practically all the cases the lesions of bronchopneumonia were present. An interesting feature of the pathology was that some of the later cases showed regenerated epithelium coming from the mucous glands and spreading out on the surface of the bronchial tubes. This was stratified squamous and not the normal ciliated epithelium. What the histological lesions might be in the patients who recovered could only be determined by autopsies in "cured" gas cases in which death resulted from other causes.

Dr. ALFRED STENGEL said that the newer ideas regarding the diagnosis and treatment of empyema, and the use of immune serum in the treatment of disease impressed him as important medical contributions of the war. In the use of immune serum he had had opportunity to confirm some of the work done in the army service. About five years ago he had treated cases of pneumococcus pneumonia by the injection of immune serum from patients just convalescing from the disease. These results had been satisfactory although the work was not carried very far. In the recent epidemic of influenzal pneumonia Doctor Stengel said that the most encouraging results had been reported in the army and navy from the use of immune serum and along this line his own recent experience had been confirmative. In fifteen cases of pneumonia so treated there had been only two deaths. If the use of immune serum could be put on a basis of usefulness for pneumococcus pneumonia, as well as for influenzal pneumonia, something of extraordinary value would have been achieved.

Dr. JOHN H. W. RHEIN said that not much that was new had come out of the study of the nervous phenomena of warfare. Probably the greatest problem was presented by the condition termed "shell shock." Profiting by the experience of the English, neurological hospitals had been established some distance behind the lines and provision made to send patients from the field hospitals to the army neurological hospitals from which they were evacuated to Hospital No. 117, which had been provided for neurological cases. It was estimated that by these provisions eighty per cent. of the patients could be restored and not sent back to the hospitals.

Dr. H. A. MACKNIGHT believed that in the surgical cases in which the patients had been gassed the

administration of ether produced cyanosis in the patients. With ethyl chloride an operation of half an hour or an hour could be carried out without alarming symptoms. The French used ethyl chloride quite extensively.

Dr. S. SOLIS-COHEN said that he would like to ask Doctor Stengel if he did not recall the observations made by Dr. William E. Hughes something like thirty years ago at the Philadelphia Hospital with Doctor Carter, now of Texas, who was then an intern, on the use of convalescent serum in pneumonia. They had treated a number of patients with striking results, following the method of two German physicians named Klemperer. They had given up the method because of a number of failures. The serum of convalescents from scarlatina, he said, had been used for many years both in Europe and America with excellent results, and many suggestions had been made, or attempts instituted, for similar procedures in all infections, including even gonorrhea, syphilis, and tuberculosis.

Meeting Held Wednesday, March 5, 1919.

The President, Colonel WILLIAM J. TAYLOR, in the Chair.

Observations on Otolaryngology in the War.

—HARRIS P. MOSHER, Lieutenant Colonel, Medical Corps, U. S. Army, took up the question of oral and plastic surgery, a subject which overlapped otolaryngology as it was generally practised. Fully half of his observations were assembled in 1915 while serving with the British. Otolaryngology in the United States was considered and discussed. The division of surgery of the head of the Surgeon General's Office, Washington, D. C., established two special hospitals and the section of otolaryngology was represented in them. The first hospital was at Cape May, the second at Vichy in France, and was known as No. 115. Before the personnel selected for it arrived, due to the Chateau Thierry drive, the beds had been filled with general surgical cases. Major Ivy reported, however, that in the section on maxillofacial surgery 305 cases of this character had been treated in the four months ending January 18, 1919. The dentists at Cape May had a unique opportunity to compare the results of the different types of splints used overseas. This splinting work was one of the best American contributions to the surgery of the war. He came away from Cape May feeling very proud that the division of surgery of the head had fathered such a modern hospital. The number of special cases which will be brought from overseas for treatment was roughly estimated as follows: Peripheral nerves, 5,000; maxillofacial, 300; blind 250 to 300; ear, 300 to 500; cases for instruction and lip reading, 100. The capacity of the Cape May Hospital was about 700 beds. Two things which had impressed him profoundly during the war were the dental work and the associated plastic work of the face. Interdental splints, the restoration of the form and function of the jaw by a vulcanite plate which allowed the patient to use his jaw at once and furnished a surface over which defects in the lip or cheek could be repaired, and the use of bone transplants for large losses of substance had supplemented the cruder methods of treatment of four

years ago. It had been learned during the war that the loss of a very large amount of bone from the lower jaw could be replaced by nature. The loss of even as much as an inch of bone at the symphysis would finally be bridged across if the ends of the jaw were immobilized by an interdental splint. Otolaryngologists should acquaint themselves with the possibilities of the mechanical help that the dentist could give the surgeon who did plastic work on the nose and face. At Epernay Colonel de Schweinitz and he found Majitot implanting sheep and lamb cartilage for supports in plastic operations of the face. Gillies at Sidcup used human cartilage. While the methods of using a double skin graft over a stent, and of burying cartilage and turning down at a later period the flap containing it, were not new, the war had brought these procedures into very great prominence.

Major SCOTT and his collaborators in dealing with the causes of mastoiditis said that by locality infection was meant the occurrence in a locality or army post of a certain organism which is found to predominate either singly or combined, in infections occurring in that particular locality or army post. At one camp, for instance, the hemolytic streptococcus would be the organism found in the tonsil crypts, in pneumonia, in mastoiditis, or other diseases, while in another camp the pneumococcus, or streptococcus viridans would be the prevailing organism. Any one of these organisms could become virulent for a certain period and then apparently be of little consequence. However, when an epidemic of tonsillitis, measles, scarlet fever or influenza occurred, then the particular organism for a certain locality suddenly assumed the rôle of a secondary invader and became the predominating factor in complications. That the temporary home for this locality infection organism was in the tonsil crypt was undoubtedly true, while the accessory nasal sinuses are at times the home of the organism. One should conclude that the occurrence of mastoiditis as seen in army cantonments depended upon the surroundings of the individual and the presence of a virulent organism such as the streptococcus or pneumococcus. Further, that the invasion of the mastoid occurred directly from the nasopharynx or the blood stream. There was something uncanny in the sudden acquisition of great virulence by certain bacteria which had been for a time harmless. Further than the knowledge that overcrowding, fatigue and chilling of the human body were important causative factors in this result, the process was a mystery. With the solving of this problem preventive medicine would take a great leap forward. The war had brought into startling prominence the long known fact that the throat especially, the nose and its accessory sinuses were the primary lodging places of the bacteria responsible for the infectious diseases and those that were sputum borne.

DUNHAM, the man who had freed Bar Harbor of flies, had devised a gang spray for use with troops and demonstrated that a thousand men could be sprayed within an hour. He showed that the spraying with dichloramine-T markedly reduced the bacterial flora of the nose and throat. From the extended study made in the camps it would seem

to be a good plan in civil life to regularly culture the nose and throat of all hospital personnel and to spray with dichloramine-T the nose and throat of every patient.

Among new clinical observations by the otolaryngologists in the cantonments, Major Owsley described a series of cases of ulcerative laryngitis due to the pneumococcus, distinguished by a superficial ulceration of the anterior ends of the vocal cords, the chief symptoms being hoarseness and aphonia. There had been a ready response to treatment with solutions of silver. Major Eagleton had placed successfully a bone graft from the tibia in the cavity of the mastoid process produced by a simple mastoid operation. At one of the base hospitals there were a number of cases of hysterical aphonia, "Whispering Willies," as they were called. The psychiatrist had great success in curing them. Holmes and Harris had drawn attention to the advantageous use of gas oxygen in producing anesthesia for mastoid operations in pneumonia cases. Porter and Orton reported similar cases operated in under local anesthesia. In thirty-nine mastoid operations at Camp Zachary Taylor during January five were bilateral. In a retrospective view of our war experiences we could say that draft examination should have been more thorough. There could have been closer cooperation between the camp and the base hospital. There was no provision for an automatic interchange of special personnel. Special instruments and supplies were late in getting to hospitals and overseas. Hospitals at the port of embarkation should have been thoroughly equipped and staffed.

Dr. GEORGE B. WOOD stated that from the experiences in the otolaryngological department at Camp Meade it seemed that the hemolytic streptococcus found in healthy carriers was not particularly dangerous, but that when there existed an acute infection due to this organism a spread of the infection was very likely to take place unless great care was exercised to prevent contact. He believed that the danger of droplet infection was not quite so great as has been suggested by some. Major Teague in speaking of his work in Manchuria with the pneumonic plague said he believed one foot would represent the danger zone of coughing, and that for the infection of culture media and guineapigs a distance within six inches of the patient's face was necessary. Dichloramine-T was tried in acute coryza with little success. Dakin's solution was very valuable in clearing up mastoid infections. The use of dichloramine in carriers gave good results with meningococci, but had little effect with the Klebs-Loeffler bacillus.

Lieutenant Colonel V. P. BLAIR gave as the basis of their treatment of injuries the theory that if they could have received the patients early there should have been no reason why in the majority of instances the injuries should not heal early. In no part of the body did the tissues, either bones or soft parts, heal more kindly than in the face, and no place was more resistant to infection. In almost every hospital in France in which he saw good dental work done there was a university man back of that work. In order to give early treatment to face

and jaw injuries it was necessary to have surgeons and dentists who would work together. After the St. Mihiel drive they had in almost every advanced hospital a good dentist. The face injuries of this war were probably not over one per cent. of all injuries. If the war had continued Colonel Blair believed that it would have been possible with the cooperation of the dentists, to get this type of surgery on the same basis as that of other surgery.

Dr. S. MACCUEEN SMITH asserted that one of the outstanding advances of this recent war had been the recognition of otolaryngology as a specialty in the United States Army. The statement that drooping of the superior posterior wall as a well recognized symptom of mastoid disease had fallen somewhat into disrepute he thought was to be challenged. Failure to find this evidence of mastoid disease was probably due to overlooking the fact that the symptom was present only when the higher cells and the mastoid antrum were involved. This did not in any way alter the fact that if the disease was confined largely to the tip the sign mentioned above would not be present, but operation was required.

Problems Resulting from Acquired Deafness.

--Dr. WENDELL C. PHILLIPS, New York city, said that there should be as much interest in the social and economic problems pertaining to deafness as we are in the treatment of aurai affections. We are too prone to look upon deafness as a rare condition when this was not the case. The Twelfth United States Census returns showed that 89,287 of our inhabitants were totally deaf, and to this number must be added the far greater array of those partially deaf. Doctor Phillips said that it was estimated that in the city of New York there are at least 100,000 people more or less incapacitated as a result of partial deafness and of these probably eighty per cent. are of the working class.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of Wednesday, February 26, 1919.

The President, Dr. B. F. STAHL, in the Chair.

Acidosis in Children.--Dr. J. P. CROZER GRIF-FITH stated that acidosis in contradistinction to acetonuria indicated a decrease in the alkali of the blood irrespective of the actual amount of acetone bodies which were being excreted. It was accompanied by a decrease of the carbon dioxide tension of the alveolar air, an increase in the hydrogen ion concentration of the blood and a great lessening of the reserve of the alkali in the blood. Two facts were brought prominently to our attention in the matter of acidosis in children. The first depended upon the statement that acidosis and acetonuria were distinct. It was only by the occurrence of symptoms of acidosis or by laboratory tests that the relative excess of acid in the blood and tissues could be determined. Equally important was the second fact, that symptoms of acidosis seemed especially prone to develop in children. This might have depended upon the small reserve of alkali characteristic of early life, or upon the facility with which children manufactured the acetone bodies without any discernible sufficient reason. Although we

thought of acidosis in connection with diabetes in children, there were other causes which seemed more frequently operative. He had observed a female child aged three and a half whose splendid general condition was changed and a fatal coma occurred which was caused by an ill considered change in diet. In recurrent vomiting attributed to acidosis he had never been able to convince himself that acidosis was present. A prominent cause of acidosis, especially in infancy, is severe diarrhea of the noninflammatory form in which there is a large loss of liquid from the intestine. In all cases in which we fear the development of acidosis there should be free administration of alkali, especially bicarbonate of soda and enough should be given to keep the urine alkaline. If given subcutaneously it must be especially prepared; boiling for sterilization renders the solution very irritating. So far as preventive treatment is concerned, we unfortunately have little to guide us in the matter of anticipating the condition.

Acidosis in Pregnancy.—Dr. COLLIN FOULKROD hoped that we might soon have a national, impartial, nonindividual cabinet of experts who would, in an unbiased manner, seek theories of relief and give them a thorough laboratory and clinical tryout. If by acidosis was meant a displacement of the free alkaline content of the blood by the volatile fatty acids we were discussing a picture which had not yet been thoroughly worked out in its relation to pregnancy. If, on the contrary, we meant a superficial clinical picture of conditions which were relieved by alkaline treatments as a diagnostic point without laboratory investigation we may find some application in pregnancy. The crucial point in acidosis is the reduction of the alkaline contents of the blood below a point which would enable it to carry off the carbon dioxide in the tissues to protect the internal respiration. In both internal and external respiration of the complicated metabolism of pregnant women, certainly at some point, when disturbed, evidence of acidosis appeared. Recalling that ammonia played a protective part in the blood in preserving the normal free alkaline contents we could see that the digestion of proteids in the liver and the catabolism of fats into the fatty acids were interrelated. So much so that Zweifel not only diagnosed acidosis as the cause of eclampsia, but identified the specific acid as sarcocollactic. It had occurred to him that acidosis might simply be one stage in the different forms of toxemic conditions, which might even be a fatal stage and yet the principal cause of these different toxemias be different, as for example, kidney inability to carry off acids in deranged metabolism in placenta and uterus, deranged liver function, deranged thyroid function. It was therefore readily seen that the simple correction of acidosis would have little or no bearing on the solution of the difficulty so far as pregnancy was concerned. The quick manifestation of acidosis in influenzal infection in pregnancy showed that the highly sensitive metabolism of the pregnant woman was nearer the danger line than that of the non-pregnant woman. After a careful reading of the many studies made of acidosis he thought we were unable to say just what it led to in pregnancy.

This, however, did not set aside the possibility of preventing such acidosis from occurring in the course of toxemia. In many toxemias of pregnancy, particularly in the presence of a high ammonia elimination, there had been found a good prophylactic and curative measure, the rectal instillation of an alkaline antiacid solution in combination with glucose. This had a particular bearing in the nausea of pregnancy and other forms of insufficient metabolism. It was certainly true that the alkaline treatment in the early stages of influenzal infection sometimes prevented acidosis.

Alkali Treatment Applied to the Acidosis of Epidemic Influenza.—Dr. THOMAS C. ELY read a paper on this subject which was published in the NEW YORK MEDICAL JOURNAL, April 5, 1919.

Letters to the Editors.

TEACHING GYNECOLOGY IN MEDICAL SCHOOLS.

DETROIT, MICH., April 29, 1919.

To the Editors:

The article on The Two Commonest Sequelæ of Labor, by Barton Cooke Hirst, of Philadelphia, which appeared in the NEW YORK MEDICAL JOURNAL, for April 26, 1919, has some good points in it, but some I decidedly object to.

First, "The education of medical students in obstetrics is not what it should be in America; a much higher standard prevails in other countries." I deny this. Some countries have a better course. I will admit that the course can be improved here, but I claim that the medical teachers in this country (and there are certainly from 300 to 400), give a good course in obstetrics. The students can learn if they want to, and they do as a rule.

In the second place, I object to the statement, "self-styled gynecologist prevalent in America in the past and still existing but in diminishing numbers." I deny this also. The gynecologists in the past and the men who made modern gynecology were all teachers of obstetrics for years, and were developed into gynecologists in the course of time. Every one of them whom I know, has been preaching in season and out of season, in the class rooms, publications, and in medical societies, the need, value, and means of preventive gynecology. I will admit that the newer gynecologist often becomes so immediately after graduation, and have never been an obstetrician and general practitioner for at least five years, as he should be.

Third, I object especially to the following statement: "But, as we know, the specialists who assumed this designation as a rule devoted themselves solely to the surgical treatment of certain conditions, the majority of which were the rather remote consequences of labor. Having no experience with parturition and its immediate consequences, such men were not qualified to advise the general profession as to the preventive and curative treatment and even had they been, it was too much to expect that they should voluntarily cut off sixty per cent. of their business, for at the very least, this

proportion was furnished by the inefficient conduct of labor and management of the puerperium by physicians in general practice." This is certainly an insult to the profession. Even if there are a few grafters, no one has ever dared to accuse them of gloating over the ignorance of the obstetrician so that they would have plenty of business.

There is a cause for bad obstetrics which has not been mentioned by any one so far as I know, and that is the women have no patience, insisting on early anesthesia, and instruments. Consequently, these are frequently used too early. The other is the cowardice of the attending physician in not insisting on the time factor in confinement instead of hurrying things, and his cowardice in not admitting that there is a tear or injury, which as a rule is not his fault, and insisting on a thorough investigation and prompt repair. The teaching of these latter points and impressing them upon the students, is worth more than hundreds of lectures on the signs and symptoms of pregnancy.

J. H. CARSTENS.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

The Secretion of the Urine. By ARTHUR R. CUSHNY, M. A., M. D., LL. D., F. R. S., Professor of Pharmacology, University of London, University College; (formerly of the University of Michigan, U. S. A.) With diagrams. London and New York: Longmans, Green & Co., 1917. Pp. xi-241.

Cushny here presents a most readable monograph which we heartily recommend to our readers both by reason of its style as a literary production and for its sympathetic handling of an important and most difficult problem. To the reviewer's mind a doctor's library could most profitably be made up of this kind of work, interspersed here and there by masterly texts which attempt wider surveys in briefer and more condensed form.

The work done by the kidney is enormous. Our writers on metabolism and dietetics, who continue to prate about 3,000 to 6,000 calories as adequate to supply the energy of the human body, should read this book and carefully consider where the million foot pounds a day come from which are utilized in the single function of urea separation. Three thousand calories can deliver about 250,000 foot pounds, and the urea separation function, one of a million energy delivering systems of the human body, alone delivers many times this amount. The mechanistic theories of the texts which are popular fall flat in view of Cushny's discussion of the "vital" energy of the kidney secreting cells. Even Cushny does not answer the problem—or would avoid a philosophic phrasing of it. He falls back upon the "vital energy" of the kidney secreting cells as the best answer that can be given to the problem of "how does the kidney do it?" When the average student of life's phenomena will lift his eyes above the level of the belly and commence to realize that in the synthesis which we call human life a

new energy condenser was manufactured by man in thinking; that ideation, concept, generalization, in short that which may be called "symbols" are the most important energy sources; that the twenty-six chemical ingredients of the human body only supply material combinations whereby energy may be delivered into human conduct, then we shall begin to know something about the "vital" energy of the kidney as well as the workings of the human being as a personality and not simply as a collection of physicochemical organs.

The Organs of Internal Secretion. Their Diseases and Therapeutic Application. A Book for General Practitioners. By IVO GEIKIE COBB, M. D., M. R. C. S., Late Assistant to Out-Patient Physician, the Middlesex Hospital. New York: William Wood & Company, 1917. Pp. ix-228.

We are not much impressed by Cobb's little book. The author has stated that he has conscientiously gone over the evidence of more elaborate studies, which are partially listed in an inadequate bibliography, but we do not find it so. Organotherapy has become a widespread illusion in the reviewer's opinion, quite as deadly as polypharmacy and the blind empiricism of pharmacotherapy, and this poorly digested, inadequately presented and superficial *vade mecum* will tend to do harm rather than good. There is no doubt that the constitutionalist insistence on the importance of the ductless glands is well founded. The medical man of America needs to know more than he does, but quiz compend knowledge which purports to be other than fragmentary is to be looked upon with caution. The busy doctor still is too much swayed by the consideration that he wants his books boiled down. There can be a point when such sketchy types of knowledge are distinctly disadvantageous to the "busy" practitioner.

Surgical Treatment. A Practical Treatise on the Therapy of Surgical Diseases for the Use of Practitioners and Students of Surgery. By James Peter Warbasse, M.D.; Fellow of the American College of Surgeons, American Medical Association, American Academy of Medicine, New York Academy of Medicine; Surgeon to the Wyck-off Heights Hospital, Brooklyn, N. Y.; Formerly Attending Surgeon to the Methodist Episcopal Hospital, Brooklyn, N. Y. Volume III. Illustrated. With Complete Index to Volumes I, II, and III of Warbasse's Surgical Treatment. Philadelphia and London: W. B. Saunders Company, 1919. Pp. 861.

In this, the final volume of the set, the author has maintained the same high standard of excellence which marks the two preceding volumes. The subjects treated are quite varied and some of them are of unusual interest to the surgeon as well as the general practitioner. Among these might be mentioned the surgery of the newborn, electricity and radiation, injuries from electric currents, gas poisoning, and the economics of surgical treatment. The major part of the book is devoted to a thorough consideration of the genito-urinary organs, the vermiform appendix, rectum, and the extremities, in addition to which there is an elaborate discussion of the subject of hernia. All of these subjects are treated with considerable detail and illustrated by the aid of nearly a thousand cuts and drawings of unusually high character.

There is very little to be criticized in this fine volume and much more to be said for it than this

brief review will permit. It is to be regretted that the author has not seen fit to use certain words in their strictly correct meaning, as for instance, the indiscriminate use of tubercular and tuberculous to describe the same condition. It is also quite likely that urologists will take exception to the author's recommendation of four per cent. cocaine solution in the deep urethra as anesthesia for cystoscopy. It is a sincere commendation of the fine quality that characterizes this volume, when a critical review can produce no more serious faults than those just mentioned. The author and his publishers are to be congratulated on this excellent addition to American surgical literature.

A Textbook of Pathology. With a Final Section on Post-mortem Examinations and the Methods of Preserving and Examining Diseased Tissues. By FRANCIS DELAFIELD, M.D., LL.D.; Sometime Professor of the Practice of Medicine, College of Physicians and Surgeons, Columbia University, New York, and T. MITCHELL PRUDEN, M.D., LL.D.; Emeritus Professor of Pathology, College of Physicians and Surgeons, Columbia University, New York. Eleventh Edition. Revised by Francis Carter Wood, M.D., Director of the Pathological Department, St. Luke's Hospital, New York, and Director of Cancer Research, Columbia University, New York. Illustrated. New York: William Wood & Co., 1919. Pp. vi-1350.

The eleventh edition of this standard textbook on pathology has been rewritten to a large extent. The general form of the work has been retained but it was found necessary to make extensive changes to conform with the advances and latest findings in pathological anatomy. Matters which are as yet under general discussion and about which no definite conclusions have been reached are not represented. The principal changes which have been made are found in the chapters on tumors, the urinary organs, the reproductive organs of the female, and on the bones and joints. The illustrations are extremely clear, those in color being exceptionally brilliant and tend to resemble stained sections as seen under the microscope. Many new illustrations have been added. Considerable material on the subject of pathological physiology has been incorporated in the book, but the topic is taken up in a general way and cannot be said to completely cover the field. Topics on which there is still considerable discussion are freely taken up and references are liberally made to monographs and papers which discuss both sides of the question. It would be difficult to improve on the material as presented for a general textbook or for a convenient reference book for the general practitioner.

Bref och Skrifvelser af och till CARL VON LINNÉ. Första afdelningen. Del. vii. Till och fran svenska enskilda personer. Hasselgreen-Kallström. Utgifna och med upplysande noter försedda af Th. M. Fries och J. M. Hulth, Upsala Akademiska Bokhandeln. Berlin: R. Friedländer und Sohn, 1917. Pp. 192.

This volume comprises a part of the Swedish correspondence of Carl von Linné, a series of foreign letters written in Latin having been collected by J. M. Hulth in a former publication. These letters reflect the characteristics of the Linnean era (1730-1780), a period marked by high scientific attainment and a passion for studious pursuits, especially in the field of natural history, that of botany becoming a universal fad. The foremost botanists were invariably also doctors of

medicine and they gathered around their leader and their inspiration, Linné, forming an ever widening circle of correspondents, and the documents in epistolary form that have been handed down to us—many of them being in the library of the Linnean Society of London, now collated and serially arranged in these volumes—give an interesting insight into the activities of the scientists of this age, their arduous and patient labor, their capacity for taking infinite pains. Among the younger correspondents were some who were directly indebted to Linné for his friendly patronage and help in procuring for them the wherewithal to carry on their travels of research and they vied with one another in narrating the result of their studies—*descriptiones rerum naturalium præstantiorum*. Many and varied were the topics discussed in the letters, depending on the locality which they were exploring. Now the *Iter Palæstinum* now the *Flora Lapponica*—from Egyptian vipers and horned snakes to the reindeer plagues in Lapland and the mode of treatment, for the practice of medicine included *arsveterinaria*. While the Swedish Linnean correspondence has more of the personal touch than the foreign letters written in Latin—the universal language then in vogue among scientists—they have much in common with these latter as to their general style, a tone of ceremonious courtesy, sometimes effusive to the point of flattery.

The Medical Clinics of North America. Philadelphia Number, November, 1918. Illustrated. Philadelphia and London: W. B. Saunders Company, 1919. Pp. 645-920. (Price, \$10.00 a year.)

Nearly one half of the papers contributed to this volume deal with the subject of influenza in its various aspects. Taken together they constitute a very valuable contribution to our knowledge of this much debated and very disastrous epidemic disease. No one who is interested in a study of influenza can afford to neglect this series of papers. The remainder of the volume is made up of a series of contributions upon various medical topics, the entire number being of the high type of excellence so characteristic of the papers presented in the Medical Clinics.

Births, Marriages, and Deaths.

Died.

BEAM.—In Khartoum, Africa, on Tuesday, April 15th, Dr. William Beam, of Philadelphia, Pa.

DESMOND.—In Worcester, Mass., on Monday, April 28th, Dr. Clarence Francis Desmond, aged forty-seven years.

FETZER.—In Evansville, Ind., on Monday, April 14th, Dr. John E. Fetzer, aged fifty-five years.

JONES.—In Brookline, Mass., on Friday, April 25th, Dr. Everett Jones, aged fifty-one years.

MERZBACH.—In Brooklyn, N. Y., on Monday, April 28th, Dr. Joseph Merzbach, aged sixty-two years.

RORABAUGH.—In Seattle, Wash., on Wednesday, April 16th, Dr. Clyde Roy Rorabaugh, aged forty years.

SMISSON.—In Memphis, Tenn., on Monday, April 14th, Dr. Hugh C. Smisson, aged forty-three years.

VOORHEES.—In Newton, N. J., on Saturday, April 26th, Dr. Egbert Shepherd Voorhees, aged fifty-nine years.

WYMAN.—In Gardner, Mass., on Saturday, April 26th, Dr. Harry W. Wyman, aged forty years.

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Original Communications

ENCEPHALITIS LETHARGICA.

BY ALFRED GORDON, M. D.,
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Von Economo and Von Wiessner, of Vienna, and Pribram, of Prague, in 1917 described a mesencephalic symptom group, to which they gave the name of lethargic encephalitis. The condition appeared in epidemic form. The following year similar observations were made in France and England. A historical investigation shows that in 1892 Henry, of Switzerland, and Longuet, of France, described a comatose form of grippe which in every detail corresponds to encephalitis lethargica. The affection appears to be of a toxoinfectious character, judging from its mode of onset. A febrile state, headaches, backache, chills are invariably present in the beginning. A triad of symptoms characterizes the disease, viz., somnolence; palsy of mesencephalic nerves, especially of the motor ocular nerves; finally a febrile state. Before entering into a discussion of the pathogenesis of the manifestations, the following three cases that came recently under the writer's observation are reported:

CASE I.—Man, aged thirty-five, bookkeeper, had some infectious process which his family physician called grippe. He complained of headache, insomnia, generalized pain and his temperature was 100°. On the sixth day of his illness he commenced to be somnolent and this condition kept on progressing, so that the patient had to be wakened for nourishment. He would then open his eyes, answer a few questions and resume his sleep. It was evident that there was an effort on his part to converse, but his intelligence was absolutely intact. At the same time it was observed that there was a paralysis of both upper eyelids and of the internal rectus of the left eye. At the time of the examination the temperature by the axilla was 99.3°. The latter soon came down to normal. A careful examination revealed nothing pathological with regard to the reflexes, motor power of the limbs, sensations, sphincters, and viscera. Complete recovery followed in three weeks. Lumbar puncture gave negative cytological results. Wassermann of the blood and spinal fluid was negative.

CASE II.—A woman, aged twenty-seven, gave birth to her first child. Delivery normal and no complications whatsoever. On the tenth day she had a chill, temperature 101.2°, headache and backache. Palsy of both upper eyelids occurred.

The pupils became unequal ($R > L$) and responded sluggishly to light and accommodation. At that time it was observed that the patient became somnolent, which condition became more and more pronounced. Soon the left facial nerve became paretic, the face was drawn to the right. When the patient was awakened to partake of food, it was noticed that she had some difficulty in swallowing and her speech became somewhat difficult; her lips and tongue did not move readily. There was no paralysis of limbs or viscera and the sphincters also were normal. The temperature soon came down to normal. The mental condition was somewhat altered. In the intervals of somnolence there was a slight confusional state with occasional delirium. The patient made a complete recovery at the end of four weeks. The psychic symptoms cleared up first. The somnolence disappeared next in order. The cranial nerve disturbances lasted the longest. The spinal fluid gave fifteen cells to the field. The Wassermann was negative on blood serum and spinal fluid.

CASE III.—Man, aged twenty-nine, laborer, presented a picture characteristic of grippe, viz., generalized pain, headache, chills, slight cough, general malaise, and elevation of temperature to 99.5°. On the fifth day he commenced to show signs of somnolence, which gradually increased. When awakened he would answer questions in an incoherent manner. At times his sleep was more profound than at others so that it was very difficult to feed him and nutritive enemas had to be administered. At such periods there was also incontinence of urine and feces. When placed in a sitting or standing position he would fall asleep. Examination of the eyes revealed inequality of pupils ($L > R$), palsy of the left internal rectus and of the right external rectus. Nystagmus was evident in both eyes on lateral movements. The pupils reacted sluggishly to light and accommodation. The patient had some difficulty in swallowing and his speech showed dysarthria. The lips and tongue moved very slowly and imperfectly. The sensibility of the face showed some involvement: the left infraorbital nerve at its exit from the foramen was very tender to pressure and the left cheek showed anesthesia.

The tendon reflexes of the lower and upper extremities were exaggerated, but there was no toe phenomenon or ankle clonus. While there was no distinct paralysis of the limbs, nevertheless their

spontaneous movements were limited. A similar paretic condition was observed in the muscles of the neck. When the patient was placed in a sitting position, the head would droop forward. The mental condition showed incoherence and occasional delirium in addition to the symptoms mentioned. The Wassermann was negative in blood and cerebrospinal fluid. Cytologically the spinal fluid showed eight cells to the field. The patient gradually improved and eventually made a complete recovery. The somnolence disappeared first, the cranial nerves recovered with exception of the nystagmus.

The three cases described show a remarkable uniformity in their main manifestations. The triad of symptoms is present in its entirety. Somnolence, palsy of cranial nerves, and a febrile state were all present. The difference lies in the intensity of the somnolent state, in the more or less pronounced confusion and incoherence and in the localization of the problematical causative agent in the cranial nerves. In the first case there is only a partial involvement of the third nerve; in the second case the third, seventh, ninth, and twelfth were involved. In the third case the third, fifth, sixth, ninth, and twelfth were invaded. The mentality was not affected in the first case, but variously disturbed in the other two cases. The involvement of the sphincters was present in the third case presumably because of the profound somnolence and asthenia. The outcome was favorable in all three cases. The onset was similar in all cases, showing a toxoinfectious process.

In making a diagnosis, cerebrospinal meningitis was taken into consideration. The manner in which the disease developed, viz., the headache, somnolence, fever, chills, asthenia, speaks strongly in favor of this affection. However, the characteristics of the spinal fluid of the latter were totally wanting. On the contrary, the fluid was clear, lymphocytosis was absent and no microorganism was found. Tuberculous meningitis is another affection which was thought of. The course of the latter, which is characterized by periods of improvement and aggravation, is decidedly in contrast with the continuous and uniform evolution of the disease under discussion. Besides, the totally negative findings in the spinal fluid in the three cases also speak against the view of tuberculous meningitis. Finally, syphilitic meningitis should be strongly thought of especially during the afebrile phase of the affection when somnolence, headache, and ocular symptoms are strongly manifest. Aid was obtained from the examination of the spinal fluid; the latter appeared on lumbar puncture without undue pressure: its cytology was negative and the Wassermann reaction was negative. Poliomyelitis finally arrested my attention for a moment. The presence of cerebral symptoms and the absence of frank spinal cord symptoms made me make a prompt decision.

The three cases described correspond almost fully to the cases which appeared recently in the foreign literature, especially the French. Netter's original description has found an echo in all the subsequent records published by other observers. Autopsies

have already been performed in several instances. Marie's histological examinations show that the lesion has a special topography; it predominates in the mesencephalon and almost exclusively in the gray matter, in the vicinity of the aqueduct of Sylvius and fourth ventricle; mostly the roots of the third nerve show evidences of degeneration. Infiltration more or less diffuse is seen around the bloodvessels; the cells are altered in the form of hyaline degeneration. The locus niger shows intense degeneration. Marie also found a degenerative state in the basal ganglia. Sometimes a diffuse congestion is seen over the cortex of the cerebrum and cerebellum. The chief seat of the disorder is in the mesencephalon. The clinical symptoms observed during life are readily explained by the anatomical findings just mentioned. The condition reminds one of the cases of acute polioencephalitis, which is a well known nosological entity.

Somnolence has long been known in diseases of the mesencephalon, and long ago Gayet and others observed somnolence as one of the phenomena in polioencephalitis limited to the gray matter of the third and fourth ventricles, so that a sleep centre was at one time considered in connection with the mesencephalon. The above findings of Marie in encephalitis lethargica tend to consider the existence of such a centre with favor.

The three cases described point to the existence of two types of encephalitis: a superior and an inferior, according to which cranial nerves are involved. All the anatomoclinical considerations tend to show that encephalitis lethargica does not present special new findings. The disease has been known before. Encephalitis polioencephalitis with or without somnolence are old nosological entities. Their clinical manifestations and anatomical peculiarities are well known facts. Netter however is inclined to consider encephalitis lethargica as an autonomous affection due to a special virus which has a special predilection for the mesencephalon. What this virus is and whether it has a certain relation to the infection of influenza, have not been sufficiently determined. There is considerable uncertainty as to the pathogenic agent and the nature of influenzal toxins. Encephalitis has been observed after other infectious processes. Raymond, for example, observed it after paratyphoid fever, pneumonia, bronchopneumonia (1). The question of autonomy of encephalitis lethargica until further proof cannot be decided at present without further information with regard to more extensive anatomical and bacteriological investigations.

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Radical Cure of Vesicovaginal Fistula by the Peritoneal Route.—Legueu (*Paris médical*, February 22, 1919) recommends the transperitoneovesical type of operation in selected cases. The procedure is constantly followed by primary union, is done in five stages, and is somewhat modified according to whether or not the fistula is of instrumental origin.

THE DOMINANCE OF THE ENDOCRINES.*

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In the study of endocrinology we are opening one of the most fascinating chapters of medicine, a subject of which our knowledge is still so limited, that it is as but a minute scratch upon the veneer. The first productive stimulus to this subject was created by the theory of internal secretion as propounded by Claude Bernard, and subsequently developed by Brown-Séquard. In a very interesting historical resumé of the subject, Gley has called attention to the fact that these investigators had their precursors. As early as 1775 Bordeu, a French physician, expressed the opinion that each organ created a specific substance, which is discharged into the blood, and that these substances are necessary to the integrity of the organism. The frequent references to the humors and refluxes of earlier writers, indicate that they had a preconceived notion of internal secretions, the nature and source of which being at that time bound up in apparently unfathomable mystery.

It is to the physiological chemist that we must look for the future development of our knowledge of this most intricate subject. The gross and histological anatomy as well as the pathology of the structural elements of the internal secretory glandular system have been quite thoroughly investigated, but there is still a vast amount of work to be done in isolating and determining the remarkable properties of the active principles or hormones of the endocrine system. The clinical progress of the subject has within past years, and particularly of late, made rapid strides, and an ever increasing interest and enthusiasm stimulated in those who have become initiated in this most fascinating phase of clinical study.

The subject matter of this paper is, in brief, a repetition of what I have previously expressed as clinical observations which have been so forcibly verified by personal clinical experience as to create an interest in a subject which solves many of the innumerable problems incident to the practice of medicine. It is my purpose in this paper to limit my remarks more exclusively to the important relationship existing between the endocrine system and the vegetative nervous system. An understanding of this phase of physiology, in its normal and abnormal reactions, is of paramount importance and serves an incalculable aid in the analysis and treatment of so-called functional derangements, as well as organic diseases. The internal secretory glands are vegetative organs, and their function is to a degree regulated by the nervous system, while on the other hand the dominance of these glands over the nervous system, is quite beyond dispute; especially is this evident as displayed through psychical or mental functions. In proof of this one has but to

note "the alteration in character that is almost always associated with the development of Basedow's disease; the psychical irritability, the manic-euphoristic attitude of patients with Basedow's disease; the apathy and lack of interest of the myxedematous; the characteristic quiet mental attitude in hypophyseal dystrophy; the feeling of mental want of strength in those suffering with Addison's disease; the depressive attitude of the tetany patient and finally, the profound influence that the ripening of the sexual glands at the time of puberty or the loss of function of the sexual glands in castrates exercises on the psyche." (1)

A brief description of the vegetative nervous system at this point may not be amiss. There are two great subdivisions of this system anatomically distinct, but physiologically antagonistic and normally in counterbalance. The two divisions are the sympathetic and the autonomic or parasympathetic. These both innervate the nonstriated muscles of the body, the various endocrine as well as duct glands, the viscera, heart, bloodvessels, and genital organs. To quote from Stewart: "It is an outgrowth from the cerebrospinal system with which it remains connected by afferent and efferent fibres. A number of specialized vegetative nerve cells remain within the cerebrospinal axis, thereby accounting for the occurrence of vegetative phenomena in certain central diseases. No fibre of the system passes from the cerebrospinal axis to an involuntary end organ without the interposition of a ganglion cell in its course. The nerve fibres passing from the cerebrospinal cells are termed preganglionic; those passing from the ganglion cells to the viscera are postganglionic. The sympathetic proper is made up of two chains of ganglionated cords, like strings of beads, one on each side of the vertebral column, extending from the base of the skull to the coccyx. In the thoracic, lumbar, and sacral regions, the ganglia correspond in number to the spinal nerve roots. In the cervical region, instead of eight ganglia, there are only three, designated superior, middle, and inferior. These cervical ganglia are connected with the spinal cord, not through the cervical roots, but through the first and second thoracic roots." (2) This is very important to bear in mind in interpreting those sympathetic nerve symptoms observed in root injuries of the brachial plexus where the first thoracic root of that plexus is involved.

The oculopupillary fibres of the sympathetic are of considerable clinical importance as they supply the dilator pupillæ, the unstriated part of the levator palpebræ superioris and that small bundle of non-striated muscle behind the globe of the eye bridging the sphenomaxillary fossa, called the muscle of Müller. The sympathetic controls the pupil dilating fibres as opposed to the constrictor fibres which reach their termination through the third cranial nerve. These dilator fibres are clinically of importance and have a peculiar course worth noting. They arise from the cortical centre in the frontal lobe descending to the pupil dilating centre in the medulla. They further descend in the lateral column of the spinal cord to the ciliospinal centre of Budge in the lower cervical region. (Involvement

*Read in part, by invitation, before the New York Academy of Pathological Science, January 24, 1919, and before the West Side Clinical Society, April 10, 1919.

here is not infrequent in tabes.) These fibres pass from the cord through the anterior roots of the first and second thoracic segments, and enter the inferior cervical ganglion, ascending in the cervical sympathetic to the Gasserian ganglion, and thence to the orbit and do not traverse the ciliary ganglion.

The autonomic or the system of the extended vagus consists of nerve fibres with ganglia located more peripherally. The craniocervical autonomic supplies fibres from the midbrain, along the oculomotor (third) nerve to the ciliary ganglion, and thence to the iris and ciliary muscle, and from the medulla along the nervus intermedius, glossopharyngeal and vagus to the sphenopalatine, otic and submaxillary ganglia. The vagus is the principal branch of the craniocervical autonomic system. Other autonomic fibres arise from the spinal cord at a level lower than the sympathetic, through the second, third, and fourth sacral nerves (the sacral autonomic) and supply the descending colon, sigmoid, rectum, bladder, urethra, and the genital organs. (2)

The vegetative system comprises three great plexuses, the cardiac, the solar, and the hypogastric. These receive fibres from the autonomic and sympathetic as well as from the cerebrospinal nerves. It is now quite generally conceded that the endocrine system is in part at least, structurally and functionally, identical with the vegetative nervous system and influences the function of the vegetative nervous system by the hormones created by its glands.

The suprarenal glands are part and parcel of the sympathetic and their secretion, adrenalin, is the activating agent which stimulates the entire chromaffin system to functional activity. The paraganglion cells of the sympathetic all secrete adrenalin from the cells of the suprarenal medulla contained in them, and distributed even along the course of the sympathetic nerve fibres. Thus, the suprarenals are a part of the nervous system. There is also reason deduced from clinical evidence to believe that the posterior or nervous portion of the pituitary gland dominates to a degree the autonomic portion of the vegetative nervous system. The interrelationship of all internal secretory glands having been conclusively established, enables us to see how glandular dysfunction may be expressed by an effort of compensatory action through the more dominant glandular elements of the vegetative system.

A rough simile illustrating the writer's conception of the primary dominance of the endocrines, is to consider the hormones of the vegetative glands, the activating agent or the fire which keeps up the steam or nervous energy, so-called. The nervous system, structurally, is the dynamo which runs the human machine. The chemical composition of the individual nerve cell, and collectively of the nervous system, is analogous to the water in the boiler, which, generated into steam, makes the machinery go. If the supply of water is deficient (nutritional nerve exhaustion) the energy is lessened, as is likewise the case if the fires are low (glandular exhaustion). If there is too much fire (hypersecretion) and too much steam, the boiler will burst and

a physical and psychical explosion will occur. The extremes of hypofunction and hyperfunction are thus expressed.

The psyche, that all powerful intangible reflector of physicochemical function, is maintained in proper balance through the normal action of this mechanism just described. Its responses, in so-called psychic reactions, are dependent upon this all dominant endocrine function. As a buffer to these vital functions, it responds in varying degrees as influenced by experiences based upon instinct and memory complexes, and the so-called shock reactions are accordingly expressed and reflected by symptomatic evidences. That large group of patients generally misunderstood and frequently classed in civil life as neurasthenics, psychasthenics, hysterics, cyclothymics, and hypochondriacs, is now capable of an intelligent analysis and rational therapy, if one will concede that these are the victims of an endocrine asthenia.

The innumerable obscure symptoms, usually subjective in nature, complained of by these patients, for which no physical cause could be deduced, have long made them the great group of undesirables in medical practice. You may argue that cures have been created, time without number, when no endocrine therapy has been administered, and this is true in so far as it goes, but in rebuttal, I would claim that it is through the stimulation and balancing of the patient's endocrine system that this is effected, be it brought about by the osteopath, who in his manipulation, mechanically stimulates the endocrines, or the christian scientist, or psychotherapist, who removes those irritants which affect the psychic buffer, or by electrotherapeutics, hydrotherapeutics, or any other form of therapeutics, results fundamentally and primarily are obtained through endocrine reactions.

I may be accused of taking an extreme viewpoint and crediting the endocrine system with too great a dominance over life's functions, for I know there are many who will take issue with me, and assign to the psyche the dignity of being the great equilibrator, and quote in proof of their claims, from that vast fund of neuroses, recently developed in manifold variety through contact with the many phases of the great war. I refer particularly to that group of cases unfortunately termed shell shock. Hundreds of these have developed in individuals who have never smelled powder or been beyond the confines of the training camp. This condition is not a new entity, but one common to civil life, classed under the group terms previously mentioned. The predisposition to shell shock is exhaustion (endocrine asthenia) more specifically expressed through the all important suprarenals, the glands which control the expressions of the emotional reactions, e. g., fear, fright, anger, etc. Hypoadrenia is the constant factor in all of these cases of shell shock with the compensatory dysfunction of the entire endocrine system. The psychic stability succumbs and the mental irritant knocks over the buffer. The psychic irritant may be suddenly or gradually removed by psychotherapeutic procedures such as active suggestion, through hypnosis or by psychoanalysis, and immediately upon its removal, a reaction, expressed

through the vegetative nervous system produces a physiological response. Example:—A pin prick in the paralyzed limb of the hysteric causes no bleeding (vagotonic vasoconstrictor action); immediately upon removal of the morbid psychic irritant, the pin prick causes bleeding (sympathetotonic, vasodilator action).

The lowered psychic threshold is dependent upon endocrine fatigue, which is created frequently by the accumulated weight of the prolonged psychic irritants. When the endocrine exhaustion occurs, then and not until then, does the psychoneurosis, or psychosis, as the case may be, become apparent. An analysis of endocrine and vegetative types is of importance in the interpretation of symptom reactions and predisposition to morbid processes either physical or psychical. To quote from a previous contribution by the author: "The life of every individual is dominated by his ductless gland chain, certain of these glands assume a dominating influence on the morphology, physiology, and pathology of the individual and by reason of this, we are able to designate persons in terms of glandular types, recognizing thyroidal, adrenal, pituitary, and gonadal types, many of which are mixed types and designated thyro-adrenal and pituitoadrenal. For example, studies clinically have proved that certain physiological and structural markings are constant to certain glandular types, and by the physical objective examination alone, without other information we can make an accurate designation.

Noting whether an individual is tall or short, thin or stout, light or dark, observing the hair, its color, quality and distribution on the body, whether high or low implantation on the forehead; present or not in the axillæ and its pubic distribution. The eyebrows as an instance; in subthyroidal states the eyebrows are very scanty and especially so in the outer third. In the adrenal types they are usually thick and meet in the midline bridging the nose. From the teeth alone much may be learned. Thyroidal teeth are well formed, white, clean and show good enamel. Thymus teeth show pitting and poor enamel due to deficiency of calcium salts. In pituitary types, the teeth are separated or spaced and are also white and glistening. Adrenal teeth show dark markings or spots, similar to chromaffin deposits. Gonadal teeth exhibit torsion, disproportion and frequently absence or semilunarity of the lateral incisors.

The skin in adrenal types always shows pigmentation, either as freckles, moles, and larger patches of pigmentosis. These are designated as skin adrenals. The thyroidal skin is usually blond and clear and smooth. In hypothyroidal states it is scaly and rough. Dark haired and dark eyed thyroidal types are also observed, but these are not without other glandular characteristics. The vasomotor reactions of the skin are also important. One observes various responses by lightly marking the skin of the chest or abdomen. The pure thyroidal line is the pink or red line appearing quickly or slowly, and varying in duration; it may have an associated bilateral white line indicating adrenal complication or it may be a pure white adrenal line with no color response, being the true adrenal line of

Sergeant. By the ears (satyr type, angel type, Lombroso and Morel types), size, shape, symmetry, as well as the bony frame and ligamentous structures, one is guided in making an endocrine classification.

Physiological, psychological, and morphological changes are observed in all individuals resulting from normal as well as pathological glandular influences. The thymus normally ceases to functionate at the developmental epoch, when gonadal activity begins. The delay of gonadal function with persistent and overactive thymus influence expresses itself in the production of persistent and excessive juvenility. Overactivity of the thyroid before the developmental epoch creates the prematurely old appearing individual (the little old man, the familiar lilliputian type).

The results obtained by Gudernatsch in the experimental feeding of tadpoles are quite significant. The small amphibia that were fed on thyroid gland developed into tiny frogs, described as *petit vieux*, and those that were fed on thymus grew into enormous tadpoles or *grand enfants*. This experiment proves to some extent at least, why of two individuals of the same age, one may look like a premature old man, and the other have the appearance of unwarranted juvenility. Physiological and structural changes at developmental and menopause epochs in both sexes are familiar examples of glandular control. The remarkable influence of the pituitary gland upon structural conditions is demonstrated when hypersecretion of the anterior lobe occurs, creating before puberty, giantism, acromegaly during adult life and shrinking in old age. The extremes of thyroidal secretion create Basedowian characteristics (exophthalmic goitre) or cretinism and myxedema. Innumerable clinical types of great importance occur between these two extremes, due to dysfunction of the gland.

Further evidence of glandular control in type production is noted as follows: Take for instance the domination of the pituitary gland on body structures as previously mentioned (giantism in youth, acromegaly in adult life, and shrinking in old age). There are also small pituitary types as well. The domination of the pituitary gland produces feminism in the male; while the domination of the adrenals makes for masculinity in the female. The thyroidal individual has his marked personal characteristics, his bright intelligent eye, his good clean teeth, his temperamental attitude toward life, his freedom from infectious diseases except measles and typhoid, and his tendency toward intestinal and certain forms of cardiovascular and neurotic disturbances. The pituitary individual, easily recognized by his structural makeup, has his own peculiarities. He is musical, has an abnormally acute sense of rhythm and is prone to diseases attended by periodicity (e. g. malaria) and to syphilis.

The adrenal individual has his strong masculinity, his tendency to hypertrichosis, to hyperchlorhydria, to hypertension, to certain forms of pulmonary disease, and to pigmentosis, his liability to diphtheria, to hernia, and variocoele. These master types have their variants depending upon the influence of other glands, especially marked in the gonads.

Right sided symptoms point to pituitary dysfunction, left sided to adrenal dysfunction." (3)

Now as to the analysis of types indicated by predominance of either of the two portions of the vegetative nervous system. We note that the autonomic fibres are specially stimulated by cholin bodies and by pilocarpine, also physostigmine, eserine, and muscarine. Cholin is a hormone, the product of tissue metabolism, and exercises its specific action on the autonomic. Atropine paralyzes the autonomic. The sympathetic is unaffected by the cholin group, and as yet no agent is known to us which has a paralyzing effect upon it. (The pancreas, however, is inhibitory to its glandular element—the suprarenals.) "The character of an individual may depend largely upon his reaction to cholin or adrenalin and upon the relative abundance with which these two hormones, cholin and adrenalin, are produced in his organism. Thus, the autonomic or vagotonic type of individual is reserved (phlegmatic) and cold blooded, with slow pulse, contracted pupils, deep set eyes, and cool, pale skin, which sweats easily and sometimes in patches, whilst the sympathetotonic type is lively and excitable, with rapid heart, bright eyes, dilated pupils, rosy color, and warm dry skin." (3) The many perverted physiological conditions and symptoms incident to the variable states of partial or complete imbalance of the vegetative nervous system are of great importance to consider, as an invaluable aid to diagnosis and in arriving at proper therapeutic conclusions.

By way of illustration I will mention a few of the symptoms, as given by Orbison in his excellent monograph *The Vegetative Nervous System*, which depend upon whether the autonomic or the sympathetic is at fault. "In the head region there may be the ocular symptoms of myosis or mydriasis; accommodation spasms; widened or narrowed lid slits; infrequent winking; exophthalmos or enophthalmos; salivation or dry mouth; cephalalgia of vasomotor origin, i. e., migraine and the like. In the respiratory tract there may be laryngismus or asthmatic attacks. In the circulatory system there may be tachycardia or bradycardia; vasomotor angina; changes in blood pressure; peripheral hyperemias and ischemias; acrocyanosis; urticaria, etc. In the digestive tract there may be esophagismus; cardiospasm; the gastric neuroses, achylia, gastrosuccorhea, pylorospasm, and gastrospasm; atonic and spastic constipation; nervous diarrhea; colic, anal sphincter spasm; convulsion or atony in various intestinal loops or segments. In the urogenital system there may be incontinence or retention of urine; pollakiuria and tenesmus; renal colic; disturbances of libido, of erection, of ejaculation and of orgasm. In the cutaneous system there may be gooseflesh; hyperidrosis and anidrosis, either unilateral or bilateral; bromidrosis; pallor; flushing, and dermatographismus." (4) When confronted by a few of this array of symptoms as is not infrequently the case, formerly we had to be content to make a diagnosis of a neurosis and with a few soothing remarks to the patient, we proceeded to flounder about to eradicate the annoying symptoms by various irrational therapeutic procedures,

whereas now, with our newer knowledge of perverted endocrine and vegetative symptomatology, one may approach the problem by intelligent analysis and effect a cure by means of coordinated drug and endocrine therapy.

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THE MALONEY METHOD OF REEDUCATION IN THE TREATMENT OF CHOREA.

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CHOREA MINOR.

Chorea minor or Sydenham's chorea is one of the most common motor disturbances. It is pre-eminently a disease of childhood and early youth, the great majority of cases occurring between the ages of five and fifteen years. Girls are much more frequently affected than boys; the proportion being about three to one; and between the ages of fifteen and twenty-five years, as a rule only females are affected. Cases of chorea in persons over the age of twenty-five are extremely rare. For a clear understanding of the clinical entity known as chorea minor, it is essential to limit the application of that term to a disturbance of the central nervous system characterized by sudden, rapid, widespread, seemingly involuntary movements, devoid of outward purpose, yet not wholly beyond the control of the will; these movements are aggravated in excited, and moderated in tranquil states.

The term chorea minor should be applied only to cases in which, with or without the occurrence of an infectious process, or of an emotional crisis such as may be induced by a fright or an accident, these characteristic movements spontaneously begin; at first sometimes almost imperceptible, sometimes obvious, but gradually growing more and more conspicuous. There seem to be two types; one in which infection and emotional accidents are to be blamed; the other in which such accidents are not detectably implicated. There also seem to be two types of patients; those who before the disease was observed were notably restless and excitable; and those who did not markedly differ from the average child. The latter are those in whom chorea minor is relatively more often traceable to an infective process; the former more often date their affliction from emotional stress, and often show precocious intelligence, associated with lack of concentration, and other evidence of mental instability.

In a moderately severe case, spontaneous movements may appear when the child is either at rest, or consciously attempting to perform some movements. The child may be unable to sit still; may

wriggle about; drum on the table with her fingers, pick at her clothes, shuffle her feet, drop things on the floor, and break them. The play of her features may be exceedingly lively and variable, and the greatest variety of emotions may be expressed in the most exaggerated manner, in rapid succession inappropriate to the particular mood the child may be in at that time. A characteristic change in speech may be detected; a few syllables or words are pronounced normally, suddenly the voice drops almost to a whisper, or ceases altogether, although the child continues to try to articulate, and in her vain attempts indulges in a number of more or less droll, fantastic or even alarming gestures. When the obstacle has been overcome, a few words are again pronounced correctly or nearly correctly. The breathing may be affected in much the same way and often becomes sighing and interrupted.

The child may be unable to perform the slightest movements with the extremities, for the motor impulse spreads to muscles not meant to be set in motion. At first the child may retain the power of sitting, standing, or walking, but at the height of the disease, the maintenance of attitude may be impossible on account of the anarchy of movements. The gait may become uncertain and the child may not only stumble but even fall when she attempts to stand or take a few steps unsupported. Even in bed, the movements which accompany every voluntary muscular action may become so obstreperous that the patient throws herself about and often receives abrasions or even severe contusions. Preceding or accompanying these motor phenomena, there may be a change in the disposition of the patient; she is easily frightened and becomes excitable, is given to sudden changes of mood; and is prone to laughter or tears. There may be evident lack of concentration and a marked inability to attend to or to perform any mental work. The functional modification in the muscles consists of: 1, involuntary but conscious twitching; 2, inability to maintain tonic contraction, and, 3, apparent loss of power which is dependent on lack of control.

Physical examination usually does not reveal any change in the size of the muscles. The tone of the muscles may be slightly diminished. Electrical reactions are normal. The superficial reflexes are usually present, and equally, sometimes unusually active on both sides. The deep reflexes are as a rule normal but if the disease be accompanied by much general weakness, they may be diminished. Sensation is commonly undisturbed.

Pathology.—Lesions, either gross or microscopic, have not been found in a sufficient number of cases to afford a definite structural foundation for the symptoms. Minor vascular and perivascular changes have been detected in a few cases, and have constituted the basis of the embolic theory. The absence, however, of extensive emboli in the cerebral tissues, and a more careful study of the bacterial infections, have led most observers to a position adverse to the embolic theory. The minute perivascular hemorrhages, the perivascular leucocytic infiltration and hyaline changes in the vessel walls, which have been described in isolated cases of chorea, have been noted more frequently in other

conditions that did not clinically present choreic manifestations.

Bacteriology.—Evidence of microorganisms in the brains of patients who died of chorea is scanty and uncertain. Pisnese found a diplobacillus and a diplococcus in the blood and reported that by culture of these he produced experimental chorea in dogs. Poynton and Payne isolated and cultivated a diplococcus from the cerebrospinal fluid in four fatal cases of rheumatism, in three of which choreic manifestations preceded death. They also were able to demonstrate the presence of this same diplococcus three times in the cerebral pia mater and once in the brain in cases of chorea. Donath studied seven cases of severe chorea, two of which were fatal; he found *Staphylococcus pyogenes albus* in the blood in four cases and in the brain in one case. In the cerebrospinal fluid in another case he found the *Staphylococcus pyogenes aureus*. From the diverse findings of these and many other observers, it is obvious that the specific bacterium or toxin if it exists has as yet eluded discovery; correlation of the facts at our disposal strongly suggests that we are dealing with a clinical phenomenon resulting from the action of a bacterial toxin upon the cortical tissues.

Rheumatism, endocarditis, and chorea.—The evidence as presented is far from conclusive as establishing a distinct causal relationship between rheumatic fever, endocarditis, and chorea. In the articles in which the subject has been carefully studied from an unbiased standpoint there is a fair uniformity in the statistics. Thayer, Osler, Wollenberg, and others give statistics varying from twenty to twenty-five per cent. In Thayer's series of 789 cases there was a history of rheumatism in 171 (21.6 per cent.). All cases in which there were pain and tenderness in the joints were classified as rheumatism. Of 689 cases, there were cardiac murmurs in 235 (40.5 per cent.). About one quarter of these were considered functional; 25.4 per cent. of the whole number was considered organic. Of 184 cases Sachs found twenty (10.8 per cent.) had had antecedent rheumatism. Mackenzie in 439 cases found subacute rheumatism in from twenty-four to twenty-six per cent. In 2,476 cases collected by Starr antecedent rheumatism occurred in 662 (twenty-six per cent.). In my own fifty cases there were eight (sixteen per cent.) that showed definite endocardial involvement. We should, therefore, be justified from the evidence so far presented in considering the close association of endocarditis and rheumatic fever and chorea in from twenty to twenty-five per cent. of the cases.

Treatment.—Chorea at all times, even in the mildest form, is sufficiently serious to demand careful handling. The patient should be confined to bed during the acute stage in order to minimize liability to serious complications. All mental activities and intellectual efforts should be avoided. Emotional influence disturbing to the patient should be shunned. Relatives and friends should not have access to the patient; even the parents if they exert a disturbing influence on the patient, should be excluded. A competent nurse accustomed to care for nervous children and a well ventilated room are

of great value. The diet should be bland, and during the febrile period fluids only should be given, water freely. Meats, fish, tea, and coffee should be excluded from diet until well into the period of convalescence. Hydrotherapy in the form of tepid douches or packs are soothing to the patient. In severe cases continuous warm or tepid packs are of great benefit: choreics readily adapt themselves to it. The quieting effect of hydrotherapy is remarkable; the bowels should be kept open; if necessary with a mild saline.

Patients with a rheumatic history (tonsillitis and joint pains), may benefit from a thorough course of salicylates. Aspirin or salicylate of soda up to five grain doses with ten grains of bicarbonate of soda may be given every four hours to a child of ten years. Such children should be closely watched for endocardial complications. For patients lacking a rheumatic history arsenic, in the form of Fowler's solution or Donovan's solution, is a valuable remedy. In administering Fowler's solution to a child of ten it is diluted with half its bulk of distilled water. Of this diluted solution begin with about six drops and increase it one drop daily until fifteen drops are being given three times a day, and then reduce it one drop daily until doses of six drops are again reached. The patient's urine must be closely watched for albumen; diarrhea or puffiness of the eyelids are indications for immediate reduction of the amount of arsenic being administered or its temporary discontinuance. Harm may result if the administration of the drug is not carefully watched. In cases of marked motor unrest bromides in five grain doses every four hours may be given by mouth.

Salvarsan.—The treatment of chorea with intravenous injections of salvarsan and neosalvarsan was advocated at first because of the supposed favorable action of arsenic in this disease. It was not long, however, before it was used in the belief that chorea is a manifestation of syphilis. Some of the French schools of neurology have supported this theory; but only in a very small proportion of cases could definite evidence of lues be demonstrated. It is reasonable to assume that in this small proportion of cases syphilis was merely a coincidental condition. The use of subcutaneous injections of small doses of magnesium sulphate solution has been tried; but the discomfort to the patient, the danger of subcutaneous infection and the absence of any specific influence on the course of the disease does not warrant further trial of this method of treatment. Mayer because of his belief in the infective origin of chorea suggested the intravenous injections of small doses of dilute phenol solution. Confirmation of specific benefit from this treatment has been lacking. The intraspinal injection of autoserum as advocated by Goodman, is of doubtful value. The discomfort of spinal puncture in these highly emotional neurotic children, together with the technical difficulty of properly procuring the serum, should limit the application of this treatment to the most desperate cases, where all other methods have failed.

Reeducational.—In the acute febrile period, little in the way of reeducation is possible; indeed, active

exercises in this period may be harmful to the patient. I have, however, found the rest, or relaxation exercises described by Dr. W. J. M. A. Maloney of value in quieting the patient during this period. The diaphragmatic breathing is of great aid in inducing relaxation in the muscles. The patient is asked to take a deep breath using his diaphragm, restricting his thoracic movements, and at the height of inspiration to pause, then slowly and evenly expire, and again pause; this breathing soon tires the patient if continued too long, so after ten or twelve of these deep respirations have been taken, the depth of inspiration and the pause are shortened until the patient is breathing, without effort, as in sleep.

To relax the muscles, passive movements in which the muscles are alternately lengthened and shortened are employed. The muscles of the forehead, cheek and jaw are thus manipulated until wrinkling of the forehead, and blinking of the eyelids disappears and the muscular spasm is eliminated. Next a shoulder is relaxed, then an arm; each in turn must be passively moved until all traces of muscular tension vanish and the part lies motionless and flaccid, and falls limply from any unsupported position. Then the leg on the same side should next be taken. After a part is relaxed, those parts previously treated should be briefly dealt with again, in the order in which they were first relaxed. This linking of parts previously relaxed to parts newly relaxed is helpful in bringing the entire body into a state of relaxation. During the passive movements, the operator should continually direct the patient's attention to the control of the choreic twitchings; gradually this requires less and less effort, and soon complete and perfect relaxation is possible.

After the temperature and pulse rate have reached normal and remained so for several days, and the child has mastered the rest exercises well enough to allow her limbs to be freely moved passively in all directions without exciting either rigidity or spasm, active movements may be begun. At first simple movements, flexion, extension, adduction and abduction at the joints should be used. These movements should be guided along the normal planes; rhythm rate and force of the movements should be regulated by counting or using a metronome. Next the patient resists the movement, in order to increase her ability to maintain tonic contraction; and finally the movement is done against the resistance of the operator. (This resistance tends to overcome the loss of power in the muscles due to lack of control.) When the patient is able, in a recumbent position, to perform all movements in proper time and rate to the normal extent and with normal force, reeducation in maintaining the normal attitude may be begun. Creeping on the hands and knees is first taught; next balancing and creeping on the knees are attempted; and finally maintaining an erect attitude and progression are taught. The changes should be made gradually and the patient must avoid all fatigue. By alternating the rest exercises with active work several hours a day can be used for reeducation, without fatiguing the patient.

Precision of movement can be regained by the use of toys and games which at the same time will interest and amuse the patients. Building blocks, fishing games, jig saw puzzles consisting of pictures cut into small pieces, irregular in shape to be fitted one against the other to form a complete picture; for older children dominoes, pegs to be fixed in the holes in a backgammon board and innumerable other toys found in the kindergarten.

The aim of these exercises is to encourage freedom as well as precision of movement; any in-coordination present is corrected and if continued for a sufficient length of time it promotes continued concentration with increased mental stability.

266 WEST EIGHTY-NINTH STREET.

THE PHYSICAL CONDITION OF MEN OF THE STATE OF NEW YORK BETWEEN THE AGES OF TWENTY-ONE AND THIRTY-ONE,

As Shown by the Draft of 1917-18.

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The public health officials and social workers have long felt the need for some definite data regarding the public health problems in the United States. Heretofore they have had to depend upon the vital statistics supplemented by the imperfectly reported communicable diseases with here and there an imperfect survey of the existing sickness. The physical examinations made by the local boards and the army surgeons as a result of the selective service law have, however, given a mass of data which in reality is a cross section of the physical health of the male population of the United States between the ages of twenty-one and thirty-one. The only criticism of these data which has been made is that in certain occupations men were exempt and in some cases married men were not included. However, experience in a large mobilization camp through which nearly 100,000 men passed has shown that almost every trade was represented, including farmers, and that a large number of married men failed to claim the necessary exemption, and it is believed that the cross section is a fair estimate of the health of the men of that age during the year 1917-1918.

The men drafted for service were first examined by their local boards and all who passed were sent to the mobilization camps, where they were again examined by the surgeons of the U. S. Army. In some instances the local boards sent men to the camps when there was some doubt as to their physical condition. Up to December 15, 1917, about twenty-nine per cent. of the men who appeared were rejected by the local boards; about five per cent. more were rejected after reaching the camps; between two and three per cent. of the men who were passed at the camps were found to be suffering from venereal disease—this makes close to thirty-six per cent. of the men physically unfit for military service.

CONDITIONS IN NEW YORK STATE.

Of the men examined by the local boards in New York State up to December 15, 1917, 30.53 per cent. were rejected. The New York men were sent to Camp Devens where an additional 11.87 per cent. were rejected; to Camp Upton where 7.38 per cent. were rejected and to Camp Dix where 7.94 per cent. were rejected. The average rejection of New York men at the camps was 5.52 per cent. of all the men examined, which brings the total up to 36.01. According to the surgeon general of the army the camp surgeons found 1.8 per cent. of the New York men suffering from venereal disease when they arrived at the camps; this brings the total of men unfit for military duty up to 37.81 per cent.

Unfortunately the data in the two annual reports issued by the provost marshal general do not give the rejections by the various municipalities in New York State. However, we are able to obtain from the first annual report data showing the percentage of rejections in the several counties throughout the state. These data have been published and appear in the map in the January number of the *Health News*. We find that in New York city the average rejection was 29.6 per cent., while in Schuyler county, which is a rural community with no city in its borders, the rejections amounted to 49.3 per cent., while the neighboring county of Yates, which is also a rural community, had a rejection rate of 44.2 per cent. Sullivan county also had a rejection rate of 46.5 per cent.

During the year 1918 the provost marshal general adopted a system of classifying men called for service in accordance with their physical qualifications. For the period beginning December 15, 1917, and ending September 11, 1918, 315,536 men from the State of New York were examined and classified. Of these we find 192,311, or 60.95 per cent., placed in Class A (fully qualified for military service), 12,631, or 4 per cent., were placed in Class B (defects that could be remedied by treatment), 49,670, or 15.70 per cent., were placed in Class C, which means that their condition was such that it could not have been remedied by treatment, but they were able to do limited service; 60,924, or 19.31 per cent., were placed in Class D (totally disqualified for military service). From this table we see that 39.5 per cent. of the men were disqualified for full military service; 4 per cent. of the defects, however, could have been remedied by proper medical treatment or operation. A large number of the men placed in Class B suffered from hernias which could easily have been remedied, but owing to the military necessity it was impossible for the government to undertake their treatment.

It is important to know as far as possible the nature of the defects from which these men suffered. The reports of the provost marshal general are now in the hands of the surgeon general of the army and are being classified and studied by the statistician in that office, and until his report is made we will have to rely upon the general classification given in the second annual report of the provost marshal general. In preparing the tables of causes of disqualification he considered the re-

sults of the local board examination, those made by the camp surgeons, and of the certificates of disability for men discharged shortly after entering the service. For the period from February 10 to November 1, 1918, these statistics were classified and studied, and we find for New York State the following:

TABLE I.

COMBINED FIGURES AND PERCENTAGES FOR CAUSES OF REJECTIONS BY LOCAL BOARDS AND CAMP SURGEONS, AND FOR DISCHARGES FROM THE ARMY OF RECENTLY INDUCTED MEN (X, Y, AND Z). FEBRUARY 10-NOVEMBER 1, 1918, FOR NEW YORK STATE.

Cause of rejection.	No. of cases.	Percentage of rejections.
Diseases of the ear.....	2,921	11.7
Diseases of the heart and blood vessels.....	2,520	10.1
Diseases of the bones and joints.....	2,178	8.7
Developmental defects.....	2,109	8.4
Hernia.....	1,970	7.9
Flatfoot.....	1,948	7.8
Nervous and mental disorders.....	1,613	6.5
Diseases of the eye.....	1,475	5.9
Tuberculosis of the respiratory organs.....	1,378	5.5
Condition of teeth.....	1,290	5.2
Mental deficiency.....	645	2.6
Thyroid disease.....	458	1.8
Alcohol and drugs.....	436	1.7
Genitourinary diseases, nonvenereal.....	380	1.6
Other defects.....	367	1.5
Respiratory diseases, nontuberculous.....	355	1.4
Venereal diseases.....	245	1.0
Diseases of the skin.....	254	1.0
Diseases of the digestive system.....	77	0.3
Tuberculosis of other organs.....	83	0.3
Defects not stated.....	2,259	9.0
Total.....	24,970	

The greatest cause of rejection was trouble with the ear, followed by disease of the heart and blood-vessels; third we find diseases of the bones and joints with developmental defects occupying fourth place. Flatfoot caused 7.8 per cent. of the rejections and 6.5 per cent. were due to mental and nervous disorders. Tuberculosis caused 5.5 per cent. of rejections. A study of this table will show that a large majority of the defects here noted could have been prevented or cured had there been proper health administration, including school inspection and an efficient followup system.

In the surgeon general's report for 1918 regarding the examinations made by specialists detailed to the camps, he showed that of 436,550 men who were carefully examined by these experts the average rejections because of heart disease at camps vary from one half to 1.4 per cent. In one camp it reached the high figure of 4.6 per cent. Including that camp the average was .94 per cent. In the National Army the rejections averaged .63 per cent. and in the National Guard .47 per cent.

TABLE II.

Percentage of total rejected for heart diseases—

	Mitral.	Aortic.	Tachy-cardia.	Hyper-thyroid.	Myocar-ditis.
National Army.....	58	12	5	6	9
National Guard.....	56	15	3	13	9
Average.....	57	14	4	10	9

RURAL AND URBAN HEALTH.

In the first annual report of the provost marshal general he considers this question and says that it is a tie between the city and country boy. In his second annual report he produces figures which show that the proportion of rejections in the city exceeded that of the rural areas. His definition of a rural area is one in which the total number of registrants was less than 1,200. The data for New York State in this respect are shown in Table II;

this table is based upon the study of 45,000 rejections nearly equally divided between city and country.

TABLE III.

TABLE SHOWING THE PERCENTAGE OF MEN REJECTED IN NEW YORK STATE, COMPARING RURAL AND URBAN COMMUNITIES. THE PROVOST MARSHAL GENERAL CALLS A COMMUNITY THAT REGISTERED LESS THAN 1,200 RURAL.

Rejections, New York State.	Percentage rejected— Urban.	Rural.
Alcohol and drugs.....	2.3	4.8
Bone and joint diseases.....	8.1	9.4
Defects of development.....	10.4	8.2
Diseases of digestive system.....	0.2	0.2
Diseases of the ear.....	5.7	3.8
Diseases of the eye.....	13.6	8.8
Flatfoot.....	10.6	9.0
Genitourinary diseases (venereal).....	0.9	1.1
Genitourinary diseases (nonvenereal).....	1.3	2.1
Diseases of the heart and blood vessels.....	7.9	7.4
Hernia.....	10.4	9.2
Mental deficiency.....	1.1	1.9
Nervous and mental disorders.....	4.8	4.2
Tuberculosis of the respiratory organs.....	4.9	3.1
Respiratory diseases (nontuberculous).....	1.3	1.3
Diseases of the skin.....	0.2	0.2
Teeth.....	6.8	7.2
Diseases thyroid.....	1.2	2.1
Tuberculosis of other organs.....	0.2	0.1
Other defects.....	1.0	0.6
Defects not stated.....	7.1	10.2

In studying these tables it must be remembered that they do not give the complete result of the physical examination but only those factors which cause rejection from the military service. For instance, enlarged tonsils do not appear in the table at all, and yet from my personal experience in the examination of between four and five thousand men in the beginning of the war and in reviewing the papers for the examination of nearly 100,000 other men, I found that enlarged tonsils were extremely common. There are many other defects that are of interest to the public health official which do not appear in these tables; they, however, should appear in the final analysis made by the Surgeon General of the United States Army, as all defects were supposed to be noted on the examination forms and in a number of cases this was true.

As a further study of the conditions in rural and urban areas I have prepared the following table from the first annual report of the provost marshal general, covering a period up to December 15, 1918. It shows the percentage of rejection of certain cities of New York State compared with the surrounding rural communities.

TABLE IV.

RURAL AND URBAN AREAS IN NEW YORK COMPARED. FROM DRAFT STATISTICS FROM DECEMBER 15, 1918. (FIRST ANNUAL REPORT PROVOST MARSHAL GENERAL.)

	Percentage rejected.		Percentage rejected.
Albany city.....	41.6	Niagara Falls city.....	28.9
Albany county.....	30.4	Niagara county.....	36.2
Amsterdam city.....	16.6	Poughkeepsie city.....	33.7
Montgomery county.....	44.7	Dutchess county.....	43.0
Auburn city.....	24.2	Rochester city.....	31.6
Cayuga county.....	31.2	Monroe county.....	21.4
Binghamton city.....	32.6	Syracuse city.....	31.8
Broome county.....	40.6	Onondaga county.....	35.9
Buffalo city.....	38.6	Troy city.....	43.8
Eric county.....	35.4	Rensselaer county.....	36.1
Elmira city.....	34.3	Utica city.....	33.4
Chemung county.....	37.2	Oneida county.....	31.5
Mt. Vernon city.....	31.6	Watertown city.....	31.3
Yonkers city.....	35.8	Jefferson county.....	30.7
New Rochelle city.....	30.7		
Westchester county.....	24.6		

Although we have had for years a comprehensive law regarding the physical inspection of school chil-

aren, it has been found that in not a few communities this is sadly neglected. The importance of the medical supervision of the human being is amply illustrated by the following table which is taken from the second annual report of the provost marshal general. It is based upon statistics gathered during the first draft and the second draft of the men who became of age after the first call for troops.

TABLE V.

DETERIORATION WITH AGE. A COMPARISON OF THE MEN EXAMINED BETWEEN THE AGES OF TWENTY-ONE AND THIRTY AND THOSE WHO BECAME OF AGE AFTER THE FIRST REGISTRATION AND WERE EXAMINED JUNE 5TH AND SEPTEMBER 11TH, 1918, SHOWS THE FOLLOWING:

	Age 21-31 years. Per cent.	Twenty-one. Per cent.	Difference Per cent.
Group A	69.17	76.89	7.72
Group B	2.79	2.59	0.20
Group C	19.57	10.59	9.02
Group D	17.47	9.93	7.54

This table apparently shows the wear and tear on the human system in ten years; it shows a reduction in physical efficiency of from 76.87 to 69.17—a loss of 7.72. It is apparent that this is the minimum figure rather than an average, for many men examined on June 5, 1917, were just twenty-one years of age. It was unfortunate that the table was not extended so as to show the percentage of each of the eleven years. Experience in the examination of a large number of men has shown that in a large percentage the man was totally unaware of his disability until it was pointed out to him by the examining surgeon. Such a situation calls for an educational campaign having for its object the interesting of men in annual physical examinations of their health.

A more detailed statement of the causes of rejection for New York State will be found in the following table which is based upon the study of 17,194 cases rejected. From this we see that 1,274 men were rejected because of flat feet, 1,791 because of defects of vision, 1,132 because of inguinal hernia, while 1,291 were found to be underweight. This last number certainly challenges attention, as underweight usually means serious interference with the nutrition of the human being. The rejection for underweight was only in extreme cases as the standard for weight was rather elastic, allowing in some cases as much as ten pounds below the fixed standard. One hundred and fifty-eight men were rejected because of trachoma, a disease which was believed to be very rare in this State. One thousand two hundred and two men were lacking in the number of teeth required for the army. In considering the teeth, the general standard was that the men should have two opposing molars on each side and later it was modified so that in addition they must have at least four other opposing teeth—this is a very low standard. Seven hundred and thirty-five men were rejected because of tuberculosis; this does not mean that this number of new cases was discovered by the draft board because a man might be under treatment for tuberculosis and yet called before the board for examination. Another surprise in the list is seventeen cases of nephritis; this number of cases found in extremely young men is of very serious importance and clearly indicates the necessity of more careful supervision of one's health.

TABLE VI.

PHYSICAL REJECTIONS AT CAMP, SHOWING ANATOMICAL AND PATHOLOGICAL DEFECTS IN DETAIL.

Disqualifying defects.	N. Y.	Disqualifying defect.	N. Y.
Total	17,194	Umbilical	12
Bones:		Not classified	73
Amputation	156	Fistula	11
Deformity	468	Protrusion with bone	3
Disease	55	Thrombosis	3
Fracture	171	Venereal diseases:	
Joints:		Syphilis	149
Ankylosis	249	Gonorrhea	9
Disease	186	Other	3
Dislocation	25	Genitourinary (nonvenereal):	
Spine	266	Hydrocele	22
Tuberculosis other than lungs	26	Variococele	97
Pes cavus	319	Testis in canal	107
Pes planus	1,274	Other	23
Hallux valgus	134	Tachycardia, persistent	15
Ear:		Eye defects	87
Deafness	6	Ear:	
Otitis media (purulent)	75	Perforated drum	14
Eyes:		Other disease	3
Vision	1,791	Respiratory system:	
Nystagmus	19	Asthma	115
Trichoma	153	Chronic bronchitis	28
Teeth deficient	1,202	Sinusitis	38
Height	137	Pleurisy	38
Weight:		Tuberculosis	735
Over weight	99	Heart and blood vessels:	
Under weight	1,291	Heart disease	773
Chest measurements	1	Hypertension	21
Varicose veins	288	Other disease	95
Phlebitis	1	Hypertrophicism	186
Mental deficiency	219	Nervous system:	
Mental and nervous disorders:		Epilepsy	13
Paralysis	105	Neurasthenia	43
Stammering	81	Hysteria	58
Skin	28	Psychoneurosis	377
Pellagra	1	Alcoholism	51
Gout	23	Drug addiction	286
Gout with hyperthroidism	58	Diabetes	4
Hernia:		Nephritis	17
Inguinal	1,132	Digestive system	11
		Dyspepsia	12
		Other diseases	129

In the foregoing paper we have seen that a large number of the men drafted from this State were physically unfit to perform their duty at the time the Government most needed them; that a large number of these defects could have been prevented had there been the proper health administration during the growing period of these individuals. The entire report speaks for more intensive health administration throughout the State.

THE HEALTH QUESTION OF THE MAN NEXT DOOR.

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The recent war through which America has so successfully passed gave us a wonderful opportunity to take a health inventory, which has upset many of our preconceived notions. Many ideas have been proved and disproved by the acid test of war, going a long way toward emphasizing the educational assets gained through bloody strife. It is therefore difficult to escape the fact that there is but little difference between revolution and evolution. The shock which comes to our preconceived notions by a rude awakening always tends to shake off the lethargy of ignorant contentment and should give us a new consciousness of personal duty and a more careful judgment regarding the future. If out of the red rimmed crater of war there shall pour an altruistic consciousness pregnant with a sense of duty to our fellowman, we shall all feel content that men have not bled in vain. Up to the beginning of the war very little care or study was given to the question of the negro's

health, beyond a rather indifferent generalization which declared the race decadent and reeking with sickness and death. In face of this general notion the following note from the report of the provost marshal general must be considered at least interesting. "In the first draft, in June, 1917, there were 737,628 colored registrants, or nearly eight per cent. of the total registration of the country, which was 9,586,508. Of the first group of 208,953 colored registrants examined under call before November 12, 1917, 36.23 per cent. of them were accepted for service. Of 2,873,996 white men examined at approximately the same time, 24.75 per cent. of them were accepted. In groups representing nearly an identical proportion it will be seen that in relative military fitness the negro race outranked the whites by about twelve per cent." A still later report, Table 53, shows that for every 100 men examined physically, the ratio of colored men found qualified for general military service was substantially higher than the ratio for the white men by just five per cent., viz., 74.60 per cent. as against 69.71 per cent. The reports are interesting from two standpoints. First they show that the American negro is not altogether the unhealthy menace we have heretofore regarded him, and in face of these facts we owe it to him and the nation to see that he gets a human chance to preserve his health integrity. Next it is shown that a better physical type of both races came up for later examination. This is possibly accounted for by the exercise of greater care on the part of the examining physicians of the local draft boards.

Yet with these facts before us there is no reason for chagrin or fear upon the part of the white race that it is becoming decadent, nor is there cause for too much satisfaction on the part of the negro that he has won out in an old dispute, founded more on fancy than on fact. Some of the findings in the army have been tinged with a bit of humor, for instance it was found that an old joke about the negro and his "flat foot" did not hold good, for white men showed a slightly higher proportion of that condition. Also in several other instances he shows a higher degree of physical perfection than the white man, but when we come to a closer analysis of the health condition of the negro we see a greater need for making a careful study of the same with the idea of improving it, as a national measure.

In the army, venereal disease was found to be the greatest cause of disability. From the data now available it appears that the annual venereal rate to the thousand is approximately 138.6, of which eighty-five to ninety per cent. were brought into the army from civil life. Reports from a group of camps in which were stationed troops of both races would seem to show that from six to fifteen per cent. of the white troops and from twenty-five to forty per cent. of the negro troops entering the service were infected with venereal disease. In the matter of venereal diseases the negro has made a miserable showing and it is imperative that steps of a nation wide character be taken to check this terrible menace.

That venereal disease is amenable to regulation

and reduction was most gloriously proven by the experience of our army. Under the commission on training camp activities a most intensive and carefully planned campaign was so successfully waged against venereal disease that the cases of infection acquired after enlistment were reduced to a minimum. It is further interesting to record that the venereal disease rate after enlistment among negro men compares favorably with the rate among white men. Too much praise cannot be given the commission on training camp activities for the impartial and thorough manner in which they tackled and overcame what threatened to be a serious menace to our fighting forces. Nor can we commend too highly Captain Arthur B. Spingarn, who had charge of the campaign of education conducted among negro troops. These men have all met the issue like men, like Americans, and have won out in their fight, nor can they be less proud of our American soldiers, black and white alike, who have so heartily responded to their plea to be "Fit to Fight."

The psychological tests proved the greatest amount of venereal disease to be among those of low grade mentality, black or white. The educational campaign conducted among all alike brought about a remarkable improvement in conditions, which truly proves the value of such propaganda. General Ballou is responsible for the statement that of the 1,250 negro men admitted to the first negro officers' training camp at Fort Dodge only five were found to be venereally infected—a record that could not be duplicated among a similar number of men in any camp of white men. It is significant to record that the majority of the young men who entered this first officers' training camp were college bred, and possessed a high degree of culture and refinement. Thus we are bound to conclude that venereal disease occurs most frequently in the ignorant classes, and the many ignorant negroes who entered the army have made the venereal rate among that race alarmingly high.

What then is the answer to this question? An intensive educational campaign carried directly to this group of our citizens. If the methods adopted in the army were so successful a slight modification of the same can be made just as effectual in civil life. No half hearted or weak kneed method will get us anywhere; only carefully planned and carefully executed propaganda will bring results. Nor should this campaign be confined to venereal disease alone, for there is a most urgent need of vital national importance to carry the light of a general health education to our negro citizens. In order to emphasize the need of such an educational campaign I want to relate the following story. A dear old negro woman called at the home of a white woman for whom she regularly worked to get the week's washing. The kind hearted, intelligent white woman met her at the door and said, "No, Amanda, I shall not let you take my clothes to wash, for my children have the measles, and I don't want your children to get it." "Oh, that's all right," exclaimed the negro washwoman, "my children's done had the measles two weeks ago!" This we can charge up to ignorance and nothing else!

The inadequate provision for the prevention, care, and treatment of the tuberculous negro is especially marked throughout the entire country. Some time ago a leading popular weekly magazine called attention in a strong editorial to this sad and unfortunate neglect. It went on to say that we in America are quite derelict in this phase of health economics and cited an instance in which the only provision made by a certain Southern State for the treatment of the tuberculous negro was in a prison hospital. This would seem to indicate that if a negro be so unfortunate as to have tuberculosis his only hope for institutional care rests in his becoming a prisoner. It seems hardly in keeping with our American spirit of fair play, our economic ethics and principles, to allow such a dereliction to exist, and must be regarded as decidedly outrageous to permit it to continue. During the coming reconstruction period, what will be our answer to this all important question?

Booker T. Washington has said: "Without health and until we reduce the death rate, it will be impossible for us to have a permanent success in business, in property getting, in acquiring education, or to show other evidences of progress. Without health and long life all else fails. We must reduce our high death rate, dethrone disease and enthrone health and long life. We may differ on other subjects, but there is no room for difference here. Let us make a strong, long, united pull together."

The question of health is a national one rather than a racial one. The remedy therefore must be of a national character in its application rather than racial. The negro has made for himself an unenviable reputation for being unhealthy and the victim of unnecessarily high death rate. In a great measure the negro himself is to blame for this, but the entire fault is not his. Yet the accusing finger of race prejudice points to this as one of the most glaring evidences of the undesirability of the negro as a citizen. When Booker Washington made the statement, he evidently was speaking of the negro in particular, but the same statement might as well and with equal purpose have been addressed to our nation. The whole hearted methods adopted to preserve the health of the white Americans, when compared with the half hearted methods to preserve the health of black Americans, make a jest of the whole procedure. The negro always receives the by product of expended energy in this direction, yet he is expected to measure up to the same physical standards as those who enjoy every opportunity and privilege in the matter of conserving health. This biracial tendency, which prevails in America regarding all matters great and small, is not consistent with our boasted intelligence and foresight in its attitude toward national health and its relation to national economics.

The negro is not a victim of ill health and a high death rate simply because he is a negro, but he is a victim of circumstances and conditions imposed upon him by American prejudices. For a long time he had no control over these circumstances and conditions, but happily today he is beginning in a small way to overcome them. Yet those of that race who are devoting their lives to this sort of

work are not getting the support they should from either blacks or whites. With the blacks, it is to them a new idea, which requires a carefully laid campaign of education, and with the whites it is greatly a matter of indifference, which also needs education. Good health must be regarded as a national asset equally important in time of peace and war, which is always purchasable. This is an investment that will yield perpetual dividends of comfort, happiness, protection, and safety. Many philanthropic persons have seen fit to devote large funds for preserving and protecting the health of white Americans, but comparatively nothing to be spent in the preservation of the health of the black Americans. Here lies a wonderful virgin field for the righteous immortalization of some good unbiased American, to establish a foundation for the study and improvement of health, social, and economic conditions among negroes. Such a fund could and would do immeasurable service to the negro race and to the nation.

Throughout the United States there are a number of institutions operated by negroes who are attempting in a small way to handle their health and economic problems; but are prevented from doing a large and telling work because of the lack of sufficient funds. In most instances both negroes and whites are doing something by way of contributing to the support of these institutions, but neither are doing what they should in the matter. Most assistance is expected from the whites, for they have most, but negroes themselves must learn to know the value of such institutions to their race and make, if necessary, sacrifices for their support. Again the whole matter resolves itself into the question of education. It has been but recently that the whites have learned and appreciated the value of institutions as the best constituted agencies for preserving their health. The negro is learning the same lessons by the same process that the white man learned them. His cry for health giving institutions is increasing and with this must come an increased support and a conscious realization of their value, demanding a greater interest and devotion to them. Since the time of emancipation, great amounts of money have been spent in educational institutions for negroes, and wisely so, but their health bringing organizations have not been so favored. Yet one must recognize that today the modern hospital or sanitarium is always educational in purpose and intent. They are indispensable to our civilization, for education without health or the facilities for acquiring and maintaining health means an economic and social loss, for which the nation must pay.

The problem of ill health with its consequent high death rate among negroes is most acute within the ranks of the city dwellers. When thoughtful consideration is given to the crowded and unsanitary conditions in which the masses of the negroes are forced to live, the question naturally arises; how do they manage to keep their sickness and death rate so low? rather than, why is it so high? The attempts made by the housing commissions of the larger cities may be sincere in purpose but they are not resultant in evidence of improvement. The

laws are explicit enough, but the American custom of employing political influence to evade the law, on the part of the landlords and real estate agents defeats the purpose of the law. Then too there is a general feeling that anything is good enough for negroes, and that they are content with the deplorable conditions under which they are forced to live in the cities. This is an expression of the typical American sentiment in regard to the negro, but certainly is contrary to theoretical American ideals and principles. Yet where the negro is concerned American ideals always suffer from rough usage and injudicious handling. There are classes of negroes just as there are classes of whites who are apparently content to live in conditions surrounded by squalor of every sort, but this class is decreasing among all races. As education seeps down into the lower types there comes a desire to improve home comforts with their attendant blessings of love, loyalty and a reaching out for better things in life. For the whites there is always an easy avenue of escape from these abhorred conditions, but for the negro escape is almost impossible except by means which the masses are generally too poor to take advantage of.

That all negroes are not content to live amid such vicious surroundings is evidenced by the fact that certain cities have deemed it wise to adopt a method of segregation, legalized or understood, either of which is just as potent in its application as the other. This un-American policy would never have been adopted if only a few negroes had sought better living conditions. It came only after there was a wholesale and decided movement on the part of negroes to free themselves from unhealthy life in miserable dwellings. This proves that anything is not good enough for negroes, and they are not content to live an unsanitary and vicious life. They have certainly expressed their own feelings in the matter in a way which has caused alarm to spineless municipalities.

The negro himself must be made to thoroughly realize that this is his personal fight to free his people from the blight of unhealthfulness, and the exaggerated accusation that they are a weak and unsanitary people. Particularly should the negro business man be interested in this matter for he must appreciate the economic loss which goes with ill health and its presumption on the part of whites. These impressions must be corrected by fact and not theory. A convincing lesson must be carried to the hearts of white men that the negro is not an unhealthy menace to American institutions but a race of stamina, virility, resisting power and a will to dispute every inch of the way toward a full and wholesome recognition in all avenues of endeavor. It remains for him to prove in no uncertain way that negro health means negro wealth, and negro wealth means national wealth.

It just happens that the affairs of this world are so nicely adjusted that the success, happiness and comfort of one individual depend to a great degree upon the success, happiness, and comfort of the other individual. This is no new condition, but only in the last few years has it been emphasized by our advanced civilization, and what is better, it

has been placed upon a practical basis. It matters very little whether we call it altruism or cooperation; it is in the final analysis a truth and a necessity which is making friends and converts who immediately find themselves willing to drop the shackles of selfishness.

In this recent development of the altruistic consciousness the question of conserving the health of mankind has played and is playing an important part. The business man with his modern efficiency methods realizes that a sick man is a poor worker and a poor producer. Poor workers and poor producers are always small wage earners. Small wage earners cannot be satisfactory purchasers and consumers. Thus sickness becomes a loss in dollars and cents of vital consequence to every one. The wage earner who has sickness in his family is an economic loss to his community and to the business man who depends upon him and his kind for the success of his endeavor. When one stops to consider that a great proportion of all disease is preventable, and about the whole question revolves the matter of education, it is expected that the business man should at once grasp the importance and economic value of good health, and do his part to improve conditions. Good health is a good investment. Poor health represents a money loss. Business men always prefer a good investment; they abhor a loss.

This condition of affairs particularly applies to the negro business man and his clientele. All the interests of this race must be more closely welded if they hope to improve racial integrity to the degree demanded by the ruthless onrush of modern civilization. They cannot afford to be merely on-lookers, but must get into the procession—as near the front as possible. Wonderfully significant, illuminating, interesting and impressive is the fact that the concrete application of a health propaganda knows no color line.

It is the exception rather than the rule that large corporations make the slightest effort to provide welfare work for their negro employees. Little or no effort is made to afford for them healthful forms of recreation, yet they are expected to keep as fit as the white workers. Here again indifference leaves the negro employee to provide his own recreation, unguided by trained workers, more frequently than otherwise to his physical detriment. This is one sided, hence poor economics. It should not require any great amount of argument to persuade employers that a man healthy and strong always feels like doing a full day's work easier, better and more satisfactory to himself and his employer. In this his color should play no part at all. Good health doubles the value of one's services to God and man. Good health and cleanliness breed and create a contempt for ignorance, immorality and depravity, and stimulate a desire for intelligence, clean living, morality and a greater faith in God and man. This comes as a result of the economic advancement of any people without regard to race, in the process of which all people gain. If there is a consistent application of hygienic and sanitary science directed toward the welfare of the negro, his health will be conserved

as well as that of the whites and the nation gets the results thereof. Sickness and death must come, but in many instances both are preventable if a conscious effort is directed against their onslaught. If economics insists upon drawing the color line in this matter, the nation must pay the penalty. Patriotism should decree otherwise.

We are beginning to observe with a great deal of satisfaction and interest a tendency upon the part of the whites to awake to a sense of dutiful co-operation in the matter of relieving health conditions among negroes. The beginning is rather encouraging, and if we are able to develop within them a consistent and continuous effort, it will not be long before the health and living conditions among negroes will be on a par with those of the average American.

But one great crime committed against the health of a race and a nation is the discriminating tactics practiced by State and civic institutions against the sick negro. Nor is this crime confined to the South, indeed it is only too frequent in Northern communities where we have been led to expect better dealing. The shame of it all becomes greater when we realize that such practices are masquerading under the name of science. What a travesty on science when it permits itself to be hampered in the attaining of results by the color line. It does not require a mind of scientific training to at once realize that any such half hearted methods impregnated with prejudice, are on their face unscientific, inhuman, and farcical.

When it is considered how closely the races are brought in daily touch, it must at once become apparent that any effort intended to conserve the health of a nation must include all. If it presumes to dictate who shall be benefited and who shall not, it results in little or no benefit to any one. In short, the white man must realize that his health problem cannot be solved as long as he is indifferent or careless regarding the negro's health problem. But it is science which should blush with shame for the inhuman and unscientific sins committed in her name by those weak kneed individuals who would call themselves scientists, when in truth they are but opportunists playing to the gallery. Yet in many instances the institutions themselves stand upon the high ground of equal care for all, theoretically and legally speaking. But their maladministration is perpetrated by individuals in charge who evade alike law and theory by deeply laid plans, adroitly executed to make negroes dissatisfied with the attention given them. The result then follows that the institution gets a bad name among negroes and is tabooed by them. Then the records of the institution show that few negroes come for treatment, and the assertion is made that they are not interested in improving their health conditions, but these same records never show the real cause of the black man's antipathy. The law may decree fair treatment and care for all, but experience has shown us that it very seldom takes a strong and determined stand when the rights of the negro are concerned.

This brings us back to the matter of the negro's own health institutions. It may be an unfortunate

and expensive condition of affairs which makes necessary such institutions. The question of the negro's health demands a satisfactory answer both for the welfare of the negro and the nation. This is just as much the white man's problem as it is the negro's, for it is a problem which comprehends and transcends both, in that it is a national problem upon which our whole system of economics depends. Can we too strongly urge that some big hearted fair minded philanthropist come forth and establish a foundation for the study and improvement of health, social, and economic conditions among negroes?

The immigration of negroes into the North has tended to intensify both social and health problems but has created no new ones. Upon the other hand it has relieved a perilous economic condition in the North. In many instances the negroes have been so thoroughly recognized as an economic asset, that corporations have found it both wise and expedient to create welfare advantages for them. This is a step in the right direction and points toward a hopeful outcome. Thus the thing which was at first regarded as a calamity by many whites and blacks in the North has turned out to be a help to both. The negro in this particular instance held a strategic point, in that he was able to supply a demand when that demand was most urgent. Negro labor has saved the economic situation in the North, and the North is beginning to respond to the negro's needs in a kindlier and more practical tone than ever before. It is true that negroes coming from the South must face different climatic conditions than those to which they have been accustomed, and they must pay the penalty. It is true that many of them have sickened and died, but after all death is worth while if it pays the price for liberty. No race or people has ever won liberty without paying for it with their blood, and the negro cannot hope to be an exception to the rule.

Today and every day, strong, healthy men are needed. This is not an individual or a racial need but a national need, and the nation is short sighted which does not realize its duty to all men at such a time. The negro is ready, willing, and anxious to play a man's part at all times, but he wants to feel that the nation has a heart interest in him, commensurate with that which goes with a patriotic citizenship. He cries for a human justice, which gives him a man's chance, an American's chance to build up his social, health, and economic protecting walls about the most sacred of all institutions, his home—his family.

Sulphur and Oil in the Treatment of Rheumatic Pains.—Bourges (*Paris médicale*, February 20, 1919) uses a solution consisting of one gram of sulphur in one hundred grams of sterilized oil of sesame. Injections of five mls of the solution are administered every three days, later every five days, and finally once a week. Very favorable results were noted in all varieties of subacute or chronic rheumatism. Joint pains and neuralgic manifestations of rheumatic origin were alike markedly relieved. No effect was obtained, however, in rheumatic fever.

OPERATIVE BONE SURGERY.*

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HISTORY.

Until a very few years ago members of the medical profession were well satisfied with the results obtained from treating cases of fracture, whether simple or complicated, by methods which, until ten or twelve years ago were considered right or at least as good as the practice of those days could secure. In former days, except in cases of non-union and in fractures of the patella and olecranon, it was the thing for a surgeon to operate upon a patient with fracture, and in these cases the results were often far from satisfactory. Surgeons noted for their original work were on the lookout for some better and more satisfactory method of treating bone lesions. Silver wire, the best agent we possessed for many years for fixing the fragments and maintaining approximation, yielded its place to kangaroo tendon, which has stood the test of time. The late Dr. John B. Murphy, however, had for several years been using phosphorbronze wire for this purpose.

Frank Hamilton and D. Hayes Agnew, who were called to treat President Garfield in his last illness, were considered the leading bone surgeons of their day. Doctor Bigelow, of Boston, Dr. Nathan Smith, of New Haven, Dr. E. M. Moore, of Rochester, N. Y., Doctor Swinburne, of Albany, and Dr. N. Y. Leet, of Scranton, enjoyed almost phenomenal success in the treatment of fractures by the old method. To Dr. Lewis S. Pilcher, of Brooklyn, my esteemed colleague and coworker, belong the honor and credit for teaching the profession the true pathology of Colles's fracture and a correct and easy way of reducing the fracture without causing further damage and inflicting unnecessary trauma, without an open operation. The late Dr. Nicholas Senn, after much original and experimental work brought out his decalcified bone chips. This agent was used for a time, but is no longer in use. The late Dr. A. M. Phelps, of New York, endeavored to graft a portion of bone, supported by the nutrient artery, from the leg of a dog, into the bone of a boy's leg, but met with failure. Doctor Phelps's efforts in this case were most praiseworthy, but at that time the clouds had not cleared, and he met with criticism from both the profession and the daily press. The works on fractures and dislocations by Frank Hamilton, W. L. Estes, Stimpson, Roberts, and others are excellent and served their purpose well in former times. But customs and practices are continually changing.

The discovery of the x ray, its application in the diagnosis of fractures and its aid in suggesting to the surgeon the correct line of procedure in all bone lesions, marks the most important epoch to date, in bone surgery, the world over. Surgeons were quick to see the advantages of the x ray in many branches of surgical practice outside of bone work. Formerly in making a study of the progress of

fracture cases by the aid of the x ray the surgeon's first and chief interest was in apposition and alignment. Of late, close observers, however, have been interested in going a step further, and in watching the wonderful changes at different stages of bone formation, the work of the osteoblast in building up and of the osteoclast in tearing down and clearing away material no longer of use, and, finally, the end results of nature's wonderful work—new bone formation.

END RESULTS.

The x ray has enabled observing surgeons to see that end results of the old time closed method of treating fractures were not always as good as they might desire. They found overlapping and consequent shortening of the limb present more often than they had expected, as well as bad alignment, angulation and weak, awkward limbs, sometimes of little use. There may be a deficiency in the lime salts of the bone; the blood stream may carry a specific germ, or shreds of muscle and fascia may be caught between the ends of fragments; the bone fails to unite and the result is non-union.

Nature has done her best to repair the injury, but she has been hampered in her efforts. Conditions have not been favorable for her delicate work. She is not willing to allow the case to be recorded as a failure. In her silent way she appeals and signals to the surgeon for aid and assistance, which is really all he can do. But when he responds to her call, we have a right to expect that he will come well equipped for his work, with the most complete and modern set of instruments to be found. If the surgeon does this and does his work well—what may we expect and what may we see? Barring infection—we should see nature cause the sick to be healed, the broken bone to unite and the lame to walk. To the maimed and crippled child who has never been able to walk and play in the sunshine this is a great deal. When surgeons guided and directed by their x ray findings, began to operate to correct bad end results, with such instruments as they had, their work was tedious and results were often far from satisfactory. Then came the need for a more complete and modern set of bone instruments.

SPECIAL INSTRUMENTS AND TECHNIC.

Geiger, Albee, and Frank Hartley, have each devised and worked out a complete set of motor driven instruments for bone surgery. The wonderful work that is being done today in bone surgery, could not be done without slow running motor driven instruments. Bone and joint surgery are delicate and very difficult to perform, but the more familiar one becomes with osteogenesis and end results, the more fascinating becomes the practice of operative bone work. There is no branch of surgery so difficult to perform as bone and joint surgery. To go through the soft parts and operate on the bony frame work of the body, to open into and operate upon a joint, without getting an infection, and secure the results desired, requires the most thorough aseptic precautions and careful attention to details on the part of the surgeon, assistants, and nurses. But the relief given and the

*Read at the regular quarterly meeting of the Medical Society of the County of Tioga, held in Owego, N. Y., on Tuesday, March 4, 1919.

results obtained from operative treatment, are so wonderful and so satisfactory, that one feels well repaid for every effort put forth. Geiger says: "It cannot be too often mentioned that bone surgery does require a special technic. Vigorous aseptic precautions in preparation of the operative field, the surgeon, and his assistants are absolutely essential."

OPEN METHODS.

Estes, Geiger, Albee, Crille, Frank Hartley, Chittenden, Guthrie, Wainwright, Marcy, the Sharpes, the Mayos, and many others have been strong supporters of the open operative method. For a number of years the late Dr. John B. Murphy's bone and joint surgery attracted attention and admiration. The work of this eminent surgeon will ever stand out as a prominent part of the magnificent monument which John B. Murphy unconsciously erected to his own memory. He made a close study of Nature and her signals and tried to supply what she lacked and was calling for.

Great credit is due Lane, of London, for his pioneer work in establishing the open method of treating fractures and for the perfect operative technic which he has developed, but I do not believe that the metal plate is to be compared in any way with the autogenous bone graft in the operative treatment of vicious fractures or any other bone lesion.

EDUCATION.

It was not so very long ago that some members of the medical profession and the public held that the knife was only to be used as a last resort in the treatment of cancer. Today we all know that every vestige of cancer should be removed at the earliest possible moment. It required a campaign of education to inform the public that tuberculosis is a communicable but preventable disease, that the open air life with sunshine, good food, and proper hygienic care are the essentials in the treatment of that disease.

When we first began operating for the relief of appendicitis the medical profession was divided into two classes—the conservatives and radicals—on the question of whether to operate or wait. Today the public knows that as soon as the family physician is sure of his diagnosis, the sooner the patient is placed in a hospital and the operation is performed, the better are the chances for recovery.

FRACTURES.

Today there is a difference of opinion in the medical profession on the question of the treatment of broken bones, and of course the public as yet is not fully informed. The question is, Shall a fractured bone be treated by the nonoperative method or by the modern open method? Is an operation necessary? Some medical men say we should try the old or closed method first and if it is not satisfactory we can try the open operative method later. If the closed nonoperative method is not a success, it means loss of time, in some cases months, and later, if an operation is decided upon, results in a much more tedious and difficult operation for both surgeon and patient.

Delay may not jeopardize the life of the patient, unless the bone becomes infected, but if an operation is necessary and the patient is not given the benefit of it, some one is certainly taking chances on at least a possible disability, and the patient may become crippled for life. In such cases who is responsible? The family physician and the surgeon called in consultation are responsible. If this matter is fully explained to a patient he is not likely to take any chances on going through life carrying a crooked and disabled arm, wrist or hand or a shortened thigh bone, if such a disability and deformity can possibly be prevented, and in most cases it can be prevented.

The time to settle the question of operative or nonoperative treatment of a broken bone is as soon as possible after the accident causing the fracture has taken place. How can the question be settled? By the aid of the x ray and a consultation with a surgeon. It is clearly the duty of the medical profession at all times to do everything in its power to instruct and inform the public on matters of public health, prevention, safety, and the spread of disease. In the matter of advising the public in regard to the treatment of broken bones the medical profession and especially the family physician, supported by surgeons can do a world of good in the way of preventing disability and disastrous end results, which include earning powers and economic conditions as well, and these points will be observed and noted by the public.

When the family physician has been called for a patient with a broken bone or a dislocation and has made his patient comfortable with a temporary dressing, he should immediately bring to his aid the x ray and counsel of a bone surgeon. It is not a reflection upon the ability of the family physician to do this. In doing so, he is guarding the interests of his patient and in turn is protecting himself.

As time goes on and we gain experience, we find that more patients with fractures are being operated upon. This does not mean, however, operation for every patient, neither does it mean that operative treatment should be left as a last resort, in cases where operation is clearly indicated. If a case is one which requires operation it should be determined with as little delay as possible. Fractures of the long bones are best treated in hospitals, where the attending surgeon or his assistant can make careful observation daily and note the condition of the circulation and nerve supply, pain, swelling, and color of the injured limb. This cannot be done with the patient away from the hospital. It is not safe to allow patients with fracture of the humerus or of one or both bones of the forearm, after a dressing has been applied, to go to their homes in the country and remain there for from two to five days without being examined by the attending surgeon. During this time irreparable damage to the arm may take place.

A surgeon cannot do full justice to himself, or to his patient, if he does not make a daily examination during the first two weeks of treatment. I believe that the day is not far distant when the family physician will fully realize that in cases of fracture of the long bones the best results are to

be obtained from hospital treatment, and that he will be unwilling to take the responsibility of treating these patients in their homes.

TRANSPORTATION.

This brings us to the matter of transportation—which the motor ambulance has settled. It has reduced the time, distance, and pain of transportation to a minimum. We no longer hesitate to transport fracture cases. A comfortable temporary dressing, that will fix the fragments, without a preliminary circular bandage, with an abundance of cotton, should be applied. If it is a compound fracture, apply a fifty per cent solution of iodine, a pad of sterile gauze and strips of adhesive plaster, but do not encircle the limb with adhesive.

Today, even in remote districts, the farmer has an automobile and in case of accident, he can quickly improvise an ambulance, and the patient is soon on the way to the hospital.

During the last ten years we have been passing through a test period for bone surgery, and a decided change from nonoperative to operative treatment for broken and diseased bones has been made. I am satisfied that we shall soon see fractures of all long bones, whether operative or nonoperative, treated in hospitals. Within a very short time the advantages of operative bone and joint surgery will be observed and more satisfactory end results, and the reflection of this improvement will create a demand from both the profession and the public, for operative treatment, when it is indicated. This decided change and advance step in treatment will create centres for bone surgery work. As a result of this, I foresee special wards or special hospitals for bone surgery.

Dr. W. L. Estes, of South Bethlehem, Pa., says: "The committee on fractures of the American Surgical Association, collected 1,745 cases of fractures, the end results of which were ascertained and the patients examined. Of these 1,358 cases were nonoperative and 387 were operative cases; 258 patients with simple fracture and 129 patients with compound fracture were operated upon. A little over twenty-five per cent. of the patients were operated upon. I find that in ninety-seven major fractures of long bones treated in St. Luke's Hospital last year, we operated upon thirty-five, or about thirty-seven per cent. The open method when adopted should be employed early. It may be used at any age period, except in senile cases, when a skiagram shows a deformity or a position of the fragments which obviously cannot be reduced or when proper efforts at reduction and retention have proved unavailing. The sooner the adjustment or setting is done after the injury, the better and quicker the recovery. Reparative processes begin early, much earlier than surgeons have hitherto seemed to think. If setting the fracture is delayed, what has already been done by natural processes will be destroyed and the second attempt to do the osteocementation will not be as quick nor as energetic." Open operations for simple fractures should be undertaken only by experienced surgeons who are thoroughly equipped and who have proper instruments and apparatus to meet all the possible requirements of the operation.

COMPENSATION.

In cases of appendicitis and in fracture cases, the family physician who gives of his time, skill, and ability, before a patient is sent to the hospital, should be paid a fee commensurate with the service performed and the responsibility assumed. The family physician should not allow a patient, with a fracture, to depart with the idea that the service which he has rendered is trivial and ordinary in character, although not more than from one to three visits or dressings may have been made.

Having made a diagnosis, properly applied a comfortable temporary dressing, the family physician has rendered a valuable service and is entitled to reasonable compensation. The doctor is entitled to receive his fee, duly earned by his services, which were of importance and advantage to the patient, as a preliminary to succeeding specialized service.

When all patients with fractures are treated in hospitals, the responsibility and anxiety attending the treatment of these patients in their homes, will be transferred from the family physician and the family, to the operating surgeon and the well equipped hospital.

In writing and presenting this paper my object has been twofold: 1, To bring this question in proper form to the attention of the medical profession and to point out or indicate, what I consider the attitude of the profession should be in regard to the treatment of fractured bones; 2, to inform the public of the wonderful advances and changes which are being made in bone surgery and of the many benefits to which the public is justly entitled.

POSTURAL TREATMENT OF PROCTOCOLITIS, BASED UPON THE ANATOMY OF THE LARGE INTESTINE.

BY ARTHUR A. LANDSMAN, M. D.,

New York,

Associate Surgeon, Rectal Department, Post Graduate Medical School and Hospital; Attending Rectal Surgeon, Philanthropin Hospital; Deputy Surgeon, Diseases of the Rectum, Out Patient Department, New York Hospital.

In an experience extending over several years, we have been struck with the unsatisfactory results obtained in the medical treatment of proctocolitis of whatever origin, whether in dispensary or private practice. We make bold to state, that in a large proportion of cases the pathological conditions are unaffected, the progress of the disease is unchecked, the subjective symptoms are unimproved, despite patient, prolonged, and skillful treatment, and the unhappy victim of catarrh of the bowel continues his unending visits to the dispensary, until tired and disheartened, he goes elsewhere to seek the relief which is not his. Not that there is lacking any determined effort to clear up the cause of his trouble; even after the ameba, hookworm, thread worm, or what not, has been destroyed or expelled, the blood infection treated, the local pathology corrected, the patient is far from being relieved of all of his symptoms. There is so much permanent damage to the coats of the bowel, especially in the cases which have progressed beyond

the catarrhal stage, that there is in reason bound to be more or less interference with proper function from changed conditions in innervation, circulation, and secretory activity of the parts. This is inevitable, unless specific treatment directed to the removal of the cause is accompanied by energetic local therapy to control the inflammation, limit its effects, and stimulate the process of repair. The proctologist seeks to bring this about by the use of various medicinal agents taken by mouth, or introduced into the blood stream by other channels; more often, by bringing them into direct contact with the affected organs by instillation, injection, irrigation, topical application through the proctoscope. It is not within the limits of this paper to contrast the merits of these methods beyond stating that best results are secured by direct contact of the curative substance with the diseased area, since we have no means in a given case of ascertaining how much of the large intestine may be involved, it is obviously the part of wisdom to bring all of it within the reach of our therapy, if we can. Disease processes are not limited by arbitrary classifications, and once started, may spread to all parts of an organ.

It is conceded that fluids in sufficient quantities, and under the necessary hydrostatic pressure may be forced into all parts of the colon, but it has always seemed to us that such a measure is not entirely free from danger when we are dealing with tissues which are the seat of ulceration; it seems not at all improbable that the weight and tension of the fluid may bring about rupture of a weakened area. Then, too, such quantities would have to be employed to flush all parts of the colon as would render their use prohibitive in the case of such useful drugs as ichthyol, balsam of peru, bismuth subnitrate, and many others.

In order to overcome these objections, it has occurred to the writer to utilize gravity and posture as aids in the distribution of smaller quantities of fluids throughout the large intestine, by instillation; we have been taking advantage of a method of treatment of proctocolitis which is based upon these principles, while taking into account the anatomical construction of the colon. If we may be permitted to refresh the reader's mind, we might state that the colon begins as a blind pouch in the right iliac fossa, into which the contents of the small intestine are discharged through an opening at its median side called the ileocolic valve; it ascends upward along the posterior abdominal wall for a variable distance to the under surface of the liver, where it makes a bend, and crosses the abdomen from right to left to the inferior end of the spleen. It then passes directly downward to the iliac crest following the pelvic wall to the third segment of the sacrum, closely hugging its anterior concave surface, until bending rather acutely backward below the termination of the coccyx, it finds its exit from the body at the anal opening.

Bearing these facts in mind, if we now wish to introduce any fluid into the large intestine, we pass the proctoscope and invert the patient over the table in the usual way, so that he supports himself on his palms, his head resting on a cushion about

two feet below his buttocks; in this position we pour into the rectum six to eight ounces of our solution, which then by gravity finds its way into the descending colon, as far as the splenocolic flexure. If the patient is now directed to get back on the table and lie down on his right side, whatever fluid is present in the splenic end of the descending colon, will trickle into the transverse part of it, and even into the ascending portion, because the hepatic flexure is on a lower level than the splenocolic flexure. If the head of the table is tilted slightly below the horizontal, there will be a tendency for more fluid to come down, which can then be again directed toward the transverse colon by assumption of the right sided posture. As the patient gets on his feet, any remaining fluid will naturally gravitate into the ascending colon, and even into the caecum coli.

It is clear, that methods which depend upon inversion alone, without any change in the position of the patient, must fall short, because the colon is not a straight tube, but on the contrary, has bends and turns which will arrest the flow of any liquid through it, unless introduced under enough pressure to overcome the obstruction; hence the methods described in the textbooks which depend upon this method alone fail to meet the indication properly, inasmuch as by no possibility can liquids be thus carried further than the splenocolic bend. At this point there must be a change in the direction of the current from left to right, to carry it across the abdomen in line with the transverse colon; beyond this there is yet a portion which runs vertically. In order that the colon may be as free from fecal accumulation as possible during the continuation of this treatment, the patients are directed to live on concentrated food, easily absorbable, and which leaves but a small residue; if necessary the bowels are washed out with a pint of water before treatment.

This method has been employed during the past two years at a rectal clinic by the author, with results which are very encouraging even in old standing cases; of course, if there is pronounced ptosis of the transverse colon, and its relations have become much distorted, we shall not accomplish all we had hoped for. However, as it is nonsurgical, involves no risk, and offers a possibility of improvement, if not cure, it is worth while in any event to give it a thorough trial. The bowels soon begin to move more regularly, the bleeding diminishes, the discharge lessens, the burning and pruritus lose their intensity, the abdominal uneasiness disappears, the patients rest more comfortably, and begin to gain in weight. The choice of any particular medicine is not as important as the proper use of anything we may select, with this proviso, however; in the atrophic cases, when the glandular structure is shrunken or destroyed, the secretions dried up, the mucosa cracked and fissured, remedies emulsified in an oily medium work best, whereas in the hypertrophic stage, when the tissues are relaxed, the discharge of mucus excessive, the diarrhea troublesome, astringents and stimulants show the happiest results.

To give the reader an idea of the range of cases

in which we have obtained gratifying results, we can do no better than to cite some of them from the records.

CASE I.—J. F., aged eighteen, clerk, American, referred to the clinic by his family physician, with a history of illness dating back two years; he had from ten to twelve watery stools in twenty-four hours, which contained blood, pus, and mucus. These were accompanied by abdominal cramps, soreness and tenesmus. He appeared blanched, felt weak, and complained of steady loss of weight. Proctoscopic examination revealed a mucosa studded with ulcers as high up as could be seen, and smeared with blood, pus, and stringy mucus. We suspected amebic ulceration, and after repeated examination the organism was isolated at the laboratory of the hospital. He was treated with hypodermic injections of emetine hydrochloride with indifferent success, until the postural method was tried; then his bleeding diminished, the purulent discharge lessened, the diarrhea ceased, and the subjective symptoms improved. After five months' treatment he was back at his work for the first time in a year, and had gained fifteen pounds in weight. He is at present on a full diet, has one bowel movement every day, when he is not constipated, and feels as well as ever.

CASE II.—T. C., aged forty-two, married, American, laborer. History of genital sore twenty years ago, followed by secondary symptoms. The blood examination was negative, and laboratory examination for tubercle bacilli, ameba, hookworm, and helminths negative. Complains of ten to fifteen diarrheal stools daily, always containing pus and mucus, sometimes blood, burning in the rectum, tenesmus, pruritus ani, and abdominal cramps. Rectoscopic examination shows diffuse hypertrophic catarrh, with patches of atrophy and ulceration: the mucous membrane is thickened, thrown into folds, relaxed, dusky in color, varying with areas which are anemic and look blanched. Diagnosis: syphilitic proctocolitis. The patient was treated with solutions of nitrate of silver in increasing strength, by the postural method, and applications of fifty per cent. ichthyol in glycerine by means of the proctoscope, and specific medication. The patient has been under observation six months; his bowels move once or twice daily, stools are normal in consistency, the subjective symptoms are relieved, and he is back at his work.

CASE III.—B. W., aged forty, married, Italian, previous history negative, venereal infection denied. Diarrhea for past year, consisting of six to eight stools daily, containing much mucus, sometimes blood, cramplike pain in the abdomen, tenesmus, loss of weight. Wassermann negative, laboratory examination of the stools likewise. X ray of gastrointestinal tract reveals no evidence of stricture or neoplasm. Proctoscopic examination shows marked catarrhal proctocolitis, with thickening of the mucous membrane, hypertrophy of the valves, and three moderate sized, ulcerated hemorrhoids, rather high up; as he failed to improve under the usual dietetic and medicinal treatment, it was decided to remove his hemorrhoids, and follow this with instillations of fluid extract of

hamamelis by the postural method, on the hypothesis that his proctocolitis was secondary to the local disease. The results proved the correctness of this view, for his diarrhea gradually subsided, the pain disappeared, the weight returned, and in a few weeks he was able to resume his regular occupation.

CASE IV.—L. L., aged twenty-two, unmarried, menstruation normal, gave no history of previous illness. Complained of bleeding from the rectum for past two and a half years, constipation, discharge of mucoid pus, soreness in the lower bowel, weakness, lassitude. Under treatment for fissure in the anus by her family physician by local applications and ointments. Two weeks before she was referred for treatment all her symptoms became more marked. Increased bleeding, hypogastric tenderness, and abdominal cramps developed. Rectoscopic examination showed areas of fine pin point ulceration in the pelvic colon, hypertrophy of the valves of Houston, and thickening of the levatores ani. Laboratory examination of the blood and stools negative. Diagnosis: ulcerative proctocolitis secondary to chronic constipation. The patient was put upon a fruit and vegetable diet, and her general hygienic condition was improved. She was treated with iodoform, bismuth subnitrate and olive oil in emulsion by the postural method. Her bleeding stopped, her subjective symptoms have practically disappeared, and her bowels move without any other medication every day.

COMMENT.

With the increase in the incidence of intestinal diseases because of conditions brought about by the war, we have become exposed to fresh avenues of infection and sources of morbidity, which bring a new realization of the duties confronting the physician. Many such diseases caused by bacterial and protozoal infection injure the walls of the bowel by producing anatomical conditions which result in more or less permanent impairment of function, long after the offending agent has been expelled, and are difficult to eradicate, because they are hard to reach. Postural treatment, according to the method of the author, seeks to overcome this, and should be given careful trial before surgical means to accomplish through and through irrigation are resorted to.

310 WEST EIGHTY-SIXTH STREET.

CLINICAL SIMILARITY BETWEEN THE INFLUENZA EPIDEMIC AND PLAGUE.

BY ANNE YOUNG, M. D., DR. P. H., D. T. M.,
Hamburg, Pa.

The inability to fix on the causative organism of the 1918 epidemic is emphasizing the possibility of Oriental plague. Douglas Symmers calls attention to the similarity between the pathology of pneumonic influenza and pneumonic plague. The clinical records of the first cases in Massachusetts give typical plague pictures. Unfortunately the writer's experience in the epidemic was cut short by an attack of the disease. Over 900 cases were seen, enough to permit the statement that, clinically,

many resembled plague; the dissimilarity being that some cases were of greater severity than any seen during my Indian experience. An increased severity might be due to a more virulent organism or a mixed infection. One and the same organism is responsible for all four types of plague, which are: 1, ambulatory; 2, bubonic; 3, septicemic, and, 4, pneumonic. The ambulatory type is the mildest form, manifesting little fever, some tenderness of a gland or group of glands; in other words, nothing more than severe cases may manifest as prodromes. The bubonic type has high fever and prostration, with a localized and extremely painful bubo. If recovery takes place the bubo breaks down or goes on to resolution. The septicemic form manifests a more pronounced onset and set of symptoms; small hemorrhages take place internally, on mucous membranes and in the skin. This type probably gave rise to the term of black death. The pneumonic form is a septicemia plus lung localization, with a mortality seldom below seventy per cent. In this type the lesion is first lobular, later becoming a lobar pneumonia.

Plague is the severest toxemia known. As to the organism, the *Bacillus pestis* is a member of the hemorrhagic septicemic group and appears as a coccus or a bacillus or an involution form. It is a gram negative, capsulated, nonmotile rod, staining most deeply at the poles. To bring out the bipolar stain, fix in alcohol. Involution forms stain poorly. Many organisms closely resemble plague, namely: 1, Six members of the Gartner group; 2, three members of the hemorrhagic septicemic group (look exactly like plague); 3, Friedlander's capsulated bacillus; 4, *Bacillus tularensis*; 5, *Bacillus pseudotuberculosis rodentium* (very difficult to distinguish from plague) and, 6, pneumococcus. Microscopically *Bacillus pestis* might be mistaken for a pneumococcus but a gram negative organism cannot be pneumococcus.

In the laboratory *Bacillus pestis* is rapidly overgrown by other organisms especially streptococci, pneumococci and colon bacilli. With such a possibility in mind it is better to incubate plates in ice chest, because, on ice, plague grows well and streptococcus, pneumococcus and colon bacillus are inhibited. *Bacillus pestis* grown in ice box is less sticky and viscid than when incubated at 30° or 37° centigrade. *Bacillus pestis* is always found in the spleen and usually in the bloody sputum of the pneumonic type. It is able to penetrate skin, mucous membrane of mouth, throat, and eyes. After discovering that an organism has microscopical and cultural characteristics of *Bacillus pestis* it is wise to test with one per cent. grape sugar. Plague bacillus does not ferment sugar while many similar organisms do. The agglutination test has many fallacies; in many cases agglutination never occurs—never in pneumonia and not constantly in the bubonic type. In cases of doubt experimental animals should be employed. Stitt says: "The crucial test for any plague material is the power of the plague bacillus to infect a rat or guinea pig when the material is rubbed on the shaven skin of the animal. As a practical point it may be stated that cases showing a profusion of oval bipolarly staining

bacilli in smears from glands or sputum and with clinical manifestations of plague are not likely to be other than plague."

If we remember that any gland or group of glands may be the seat of bubo and that the point of entrance determines the location of the glands involved, it is not difficult to conceive that an air borne disease would attack the tracheal and peribronchial glands. Tonsillar plague is also known. A few cases in this epidemic seemed to favor the idea of a peribronchial gland involvement. One of my patients gave physical signs of clear lungs with the exception of marked infiltration along the left bronchus. He was suffocating and the application of a few drops of adrenalin chloride under the tongue was followed in a short time by such pronounced relief that the treatment was continued and found useful, in his as well as in similar cases. The severe chest pain in some cases could be due to painful peribronchial glands because plague bubos are extremely painful. Strong, Crowell, and Teague infer as a result of their studies in the Mukden epidemic of plague that the primary infection is probably in the bronchi. From this nidus it extends, producing lobular pneumonia which progresses into a lobar pneumonia.

The physical signs in the lungs are often slight. Dullness is usually absent and the vocal fremitus and resonance are unchanged. In a small proportion of cases small areas of involvement are discovered. Râles are not always present and feeble or embryocardial heart sounds may be heard.

When a laboratory reports that it has used the crucial test with all organisms microscopically and culturally resembling *Bacillus pestis* then it will be time for the profession to sit up and take notice. So far as the writer's reading has covered the reports, *Bacillus pestis*, as a possible factor in the epidemic, has not yet been positively excluded.

AN ANECDOTE OF SIR ASTLEY COOPER.

By THE HONORABLE WILLIAM RENWICK RIDDELL,

LL. D., F. R. S. C., ETC.

Toronto.

Justice of the Supreme Court of Ontario.

In my early years I knew George Coventry, an English gentleman living in Coburg, Ontario, who was a man of great intelligence and considerable literary attainments. At his death he left three volumes of "Reminiscences" in manuscript and from these I take a story of Sir Astley Cooper which may be of interest to the medical profession at the present time.

Speaking of the year 1818, when he was living in London, Coventry says:

"I also attended Sir Astley Cooper's lectures, having a particular friend, Doctor Ellerby, who took me under his protection. They were very clearly and beautifully delivered. On one occasion a man was laid on the table for the audience to witness the dexterity with which Sir Astley could cut off a man's leg. Whilst he was explaining some part of the process, the man died; and there he lay. Sir Astley looked at him and turning round said

very composedly, 'Our friend has left us, bring another.' He went on with the lecture without any further comment, thus evincing to the students the necessity of a surgeon being calm and cool on all occasions."

That reminds one of the experience of the noted Samuel Pepys which he relates in his diary under date, February 27, 1663 (vol. iii, p. 50). He says:

"About 11 o'clock Commissioner Pitt and I walked to Chyrurgeon's Hall (we being all invited thither and promised to dine there) where we were led into the theatre and by and by comes the Reader Doctor Tearne with the Master and company in a very handsome manner; and all being settled he began his lecture, this being the second upon the kidneys, ureters, etc., which was very fine; and his discourse being ended we walked into the hall and there being great store of company, we had a fine dinner and good learned company, many doctors of physique and we met with extraordinary great respect. Among other observances we drank the king's health out of a gilt cup given by King Henry VIII to this company, with bells hanging at it which every man is to ring by shaking after he hath drunk up the whole cup. . . . After dinner Dr. [Sir Charles] Scarborough took some of his friends and I went along with them to see the body alone which we did which was a lusty fellow that was hanged for a robbery. . . . All the doctors at table conclude that there is no pain at all in hanging for that it do stop the circulation of the blood, and so stops all sense and motion in an instant. Thence we went into a private room where I perceive they prepare the bodies and there were the kidneys, ureters, etc., upon which he read today and Doctor Scarborough . . . did show very clearly the manner of the disease of the stone and the cutting. . . . Thence . . . back to the company where I heard good discourse and so to the afternoon lecture upon the heart and lungs, etc., and that being done we broke up, took leave and back to the office. . . ."

(It must have been a great grief to Pepys after this intellectual treat to find a colleague "pretty well fuddled.")

The demonstrations were of course at the College of Barber Surgeons who had been incorporated by Henry VIII. We all know that Henry VIII was one of the most successful exponents of the radical operation for marital infidelity. When he had completed his treatment there never was any return of the malady—the patient was completely cured.

Scarlet Red as a Tissue Stimulant.—A. J. Turner (*Lancet*, March 22, 1919) strongly recommends the application of scarlet red powder in vaseline in the proportion of 1 in 250 in the treatment of a wide variety of conditions in which it is desired to stimulate healing. His list includes operations for ectropion, burns, perineal sinuses, corneal ulcers, and open wounds with extensive loss of tissue. He recommends the application of the ointment for two days followed by the use of hot fomentations for four days, this alternation to be repeated as long as necessary.

RECENT GLEANINGS RELATIVE TO THE PROPHYLAXIS AND TREATMENT OF INFLUENZA.

BY LOUIS T. DE M. SAJOUS, B. S., M. D.,
Philadelphia.

(Continued from page 773.)

On the whole, Capitan became convinced that colloid medication would be followed by markedly lessened mortality in severe cases of influenza with pulmonary involvement. While the effects of colloid treatment on the temperature were variable as regards the rapidity and permanence of defervescence, a striking relief from general prostration was observed in nearly all instances, together with cessation of delirium or semicoma, when present, and a prompt, distinct improvement in the condition of affected lung tissue. From one day to the next dullness referable to an entire lung would almost completely disappear, and breath sounds and râles recur where previously no sound had been audible. In one day, in over one half the cases, a patient apparently beyond all hope of recovery would so improve that only a rapidly retrogressing bronchopneumonia remained. Where, on the other hand, the colloid injections were stopped too soon, the temperature would rise again and the symptoms grow worse, only to yield anew to further administration of the colloid remedies.

Favorable results from the use of colloid metals in conjunction with antistreptococcic serum in the pulmonary and pleural complications of influenza have been recorded by Parisot and Lecaplain, 1919. Colloid gold and silver in the form of the collobiases of these metals were used, either intravenously or intramuscularly. In bronchopneumonia of moderate severity, repeated intravenous injections of silver collobiase generally sufficed to initiate recovery, while in more severe cases, serum in large doses was also used. In suppurative pleural complications, intrapleural injection of ten to twenty mils of silver collobiase after evacuation of the exudate is asserted to have proved beneficial. Aymes, 1919, claims benefit in influenza from intramuscular injections of electrargol. Simonin, 1919, explains the favorable effects of the colloids as being due to stimulation of leucocytic activity and likens their action to that of the turpentine fixation abscess—the latter used by Carrieu and Maritz on about two hundred occasions in influenza, with benefit. In this connection the well known leucopenia in this disease and the stimulating action of moderate doses of quinine on the leucocytes, previously referred to are of interest. It seems possible that one of the main actions of colloid metals, as of quinine, in influenza may be to stimulate flagging leucocytic activity and thereby enhance the resisting powers of the body against invading germs. At any rate, the experiences of the French observers mentioned above with the colloid metal preparations would seem to warrant further trial of these preparations in the active treatment of the disease.

Free administration of alkalis is one of the measures upon which emphasis has recently been laid in influenza treatment. Acidosis being a recognized accompaniment of severe infection, and at

times *per se* exerting a harmful influence, introduction of alkalies suggests itself as a measure from which some degree of benefit might be expected. Considerable evidence is, moreover, available to show that alkalization of the body fluids definitely assists the organism in its defence against pathogenic germs, the favorable effect of alkalies in rheumatic fever, relied upon in this disease before the introduction of the more powerfully acting salicylates, constitutes but one example of the general antiseptic influence—direct or indirect—of alkalization.

Good results have recently been reported by T. C. Ely, 1918, from alkali treatment specifically in influenza. He describes his procedure as a "potassium citrate and sodium bicarbonate saturation by mouth, bowel, and skin." Calcium is also administered in the form of lime water, mixed with two parts of milk. By mouth, Ely gives every two hours one teaspoonful of a one in eight solution of sodium bicarbonate in peppermint water, in hourly alternation with the same dose of a similar solution of potassium citrate. Each patient also receives every four hours an enema of a pint of lukewarm water containing a teaspoonful of sodium bicarbonate. Ely asserts that, in addition to a favorable influence in moderating the severity of the attack, such medication promptly relieves the diffuse pains so characteristic of the early stages of the disease. In fulminating invasions with vomiting and violent headache, however, the potassium salts were not tolerated, and sodium bicarbonate hourly was substituted. Ely appears to imply that under the alkaline treatment, coupled with the usual cardiac and respiratory stimulants, twenty-two cases with pneumonia, during the height of the epidemic, were brought through with but one death. Anstruther Davidson, 1918, favors Ely's view as to the necessity of administering alkalies, and asserts that in severe cases few remedies are equal to sodium bicarbonate, given in doses of sixty grains a day, to be distinctly effective as an influenza preventive.

A word of caution should, I think, be expressed against an excessive administration of alkalies. Diminished appetite, possibly due to reduced formation of hydrochloric acid, and a tendency to diminution of sweat and other secretions owing to altered conditions of osmosis, are to be apprehended where too large an amount of alkaline-saline products is introduced. Systematic testing of the reaction of the urine during the treatment suggests itself as a convenient means of properly controlling the latter in the individual case.

Another interesting recent development bearing on the treatment of influenza is the conception of the prostration in this disease as a species of toxemic shock, as described by R. W. Keeton and A. B. Cushman, 1918. Toxemia as a cause of shock is now an accredited occurrence, on the basis of recent physiological studies of shock etiology. Shock has lately been conceived of by some, not as a manifestation of cardiac or vasomotor impairment, but as an "exemia," characterized by diminished blood volume owing to extravasation of fluid through the capillary walls or to accumulation of blood in the veins. The results are, increased blood viscosity,

showing the blood stream, greater tax on the heart, poor oxygenation, and acidosis. In patients evidently prostrated, but not yet in actual shock, Keeton and Cushman applied, with asserted benefit, the therapeutic principle of dilution of the toxins. Improvement followed the administration of fluids in maximal quantities, by mouth, discontinuous drip enteroclysis, and hypodermoclysis, and the succeeding shock state was thus warded off. In actual shock, however, such treatment was of little avail, while venesection and glucose administration proved definitely harmful. Among the medicinal remedies tried, digitalis and atropine seemed the most efficient, the former doubtless through its property of transferring the blood from the venous to the arterial side of the circulation; the latter, manifestly relieving many of the patients of their cyanosis, possibly by reducing the permeability of the capillaries or dilating narrowed bronchioles blocked by mucous secretions.

Reduction of toxemia is likewise the fundamental aim in the plan of treatment recommended by Mann, 1919. This observer, however, strives to obtain the desired result by stimulation of the detoxicatory action of the liver by means of calomel. He gives the latter drug, one fourth grain, every half hour for six or eight doses, followed by a mild dose of magnesium sulphate in the morning. Subsequently, one tenth grain of calomel is given four times a day for three or four days. Mann asserts that, after the adoption of this treatment as a routine, the ward medical officers observing its effects were unanimous as to a beneficial action resulting from its use; the wards in which it was first applied presented a much better appearance and a lower mortality rate than the others.

Mercury has also been considered valuable by Ferrarini, 1918, who administers daily in severe cases an intravenous injection of one centigram of mercuric chloride dissolved in one mil of saline solution. The measure is, if possible, instituted as soon as the least congestion of the lungs appears; but even when delayed to the fifth or seventh day it was followed by recovery in many cases that had previously seemed doomed.

In subsequent issues certain other recently recommended procedures will be mentioned and the series concluded with a brief consideration of the prophylaxis and treatment of complicating pneumonia.

(To be continued).

Xylol as a Therapeutic Agent.—Louis Bory (*Presse médicale*, February 10, 1919) believes xylol or dimethylbenzene to be deserving of an important place among skin remedies. It energetically dissolves fatty matter and is extremely diffusible and a perfect antiseptic. The following combination is recommended:

Iodol, 1 gram;
Xylolis, 15 to 20 mls;
Petrolati, q. s. ad 100 grams.

M.

The iodine must be first dissolved in the xylol and the solution then added, drop by drop, to the petrolatum, with admixture by means of a glass rod. One application of this preparation generally cures pe-

diculosis pubis. All mild skin infections yield to two or three applications. It is a heroic remedy for the various trichophyton infections. In sycosis, whether due to fungi or bacteria, the preparation is advantageously applied for three or four days, after a wet dressing of Dakin's solution has been used for

ling and tampons in gonococcic urethritis and cervical metritis. When supplemented with Richelot's procedure of solid silver nitrate application, the measure permits of instituting ambulatory treatment in female urethral gonorrhea without danger of contamination. Xylol also appears to have decongestive and antipruritic properties which render it effectual in mosquito bites. Coal tar mixes well with xylol, and the author frequently applies a three in one mixture of this kind in psoriasis.

DEPARTMENT OF COMMERCE

BUREAU OF STANDARDS

CERTIFICATE OF EXAMINATION

OF

REGISTERING CLINICAL THERMOMETER

Submitted by Mr. E. H. Craig

Marked 52968 B. S. No. 157664

This certifies that the above thermometer was found to have the following corrections at this date, compared with the official standards of this Bureau:

THERMOMETER READING	CORRECTIONS
96° F.	0.0
100°	.0
104°	+ .2
108°	+ .2

NOTE.—When the correction is + it should be added to and when — subtracted from the reading.

Unless this thermometer has been suitably aged before testing, its indications are liable to change with time.

Washington, D. C. Apr. 27, 1917

Test No. 21203.

S. W. Stratton
Director.

Form 35. 11-592

FIG. 1.—Earliest form of certificate issued by the Bureau of Standards.

the same length of time. It is in daily use for impetigo, ecthyma, folliculitis, superficial wounds in general, and even in eczema after the acute, weeping period. In lupus the author applies it systematically during the intervals between scarification or x ray treatments. A liquid preparation of one gram of iodine with twenty mils of xylol and eighty mils of liquid petrolatum may be used as an initial dressing in war wounds as well as for instillation in the ear, in the nostrils for coryza or influenza prophylaxis, or even internally in dysentery and other infectious diseases. A combination of one gram of iodoform with ten grams of xylol and forty grams of petrolatum, to be used promptly after made, is employed regularly for chancroid and its complications, though in suppurating chancroidal buboes the author prefers a similar preparation with liquid petrolatum, to be used on the wicks left in the sinuses. In gynecological work, xylol-iodine or xylol-iodoform preparations proved very useful for swab-

MISLEADING CERTIFICATES FOR CLINICAL THERMOMETERS.

Dr. S. W. Stratton, director of the Bureau of Standards, of the United States Department of Commerce, in a note to the *American Druggist*, states that it has been brought to the attention of the Bureau of Standards that clinical thermometers are regularly being sold with certificates of accuracy issued by manufacturers and dealers, which either by direct statement or indirectly by skillful wording lead the purchaser to believe that the thermometers

Clinical Certificate

This Certifies

That Clinical Thermometer

No. 7640

has a fixed point, having been subjected to thorough seasoning before scale was engraved, and will not contract or increase its readings above any point called for by the corrections of this certificate as determined by our standard under inspection and certification of the

National Bureau of Standards
Washington, D. C.

THERMOMETER READING	CORRECTIONS
F. 96°	
100°	✓
104°	0
108°	✓ F

NOTE: When the corrections are + it must be added to the observed reading, and when —, subtracted.

The corrections in the foregoing table are applicable to that Thermometer only which is described by name and number above.

FIG. 2.—Misleading certificate issued by a manufacturer.

have been tested or certified by the United States Government. An examination of the accompanying reproductions of certificates indicates very clearly the reason for the misunderstanding. The similarity between the older form of Government certificate shown in Fig. 1 and the two forms of

manufacturers' certificates shown in Figs. 2 and 4 is so close as to be misleading to almost every one.

The words, National Bureau of Standards, are very prominent on these manufacturers' certificates and the name of the maker is omitted entirely. In fact, nine out of ten persons reading any one of these certificates would fail to note that the com-

their own names. These manufacturers are being done an injustice by their unscrupulous competitors, who without even testing a thermometer boldly state that it has no errors and is sold in accordance with the requirements of the United States Government.

Only recently the bureau was requested to replace or refund the money paid for a clinical thermometer which the purchaser had inferred from the certificate (one of those shown in the photograph) to have been tested and guaranteed by the United States Government. The certificate, dated September 22, 1917, shown in Fig. 3, is the form now issued by the National Bureau of Standards unless the other form is specifically requested. The distinctive form should be noted. The seal of the Bureau of Standards appears above the face of the certificate. Up to this time no counterfeits of this new form have been brought to the bureau's attention.

The Bureau of Standards at Washington has issued a publication (Circular No. 5) on the test-

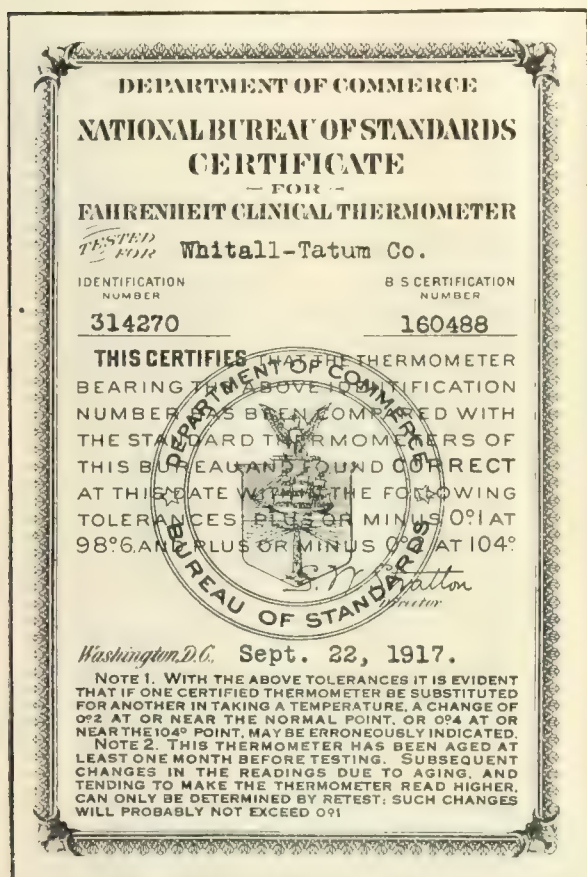


FIG. 3.—New form of certificate issued by the Bureau of Standards.

plete statement is to the effect that the clinical thermometer has been compared with our standards corrected by National Bureau of Standards. Our, refers to the standards of the manufacturers of the instruments, and while the validity of the statement is difficult to prove or disprove, since certified clinical standards may have been furnished the manufacturers, the reliability of the thermometer depends solely upon the manufacturer who may or may not have carefully tested the instrument. That many manufacturers do not make such careful tests is indicated by the fact that while practically all of such certificates show correct readings at all points, actual tests of the instruments show that only a very small proportion read correctly at all points on the scale.

The Bureau of Standards has not taken the position that manufacturers should not issue certificates for thermometers; provided the certificates are the result of careful testing, are not deceptively worded and bear the name of the manufacturer. There are reliable manufacturers turning out high grade instruments who issue their own certificates over

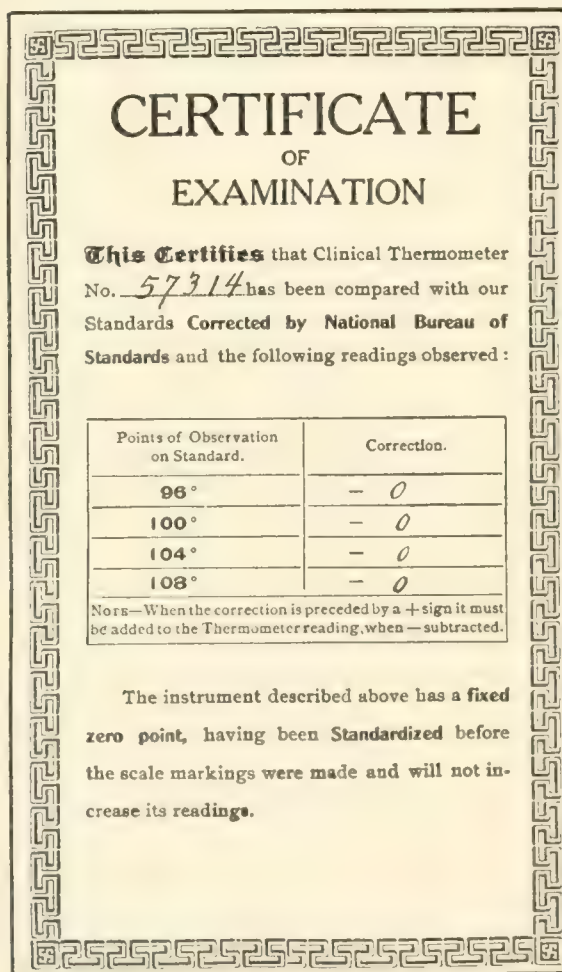


FIG. 4.—Misleading form of certificate issued by a manufacturer.

ing of clinical thermometers which will be sent to any one sufficiently interested to apply for a copy. The publication answers in more detail some of the questions touched upon in this letter and contains considerable information in regard to clinical thermometers.

Editorial Notes and Comments

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NEW YORK, SATURDAY, MAY 17, 1919.

AN INTERNATIONAL HEALTH LEAGUE.

A league of nations is being formulated. Its object is to prevent war and useless loss of life, and to rid the world of one of its useless and barbarous customs; to find another method of settling disputes than that of force and bloodshed. Disease causes more deaths than war. The last pandemic of influenza was more deadly than the great world war. Neutrals were affected as well as the combating countries. World history records many pandemics similar to the last one. In Asia, cholera, bubonic plague, and smallpox have ravaged the countries and filled the cemeteries. In Europe, frequent epidemics materially reduced the population.

Various centres have for centuries past been the source of origin of these epidemics. These focal points were due to filth, overcrowding, and lack of proper sanitation in the communities. Salonica, until taken over by the Greeks from the Turks in the last Balkan war, was the dirtiest city in Europe. Most of the epidemics which devastated Europe for centuries originated in Salonica. Once these diseases gained a firm foothold in well prepared soil, their virulence had increased to such a degree that they swept over the continent with acquired momentum and embraced other countries where a higher standard of sanitary conditions prevailed.

Among the people who have lived in squalor and filth, among the lowest and filthiest, a certain

form of immunity has been developed whereby they are able to resist epidemic diseases far better than people who live under more sanitary conditions. So it had come to pass that they have acted as carriers and incubators, and when disease spread to the surrounding countries the mortality rates in those communities were far greater than in those regions in which the diseases originated. They escaped with a low penalty, while the others paid the price for their ignorance. When we consider the toll that has been paid in the past, it will justify the interest we now take in how the peoples are housed and fed in other countries, no matter how remote, and in the education they receive in sanitation and in general health questions. Epidemics do not recognize national boundaries; they are international in their activities.

Here we see the analogy of the adage, "No chain is stronger than its weakest link," in that society is no stronger than the weakest nation. It may be said that we have no right to step in and control the internal affairs of another nation, but as long as that nation is a menace to the rest of the world, as a matter of self preservation we should deem it our duty to interfere and regulate, as best we can, the sanitary conditions of that nation.

The science of medicine is international in scope. Preventive medicine has made tremendous strides in eradicating certain well known diseases, but a great deal remains to be done. The scope and usefulness of this most important branch of medicine could be made greater and more far reaching if a general international committee was established with representatives from every country, by whom matters which affect the health of the world at large could be worked out and methods devised to prevent the possibility of future epidemics. It is a tremendous undertaking. It is vital and directly affects the well being and lives of millions of people.

Now that the war is ended, and we are attempting to remedy the ills of society by an international union, this is an opportune moment for establishing an organization based on these principles. The question should be put before the medical men of the various countries and the situation set before them. They should be told that the problem concerns the nation which they represent; that they should be vitally interested from the point of view of self preservation. We must proceed on the basis of sanitation and education.

GREAT LITERARY MEDICAL MEN.

It is hard to serve two masters, and perhaps one of the reasons why more medical men have not inscribed their names in the book of fame is because it is given to but few to excel in more than one field of endeavor. To make a name in literature, and especially in that form of literature known as fiction, means that the writer can rise to the highest flights of imagination. This is not to say that the delver into the secrets of medical science does not require the exercise of imagination; he does; nor that the writer gifted with the divine spark does not need patience; he does need it; but it is impossible to greatly succeed in medical science without having infinite patience, while the writer of genius can soar without having education or perseverance.

Of the English speaking literary giants who happened to be medical men, there are two who by universal acclamation are accorded foremost places: Tobias Smollett and Oliver Goldsmith, the first a Scotchman, the second an Irishman. Smollett studied medicine at Glasgow University and at the age of eighteen left Glasgow for London, with the manuscript of a play in his pocket and nothing else to fall back upon except his brains and his sturdy Scotch independence. He failed to find a purchaser for his play, and in desperation embarked as surgeon's mate on a line-of-battle ship and served in the Carthage expedition in 1741. He left the navy and returned to England in 1743. Up to this time he had been unsuccessful in all to which he put his hand. In 1745 he brought out *Roderick Random*, which was at once a success. Afterward he wrote in succession *Percy Pickle*, *Adventures of Ferdinand Count Fathom*, a version of *Don Quixote*, *The Critical Review*, *History of England*, *Travels*, *Adventures of an Atom*. In 1750 he took the degree of M. D. at Aberdeen, and practised medicine off and on at different periods of his checkered career. He died at Leghorn in his fifty-first year, and after his death his most delightful work, *The Adventures of Humphrey Clinker*, was published. Smollett had been reviewer, historian, critic, medical writer, poet, and pamphleteer. He was assigned by Sir Walter Scott and his contemporaries a very high rank in literature. His writing is robust, in keeping with his character, which was distinguished by a fierce Scotch independence.

Oliver Goldsmith and Smollett were as far apart as the poles in character and disposition. Goldsmith in many respects was as typically Irish as Smollett was Scotch, and followed his profession even less assiduously. For the greater part of his life he existed from hand to mouth in London,

doing any kind of hack writing and dissipating his money in the most careless manner. From the very first, however, his genius was recognized by a few of the most renowned men of letters and arts in London. Doctor Johnson, Sir Joshua Reynolds, Garrick, and Burke were proud to call Goldsmith friend, and he was perhaps the most beloved member of that brilliant coterie of choice spirits who assembled weekly under the leadership of Johnson. In appearance Goldsmith differed as greatly from Smollett as in character. Smollett was an eminently handsome man, Goldsmith was short, stumpy, with a somewhat absurd face and immoderately fond of decking himself in gorgeous raiment. Wayward, erratic, and perhaps incapable of sustained effort, his gifts of imagination rendered it easy for him to write interestingly and instructively on any subject.

As Smollett excelled Goldsmith in appearance, so Goldsmith far surpassed him in genius. The *Vicar of Wakefield* and *She Stoops to Conquer* will live as long as the English language is read. Indeed all his writing, even his hack writing, is illuminated by flashes of genius. Goldsmith attempted to practise as a physician more than once, but with little success. He wrote a natural history of no value from the scientific point of view, although from the literary aspect it is a work of art. Goldsmith is undoubtedly the greatest purely literary genius that Ireland has ever produced.

Goldsmith and Smollett are the two medical men of the English speaking people who may be said to have possessed true genius. Goldsmith towered over the Scotchman. *She Stoops to Conquer* is one of the few really great plays written by a Briton. *The Vicar of Wakefield* in its way is unique and his poems are marked by sensibility, great humanity, and easy flowing versification. It would have mattered little to what profession Goldsmith belonged. He chanced to be a doctor. From head to foot he was the shiftless literary man, too irresponsible to be bound down by any business ties. Nevertheless, the medical profession may take pride to itself that the immortal Oliver even called himself a doctor.

Smollett, though lagging far behind Goldsmith, was assuredly the second so far as literary genius is concerned of the English speaking medical men who wrote. He was a strong, virile writer of terse, vigorous English, a hard hitter, who asked favor of no man. Smollett was a man of surpassing energy, and more of a physician than Goldsmith, and had he employed his marvellous discerning and acute mental faculties to the study and practice of his profession undoubtedly he would have come to the "top." Fortunately, for the world at large he did that for which his genius was best adapted.

THE NERVOUS MANIFESTATIONS ARISING IN DORSOLUMBAR POTT'S DISEASE.

In many instances, Pott's disease will undergo its evolution without any signs referable to the spine, or only indistinct evidence of the process, and the affection may only be revealed by nervous disturbances. The prodromal phase is usually made manifest by girdle pains having the characteristics of radiating pseudoneuralgia and which on account of their frequency and precocity are of great diagnostic importance. To the girdle pain, abnormal sensations in the lower limbs are added, such as simple paresthesia or true pain of varying types and intensity. Pseudoneuralgia of the sciatic nerve and lightning pain precede or accompany the motor disturbances.

The motor disturbances of the initial period either develop progressively, often in a subacute manner, or after some disturbance in walking; paraplegia occurs suddenly, or at least very rapidly in a few days. When the paraplegia has attained its maximum it is usually spasmodic, resulting from a medullary lesion or compression and characterized by contractures, exaggerated reflexes, absence of muscular atrophy and objective disturbances of sensibility. More infrequently a limp paralysis ensues due to isolated lesions of the roots or their compression from edema. In this case muscular atrophy and disturbances of sensibility are present and it is occasionally preceded by spasmodic paralysis.

When the phase of radicular medullary lesion is reached the motor disturbances are present in one of the four following aspects: First, a limp paralysis from radicular lesions which may develop into a spasmodic paralysis resulting from an extension of the cord lesions. Second, a permanent limp paralysis without disturbances of sensibility, due to extensive medullary lesions extending downward and involving all the reflex centres situated below. In other cases they are due to compression from edema or purulent pachymeningitis which cuts off the conductivity in the motor substance. Third, spasmodic paralysis of the lower extremities with integrity of the upper extremities due to medullary lesions or compression of the cord. They are characterized by contractures, exaggeration of the reflexes and muscular atrophy. Fourth, spasmodic paralyzes involving all four kinds, the degeneration starting from the dorsolumbar region and from there extending upward. If there is at the same time a medullary lesion and compression of the roots from pachymeningitis and edema there will be spasmodic paralysis of the lower limbs and a limp paralysis of the upper extremities.

The terminal phase is characterized by a limp

paralysis in direct relation to the complete destruction of the motor elements. If there is medullary division there will be complete anesthesia, while if there is a destruction of the gray matter and hemisection of the white matter there will be a syringomyelia dissociation of the sensibility. Finally, if the medullary lesions affect an ascending progress a spasmodic paralysis will arise in the upper extremities.

In many cases a minute analysis of the nervous symptoms will lead to a diagnosis of Pott's disease without a gibbus, yet there are others in which the diagnosis is impossible to make. A positive diagnosis rests upon the signs of tuberculosis and those of a rachitic lesion. Examination of the cerebrospinal fluid and radiography will often lead to the detection of the true condition of affairs. The differential diagnosis is to be made with sciatica, the polyneuritides, myopathies, medullary compression from traumata, syphilitic myelitis, and syringomyelia. Finally, the diagnosis between tuberculous myelitis and myelitis in a tuberculous patient is practically impossible. The diagnosis of the site of the lesion is difficult, if not impossible, the anesthesia being due to numerous causes, such as compression of the roots and cord by the epidermal focus and the myelomalary focus which may reach far above the bone lesions, or on the other hand it may only be encountered below them.

From the point of view of prognosis Pott's disease, without evident lesions of the spine, appears to offer a special gravity, while its evolution seems to be more rapid than in the common types of the affection. For this reason it is important that the condition should be recognized as early as possible, so the patient may be placed upon a rational treatment.

MISLEADING CERTIFICATES FOR CLINICAL THERMOMETERS.

The director of the United States Bureau of Standards, Dr. S. W. Stratton, has found on the market clinical thermometers accompanied by certificates which, to the superficial observer, might appear to have been issued by his bureau. With a view to avoiding such misunderstanding the bureau has adopted a new and more elaborate form of certificate, in the hope that no effort will be made to simulate it. In another column we print facsimiles of both the old style certificate issued by the bureau and the new style certificate. We also print reproductions of two specimens of certificates which, though issued by manufacturers, might be misunderstood by the purchaser as representing the results of examination by the bureau.

The temptation to purchase clinical thermometers at reduced rates is one which many hospital superintendents are unable to resist, but there is no direction in which economy is more costly. An inaccurate clinical thermometer might well be characterized as a lethal weapon, for the physician who depends upon its readings for guidance might easily be led into a fatal error in treatment. The safest thing by far is for the hospital superintendent to purchase his thermometers from a reputable manufacturer at a fair price and then send them to the Bureau of Standards at Washington for certification. He will then feel safe in handing them out to nurses and physicians, as he could rest assured that their readings may be relied upon." The doctor purchasing a thermometer singly or in small quantities for his own use can readily insure their accuracy by purchasing them only from reliable dealers and insisting that each thermometer be accompanied by a certificate direct from the Bureau of Standards. The additional cost of such a certificate, probably somewhere about twenty-five cents, is negligible when the importance of the reliability of these instruments is borne in mind.

News Items.

American Association of Orificial Surgeons.—The thirty-second annual meeting of this association will be held at the Congress Hotel, Chicago, September 15th to 17th, under the presidency of Dr. W. A. Guild, of Des Moines, Ia.

Colonel Straub Retired.—Colonel Paul F. Straub, Medical Corps, U. S. Army, was retired from active service on May 6th, on account of disability incident to service. He entered the army as an assistant surgeon in 1892, and was last on duty in Washington, D. C. He is the holder of a Congressional Medal of Honor for gallantry in the Philippines during the campaign there, 1899-1901.

A Cavell Memorial Hospital.—Colonel Antoine Depage, of the Belgian Army, announces that he is planning to erect a hospital in Brussels as a memorial to Edith Cavell, the martyred English nurse, and to his wife, Mme. Marie Depage, who went down on the *Lusitania* as she was returning to Belgium with relief funds from America. Colonel Depage is professor of surgery at the University of Brussels and head of the Belgian Red Cross.

Discussions on Drug Addiction.—At a regular meeting of the Medical Society of the County of Kings, to be held at 1313 Bedford Avenue, Brooklyn, Tuesday evening, May 20th, the subject of drug addiction will be discussed. Among those who will speak is Health Commissioner Royal S. Copeland. Doctor Copeland will also discuss the subject at the next meeting of the Medical Society of the County of New York, which will be held at the New York Academy of Medicine, Monday evening, May 26th.

Philadelphia Medical Societies.—The following medical societies will meet in Philadelphia during the coming week:

MONDAY, May 19th.—Medical Society of the Woman's Hospital.

TUESDAY, May 20th.—West Branch of the County Medical Society.

WEDNESDAY, May 21st.—Section in Otolaryngology of the College of Physicians.

FRIDAY, May 23d.—Northern Medical Association

Typhus Among the American Workers in Kavalla.—Greek refugees arriving at Kavalla by sea from Varna, Bulgaria, brought typhus with them and the group of Americans stationed here were practically all affected by the disease. Some of the members of the mission died as a result of the infection. Conditions at the height of the epidemic were alarming as it was feared the disease might spread to adjoining communities.

Bedford Private Maternity Hospital to Be Enlarged.—This institution, situated at 254 Montgomery street, Brooklyn, announces that it has acquired the entire block on Montgomery street, between Bedford avenue and Stoddard place, and that plans are being prepared for the erection of an additional pavilion which will increase the bed capacity so that 1,500 obstetrical and gynecological patients can be cared for annually.

American Memorial Hospital.—The municipal government of Rheims has donated a building site for a hospital to be constructed in memory of America's dead. The American Fund for French Wounded has donated the required sum for the erection of the hospital. The hospital is to be endowed. There will be one hundred beds in the completed institution and the approximate endowment cost will be \$6,000 for each bed.

Physicians' Protective League Opposes Compulsory Health Insurance.—At a meeting held on May 8th at the Harlem Chamber of Commerce, the Physicians' Protective League, heartily endorsed the action of the Medical Society of the State of New York in instructing its delegates to oppose compulsory health insurance at the annual meeting of the American Medical Association at Atlantic City next month.

Casualties in the American Expeditionary Forces.—The casualties in the American Expeditionary Force reported up to May 9th are as follows: Killed in action, 32,220; lost at sea, 733; died of wounds, 13,409; died of accident, 4,616; died of disease, 22,981; total deaths, 74,019. The wounded, eighty per cent. of whom returned to duty, numbered 201,196; missing and prisoners, not including prisoners released and returned, 3,989; prisoners released and returned, 4,534. Grand total, 283,738.

An Emergency Hospital at the Pennsylvania Hotel.—An emergency hospital, completely equipped and modern in every particular, has been established in the new Pennsylvania Hotel, New York, for the 2,000 employees of the hotel, all of whom will receive free medical and surgical treatment. There will be an operating room, an x ray room, two emergency wards, a record room, and two consultation rooms. Dr. Joseph Nagel will be in charge and will have three trained nurses on his staff. A fourth nurse will visit the homes of employees who are ill.

Medical Association of the Greater City of New York.—A stated meeting of this association will be held on Monday, May 19th, in DuBois Hall, New York Academy of Medicine, under the presidency of Dr. Edward E. Cornwall, of Brooklyn. Dr. J. Herman Branth will present several interesting case reports. Dr. Walter B. Chase, of Brooklyn, will discuss the Proved Value of Radium Therapy in Excessive Uterine Bleeding. Dr. Irving Wilson Voorhees will read a paper on the Treatment of Chronic Cough. Major Henry M. Moses, Medical Corps, will tell of his work in Base Hospital No. 37, in Dartford, England.

Commission for the Rehabilitation of the Industrially Crippled.—Dr. Fred H. Albee, of New York, chief of the surgical service at the United States Army General Hospital No. 3, Colonia, N. J., has been appointed by Governor Edge chairman of the Rehabilitation Commission of the State of New Jersey. This commission was created by a recent act of the New Jersey Legislature which provides for the rehabilitation of those crippled in industry. On May 9th Governor Edge and the commission visited United States Army General Hospital No. 3 for the purpose of investigating methods of organized surgical reconstruction which might be carried out with equal success in the case of the industrially crippled coming within the new law.

\$150,000 Gift to Mount Sinai Hospital.—The Mount Sinai Hospital has received a gift of \$150,000 from Mr. and Mrs. George Blumenthal for the erection of an auditorium building on the hospital grounds at Ninety-ninth Street east of Fifth Avenue. Besides a large auditorium which will be devoted to the educational work of the hospital, the Mount Sinai Training School for Nurses, and the social service department, the new building will house a new and up to date x ray department. The building is to be erected as a memorial to George Blumenthal, Jr. The Blumenthal Auditorium, as the new building is to be known, will be the sixteenth building in the Mount Sinai group, which faces Central Park and extends from Ninety-ninth to 101st Streets.

Sir William Osler's Anniversary Book.—On July 12th Sir William Osler will be seventy years of age, and in celebration of that event an anniversary book is being prepared by his pupils and colleagues. There will be two large volumes of over 700 pages each, with a new engraving of Sir William Osler as frontispiece. All contributions are original and never published before. Dr. William H. Welch is chairman of the committee and Dr. Casey A. Wood, secretary. The American members of the committee are Dr. Harvey Cushing, Dr. Charles L. Dana, Dr. George E. de Schweinitz, Dr. Fielding H. Garrison, Dr. Abraham Jacobi, Dr. Henry Barton Jacobs, Dr. Francis J. Shepherd, and Dr. Horatio C. Wood. The British members of the committee are Dr. J. George Adami, Dr. Raymond Crawford, Dr. Bertrand Dawson, Dr. Walter Morley Fletcher, Dr. A. Keith, Dr. Andrew MacPhail, Dr. D'Arcy Power, Dr. H. D. Rolleston, and Dr. Charles H. Singer. Further information may be obtained from the publisher, Paul B. Hoeber, New York.

New Building for Hospital for Deformities and Joint Diseases.—At a dinner given recently by the directors of the Hospital for Deformities and Joint Diseases, in honor of Louis Rothschild, the retiring treasurer, it was announced that the construction of a new building, to cost about \$1,000,000, is contemplated. It is expected that the new building will provide accommodations for three hundred patients. The hospital was established in 1894 in a private house, and since then it has been necessary to move three times into larger quarters.

Women's Medical Society of New York State.—The thirteenth annual meeting of this society was held at the Onondaga Hotel, Syracuse, N. Y., Monday, May 5th, under the presidency of Dr. Elizabeth Burr Thelberg, of Poughkeepsie. Doctor Thelberg was reelected president, and other officers were elected as follows: Dr. Florence I. Staunton, of Utica, first vice-president; Dr. Sarah J. McNutt, of New York, second vice-president; Dr. Mathilda K. Wallin, of New York, third vice-president; Dr. Ethel D. Brown, of New York, secretary; Dr. Phoebe M. Van Vorst, of New York, treasurer.

Meetings of Local Medical Societies.—The following medical societies will meet in New York during the coming week:

MONDAY, May 19th.—New York Academy of Medicine (Section in Ophthalmology); Medical Association of the Greater City of New York; Psychiatric Society of Ward's Island; Yorkville Medical Society.

TUESDAY, May 20th.—New York Academy of Medicine (Section in Medicine); Federation of Medical Economic Leagues of New York.

WEDNESDAY, May 21st.—New York Academy of Medicine (Section in Genitourinary Diseases); Medicolegal Society; Northwestern Medical and Surgical Society of New York; Woman's Medical Association of New York City (annual); Alumni Association of the City Hospital (annual).

THURSDAY, May 22d.—Hospital Graduates' Club of New York; New York Physicians' Association; Ex-Intern Society of the Methodist Episcopal Hospital.

FRIDAY, May 23d.—Academy of Pathological Science; Audubon Medical Society; New York Clinical Society; Brooklyn Society of Internal Medicine.

SATURDAY, May 24th.—Lenox Medical and Surgical Society; New York Medical and Surgical Society; West End Medical Society.

Personal.—Dr. Ralph J. Levy announces that he has returned to New York from military service and resumed his private and hospital practice at 300 Central Park West.

Dr. Amedie Granger, of New Orleans, was elected president of the Louisiana State Medical Association, at the fortieth annual meeting held in Shreveport, April 7th to 10th.

Sir St. Clair Thomson, professor of laryngology and physician for diseases of the throat and nose in King's College Hospital, London, will deliver the address in medicine at the annual meeting of the Ontario Medical Association, to be held in Toronto on May 28th. His subject will be Shakespeare as an Aid in the Art and Practice of Medicine.

Dr. Alexander McPhedran has resigned as professor of medicine at the University of Toronto. Dr. Duncan A. L. Graham has been appointed his successor.

Dr. Paul V. Winslow, attending otorhinolaryngologist at the Brooklyn State Hospital, announces that he has opened an office at 616 Madison Avenue, New York.

Miscellany from Home and Foreign Journals

New Prospects in the Field of Therapeutic Immunization.—Almroth E. Wright (*Lancet*, March 29, 1919) points out that vaccine therapy is usually unsuccessful in cases in which the infection is producing continued constitutional disturbance and recurring pyrexia; where there are unopened abscesses or sloughing wounds with corrupt discharges; and generally in long standing infections. The author then enters into a long dissertation with illustrations of his contentions drawn from various experiments in *vitro*, in all of which he amplifies upon these three types of condition which commonly fail to respond to vaccine therapy, and in which he attempts to explain the several causes of the failure. In the successful suture of infected wounds three conditions must be met: first, freedom from pus having a reduced or lost antitryptic power; second, the elimination of all dead spaces; and last, the presence of good leucocytic emigration into the wound. It is the full meeting of these three conditions which probably accounts for the greater success of delayed primary suture over immediate suture. It has been possible to enhance materially the bactericidal power of serum and lymph both by the administration of a suitable vaccine and by the treatment of the serum or lymph with vaccine in *vitro*. It has also been shown that when the body's capacity for the elaboration of antibodies has been exhausted by the infecting organism, its immunity response may still be stimulated nonspecifically by the administration of vaccines made of other organisms than the infecting one. Finally, in desperate cases hope may be offered by so called immunotransfusion, or the transfusion of blood which has been treated with suitable doses of vaccines in *vitro*. These, and various other, possibilities have been opened up by intensive study of the conditions met with in war wounds and it only requires further elaboration to make many of them practicable measures for therapeutic application.

Treatment of the Bladder in Gunshot Injuries of the Spinal Cord.—Frank Kidd (*British Medical Journal*, April 5, 1919) says that before the war the profession was obsessed with the idea that very little could be done for the unfortunate sufferers from gunshot injuries of the spinal cord so far as the state of the bladder was concerned. This was due to an erroneous conception of the conditions and of the physiology of the bladder. He cites the recent work of Head and Riddoch to show that when the bladder has been adequately cared for it can be made to empty automatically at fixed intervals, this automatic action being established in two weeks or more in partial lesions of the cord, in three to four weeks in complete lesions, and in three or four months in sacral lesions. In order to obtain an automatic bladder in such cases two conditions must be met, namely, the paralyzed bladder must never be allowed to become over distended and stretched for it then cannot recover its tone, and the bladder must never be allowed to become severely infected, for this destroys the muscular tissues and leads to

their replacement by fibrous tissue. Four methods are available, or have been practised, for the care of the bladder: 1. The intermittent use of the catheter. 2. Immediate suprapubic cystotomy. 3. Regular periodical expression of the urine. 4. The use of the tied in catheter. Of these the two first do not fulfill the conditions and should be abandoned. The author has employed the fourth method with the greatest success when certain very necessary precautions have been observed, but he is inclined to believe that the third method, when properly carried out, may prove to be the best. His plan of using the tied in catheter is to irrigate the anterior urethra thoroughly with a quart of warm water containing two drams of the oxycyanide of mercury and then to pass a sterile soft rubber catheter of No. 9 or No. 10 English scale. This is tied in by means of a safety pin passed through it, to which two small strips of soft tape are attached and fastened to the penis by adhesive plaster. The urine is collected in a bottle. The catheter should be changed every fourth day, the urethra being irrigated at each change. While the catheter is in *situ* the bladder should be irrigated with the solution of the oxycyanide of mercury twice daily and the patient should be given hexamethylenamine and acid sodium phosphate if the urine is acid and boric acid and ammonium benzoate if it is alkaline. When the automatic bladder has been established the catheter should be removed but the internal treatment should be continued and the bladder thoroughly lavaged once or twice daily for some time.

Causation and Prevention of Industrial Accidents.—H. M. Vernon (*Lancet*, April 5, 1919) says that in England over 1,000 workers, exclusive of miners, are killed annually in industrial accidents; that from 100,000 to 200,000 receive injuries which incapacitate them for a week or longer; and that about 2,000,000 receive minor injuries. The accident records of four large munition factories for periods of nine to more than twenty-five months were examined with reference to the causation of the accidents. More than 50,000 accidents were tabulated. Over three fourths of the accidents were cuts, mainly of the hands, by contact with sharp lathe tools. The number of cuts was at a minimum during the first hour of the morning and rose steadily during the morning. In the case of men workers this rise was not due to fatigue, for it was no greater for a twelve, than for a ten, hour day. It was due to an increasing speed of production in part, but more especially to carelessness and inattention. This was shown by the fact that the curve of accidents among the night shifts was almost the reverse of that just given for the day shift. The night workers had usually about four hours for themselves before coming to the factory; they had had substantial meals; and they had nothing to look forward to at the end of the shift except breakfast and bed. They therefore came to work in an excited state and calmed down during the night, hence were most careless at first and grew progressively less so. Fatigue does, however, play

an important part among women workers, as clearly shown by the fact that accidents were twenty-nine per cent. more numerous in the afternoon than in the morning spell, and that they were two and a half times more numerous on a twelve than on a ten hour day. The influence of alcohol was clearly shown by the greater number of accidents in the first hours of night shift work than in later hours, by the greater number of accidents before the sharp restrictions on alcoholic beverages went into effect, and by the diminishing number of accidents in the day shifts as the week progressed, with a sharp rise at the end of each week. Unsuitable temperature was found to be a very serious cause of accidents, these having been found at a minimum at temperatures between 60°-69° F; twenty-one per cent. more numerous at 72° than at 67°, and thirty per cent. more numerous at 77° F. When the temperature fell below the optimum accidents also increased and were eighteen per cent. more numerous at 57° than at 67° F. Defective illumination is well known to be a serious cause of accidents, but as the factories investigated were all well lighted the only accident which was materially greater by night than by day was that of foreign particles in the eyes. Accidents can largely be prevented by improving the lighting and temperature of factories and by employing the methods so widely used in the United States in the "safety campaign."

Adjustment of Response to Nerve Stimulus in Voluntary Muscles.—G. M. Levick (*British Medical Journal*, March 29, 1919) bases his statements and conclusions on the results of tests made upon many hundreds of men, and including every grade of nerve injury. Records were taken of the height, rate of rise, and rate of fall of the curve produced by the contraction of a muscle by means of an interrupted galvanic current. In every case the affected muscle was compared with the healthy counterpart. It was found that when a normal muscle was subjected to a series of stimuli of varying strength it responded by a succession of contractions of varying height, but of uniform duration. The duration of the contraction of a given muscle is the same, whether the stimulus is short and sharp or long and diffuse. Slight diminution of the conductivity of a motor nerve by compression or injury causes a slight lengthening in the duration of the curve of contraction of the muscle which it supplies. Marked reduction, or complete destruction, of the conductivity of a motor nerve leads to marked lengthening in the wave of contraction of the muscles which it supplies. Abnormal and persistent increase in the stimulation of a motor nerve through irritation, leads to a shortening of the duration of the contraction of the muscles supplied. After suture of a nerve and its regeneration the faradic response of the muscle is the first to appear, then the muscle begins to respond to electrical stimulation with a slight shortening of the contraction curve. This is followed by a period of further shortening until, after complete regeneration of the nerve, the muscle contraction curve is lengthened until the normal is restored. The study of the duration of muscle contraction curves promises to prove of considerable value in diagnosis.

Observations on Eye Work.—George S. Derby (*Archives of Ophthalmology*, May, 1919) gives a clear though brief account of the ophthalmological service in the British Army as observed by him for thirteen months. Much of the work was of the same type as that seen in civilian life. The largest group that differed were the gassed cases. Lacrimatory gas affected the eyes slightly and temporarily, but with mustard gas the eyes were affected in eighty per cent. of the cases. The milder cases showed only a slight injection of the eyes, which cleared up quickly. In the more severe types the lids were red and swollen and often there were large bullæ. There was intense photophobia and the lids were kept tightly closed, so that it was often necessary to cocaine the eye and use lid elevators in making the first examination. There was marked conjunctival and ciliary injection, sometimes chemosis, and occasionally a white edema of the conjunctiva. The cornea showed lesions varying from a roughening of the epithelium to a well marked band which extended across the palpebral fissure.

Corneal ulceration occurred only when secondary infection had set in and a comparatively small number of eyes were lost or damaged. The gassed eye tends toward spontaneous recovery, and proper treatment usually prevented secondary infection. In the treatment of mustard gas it is important to wash out the eyes as soon as possible with some mild alkaline solution. Then the eye is to be kept clean with some bland collyrium, such as boric acid or salt solution. Oily solutions are well borne, the best seemed to be liquid albolene. Castor oil dissolves mustard gas, but proved more irritating than albolene. For the photophobia and ciliary irritation atropine should be used. The eyes should be protected from light, but not bandaged. Secondary infection is best treated by some mild antiseptic like argyrol.

An interesting account is given of the handling of the trachoma problem among the alien labor companies. There were several thousand Egyptians, of whom nineteen per cent. had trachoma, and upwards of 100,000 Chinese, nine per cent. of whom were affected. As the result of his experience he feels strongly that eye work should be done by the specialist. Enucleation is easy, but it is surprising how badly it is often done by the general surgeon, and how much tissue is removed which should be left if a proper stump is to be retained. Every possible bit of tissue in lacerating wounds of the lids, conjunctiva and orbit should be saved, and the most careful repair of these wounds should be made as early as possible, yet the debridement performed resulted in horrible deformities. The packing of the orbit, often practised by the general surgeon, is unnecessary, and the general surgeon does not realize the necessity of removing every fragment of the shattered eyeball, often a difficult procedure. In many cases it is difficult to decide whether or not a wounded eyeball should be removed at the primary operation. The earlier a foreign body can be removed from an eye, the better the chance for retaining a certain amount of sight.

Treatment of Hemorrhoids with Richet's Crushing Forceps Cautery.—P. Bazy (*Bulletin de l'Académie de médecine*, February 25, 1919) advocates, after prolonged experience, the use of the Richet method. The anus is first forcibly dilated with Trélat's dilating speculum. Spontaneous extrusion of a mass of hemorrhoids frequently follows, or at least, the hemorrhoid bearing areas become visible. The first mass of hemorrhoids is then drawn down with volsella or forceps, and a slightly curved needle to which a copper wire has been soldered passed in slightly above the mucocutaneous junction and caused to emerge as high up as possible. The piles are held down with the copper loop alone, the forceps having been removed. The same procedure is repeated with the two other hemorrhoidal masses usually present, with resulting formation of three pedicles, approximately equidistant. Next the anus is surrounded by rather thick compresses wet with cold water, and the Richet forceps cautery, previously heated to a cherry red color on a charcoal fire, closed firmly against one of the pedicles. In order that the forceps cautery may carry sufficient heat, its jaws are made very thick, each measuring two centimetres by one centimetre by five centimetres. The hemorrhoidal mass is gradually destroyed by the heat and reduced to a thin, blackish, parchment like layer. The same procedure is carried out for the other two pedicles, and there remain three dark furrows disposed in a radiating manner and for the most part disappearing in the rectum. The operation is quite bloodless and therefore particularly appropriate in patients who have already lost considerable blood. Added advantages are the rapidity of recovery, relative absence of after pain, and constancy of therapeutic results. The dressing consists merely of a wick impregnated with petrolatum and inserted in the rectum; later, irrigations and enemas are administered. Many patients are so little inconvenienced that a postoperative injection of morphine is unnecessary. Extension of the effects of the cautery occurs beyond the radiating furrows to any hemorrhoids that have remained uncauterized, and there results a complete destruction, direct or indirect, of all the hemorrhoids. Patients leave the hospital in four days. Neither recurrence, sphincter relaxation, nor incontinence of feces follows the operation.

Left Scapular Pain and Tenderness in Heart Disease and Distress.—John Parkinson (*Lancet*, April 5, 1919) noticed that a considerable proportion of soldiers sent to the heart section complained of pain in the back along with pain below the left breast. He investigated this pain in the back in 100 consecutive men who came to him with the complaint of pain in the left chest. Of this series twenty-eight men also were found to have pain in the region of the angle of the left scapula. These, with twenty-two others collected later, comprise the material on which he bases his statements. The pain is always typically localized by the patient to the area just below or internal to the lower angle of the left scapula, though this pain may be found to extend up along the vertebral border of the whole lower half of the scapula, or may be associated with complaint of pain in the posterior axil-

lary line at the level of the lower scapular angle. The scapular pain did not seem to occur in the absence of submammary pain, which is located in one or more of the fourth, fifth or sixth interspaces. In front it may also extend up to the third or the second space. Eight of the men also complained of pain or paresthesia in the left arm, as well as in the back and left side of the chest. Usually the pain in the back is of the same type as the submammary pain and it may be sharp and stabbing or dull and aching. Exertion was found to be by far the commonest exciting cause of the pain, while in a few cases the pain was also aggravated by lying on the left side. Usually the scapular pain had gradually developed after the appearance of submammary pain and it had lasted for more than one year in all but eight of the men. The commonest associated symptom was shortness of breath dependent upon exertion, and this usually preceded the onset of the pain. More than a fourth of the patients also had definite hyperesthesia of the skin of the lower part of the back of the left chest, always including the angle of the scapula, but often extending far beyond it. Study of these cases led to the conclusion that whatever causes pain below the left breast is also capable of causing left scapular pain, and the latter is therefore seen in myocardial and valvular diseases of the heart, arteriosclerosis, chronic nephritis and functional heart disorders. In twenty of the fifty cases there was a definite history of acute rheumatic fever, ten of which had valvular disease. In about half of the cases no abnormal physical signs could be found. The pain and hyperalgesia about the angle of the scapula associated with submammary pain arises from the heart and belongs to Head's class of referred visceral pain.

Traumatic and Tuberculous Lesions of the Adrenal Glands.—Willems and Goormaghtigh (*Presse médicale*, February 27, 1919) systematically studied the adrenals in ninety autopsies conducted during the course of the war. Traumatic lesions of these organs were encountered in three instances and tuberculous lesions in four. In the first traumatic case there was pronounced hemorrhage—detectable, however, only on microscopical examination—throughout the deeper portion of the cortex and in the vicinity of the medulla. This condition had followed the sudden production of a large retroperitoneal hematoma as the result of a bullet wound. In the second case there was destruction of the cortex through its entire thickness in an area of the size of a ten cent piece in a man who had been subjected to violent trauma of the abdomen, with injury also to the spleen, liver, kidney and ileum. The third case was that of an old man who had succumbed to basal fracture after being crushed by a street car. A large central hematoma of the right adrenal was found, with complete destruction of the medulla and of the deeper portion of the cortex. The conclusions reached are, that injury to the adrenals sometimes occurs in crushing accidents or other violent traumata involving the dorsolumbar region or abdominal walls; that adrenal hemorrhage sometimes accompanies retroperitoneal hematoma, and that in old persons subjected to crushing injuries the ad-

renal may be the only abdominal injury, because of the friability of its abundant arteriovenous supply and its relatively large size in old age. In each of the above cases the rapidity of the fatal termination was amply accounted for by the other injuries sustained, irrespective of the adrenal injury. Among the four instances of tuberculous lesion of the adrenals in soldiers succumbing to wounds, three presented only a unilateral lesion, and in these there had been nothing in the clinical course to suggest impairment of the adrenals. In the fourth case there were bilateral lesions. Scirrhus changes were present which spared only the upper portion of the gland and had destroyed all the medullary, adrenin secreting tissue. The rapid death of this patient, who had sustained only a relatively slight wound of the lower extremity by a shell fragment, is to be ascribed to the double adrenal involvement. The somewhat peculiar variety of shock which the man exhibited, with sudden, marked lowering of the blood pressure, followed by complete disappearance of the pulse, vomiting, and pronounced agonal convulsions, appears to have been the result of adrenal insufficiency. Adrenal tuberculosis is not rare in men considered fit for front line service. The possible presence of adrenal lesions should always be borne in mind in certain varieties of traumatic shock with vomiting unaccounted for by any abdominal lesion.

Clinical Diagnosis of the Pathological Changes Occurring in Acute Appendicitis during the First Three Days.—P. Bull (*Nordiskt Medicinskt Arkiv*, February 28, 1919) points out the advantages, from the prognostic and therapeutic standpoints, of attempting to ascertain by anamnesis and examination the exact type of morbid change which the appendix and neighboring tissues are undergoing in any given case. He reports 217 cases of acute appendicitis in which such an attempt was made and the conclusions reached compared with the operative findings. On the whole, it was found that, in the individual case, absence of one or more of the ordinary appendicitis symptoms, e. g., vomiting, fever, increased pulse rate, rigidity, and marked tenderness, is of no service as indication of the condition of the appendix or peritoneum. On the other hand, the presence of a single sign, such as rigidity, however valuable this sign may be in itself, may be misleading if it is considered alone. The diagnosis of the pathological changes is increasingly certain, the greater the number of ordinary signs that are wanting, and even more so, the greater the number of ordinary signs that are present. One of the best indications is the old rule that where, after rational treatment for twenty-four hours, the symptoms do not decline, destructive appendicitis probably exists. Lennander's rule is also serviceable, viz., that if any single symptom or sign is causing the experienced observer anxiety, the pathological changes are probably greater than could have been supposed. The anamnesis may also be of the greatest importance as an indication. Pain which grows worse or returns after nearly or quite disappearing indicates grave appendicitis. Marked colicky, i. e., frequently recurring, pains are probably due, as a rule, to attempts of the appendix to

free itself from mechanical obstruction. Vomiting more than four times strongly suggests a destructive appendicitis. Painful or frequent micturition appears in almost one half of all cases, and in at least six instances out of seven, signifies a destructive process. The presence or absence of vesical symptoms does not, however, serve to indicate with certainty the position of the appendix. Diarrhea often indicates grave appendicitis. In adults, a normal or nearly normal pulse rate does not exclude gangrene or perforation; children, under these conditions, generally show a marked rise in pulse rate, but the latter does not necessarily signify grave appendicitis. In adults, a pulse rate of 116 or over nearly always means appendix destruction. In one out of three adult males, the temperature will not exceed 37.5° C. in the first three days, in spite of severe appendicitis. Early meteorism means perforation and prompt peritonitis. Rigidity is unreliable as a criterion of appendiceal change, but marked tenderness and palpable tumor strongly indicate destruction. Pronounced rectal tenderness and even slight albuminuria are also highly significant.

Removal of Projectiles from the Mediastinum or Its Vicinity.—René de Fort (*Bulletin de l'Académie de médecine*, February 18, 1919) presents a report of 100 operations on ninety-seven men, for the extraction of 106 missiles. In 1916, operations for the removal of thirty-five missiles were successful in 77.1 per cent. of instances. In 1917, fifty missiles were dealt with, with success in eighty-six per cent. In 1918, twenty-one missiles were sought, with 100 per cent. success. The progressive improvement in the results is ascribed, in the first place to the giving up of narrow routes of access—in particular, of the posterior route. The latter route was unsuccessful in 33.3 per cent. of fifteen operations; the narrow transpleural route and the transsternal route in 21.4 per cent. of twenty-eight operations, and the broad transpleural route, with costal flap containing a large section of one rib, in 8.7 per cent. of fifty-seven operations. The advantages of the broad transpleural operation are even more plainly apparent from the fact that this mode of access was employed in the most difficult cases. The second cause of the improvement in results was a betterment in technical facilities. All available mechanical devices should be brought into requisition, include the La Baume-Pluvinel apparatus, the electrovibrator, and the various measuring devices. Especially important is a preliminary complete x ray examination of the patient and the use of radioscopy during the operation. Daylight is necessary for the operative work, but the x ray may be resorted to by the intermittent screen method or the use of an x ray hood by an experienced radiologist. The aggregate operative mortality in the three years was seven per cent., but in 1918 it was nil, in spite of the fact that many bad cases were dealt with in the latter year. The operations involved removal of missiles from the heart cavities or parietes, the pericardium, the aortic and esophageal regions, the anterior and posterior mediastinums, the pedicles, vilums, and ligaments of the lungs and pleura and in but five or six instances did oozing from the wound persist.

The Autumn Influenza Epidemic.—John W. H. Eyre and E. Cronin Lowe (*Lancet*, April 5, 1919) present their results from the use of a mixed catarrhal vaccine as a prophylactic of influenza among the New Zealand troops. The vaccine varied somewhat in composition for the two doses, the first and second doses being as follows:

	First millions.	Second millions.
Pneumococcus	50	100
Streptococcus	10	50
Bacillus influenzae.....	10	30
Streptococcus aureus.....	200	500
Micrococcus catarrhalis.....	25	75
Bacillus pneumoniae.....	50	100
Bacillus septus.....	50	100

The vaccine was polyvalent for each of the contained organisms, many strains of each being incorporated. None of the organisms used were older than the second generation in artificial culture. The doses were given with an interval of ten days. Of a total of 21,759 men, 16,104 received both doses of the vaccine and 5,700 received only one dose. Of the total average strength of 21,759 men fifteen per cent. developed influenza, but the infection incidence in the fully inoculated men was only one third that in the uninoculated, or the incompletely inoculated. The risk of death in the uninoculated was about three times that in the inoculated for the severe cases, while for the total of all cases infected the risk was nine times as great in the former as in the latter.

Epilepsy and Influenza.—Maillard and Brune (*Presse médicale*, February 10, 1919) note that it has been recognized since Hippocrates that an acute disease developing in an epileptic subject arrests or greatly reduces in number the convulsive seizures. Again, various antitoxic serums and vaccines have given encouraging results in epilepsy. Recent observation by the authors in the epileptic institution at Bicêtre showed regularly an almost complete cessation of seizures during influenza. Patients with regular paroxysms in whom, by calculation from previous observation, 105 seizures might have been expected during a certain time, exhibited only fourteen seizures during the febrile period of influenza, and most of these fourteen seizures occurred at the very outset of the rise in temperature, before the reaction against the infection had as yet to any extent developed. The authors think there may occur, as a result of the acute infection, some sort of a derivative or displacement from the brain to the respiratory apparatus, or an action somewhat analogous to that of a fixation abscess in severe infections. When the temperature returned to normal, however, the seizures gradually reappeared. Influenza in epileptics proved exceedingly fatal. Among sixty-three cases only twenty-two remained uncomplicated, while thirty-nine developed pulmonary, one pleural, and one intestinal complications. Thirty-two subjects in the series died—fourteen from pneumonia, fifteen from bronchopneumonia, and three from acute pulmonary edema. These unfavorable results are ascribed mainly to the fact that epileptics are predisposed to congestive conditions. Their facies in itself shows it. Their blood pressure is high and their tissues infiltrated, and congestion of inter-

nal structures, including particularly the nerve centres, is a very frequent autopsy finding. Disorders predisposing to congestive complications are to be greatly feared among epileptics. Restriction of the disease to two wards during the June epidemic was followed by apparent immunity among the patients in these wards during the October epidemic, not only in patients who had already had the disease in June but in those who, while exposed, had not developed it, such exposure having apparently sufficed in itself to establish immunity.

Pseudo-Influenza of Endocrine Origin.—Léopold-Lévi (*Presse médicale*, February 10, 1919) refers to a number of patients he has seen suffering from a condition characterized by general lassitude, diffuse pains, headache, sometimes general malaise, a sensation as of fever, and congestion of the conjunctivæ or of the nasal, pharyngeal, laryngeal, or tracheal mucous membranes. Differentiation from influenza is based on the absence or mildness of fever, the rapid course of the affection, its tendency to recurrence—at times periodically—and its appearance in subjects who have already had epidemic influenza. In these cases of pseudoinfluenza the actual condition is one of disturbed thyroid, ovarian, and adrenal functions, causing vasomotor and congestive manifestations amenable to ovarian and thyroid organotherapy. In view of these observations the author propounds the question whether, apart from the toxic action of the influenzal virus, an endocrine disturbance may not play a rôle in the appearance of congestive complications, such as those involving the lungs, in this disease.

The Etiology of Influenza.—H. Graeme Gibson, F. B. Bowman, and J. J. Connor (*British Medical Journal*, March 22, 1919) have been able to confirm their previous work, in which they succeeded in isolating a filterable virus from early cases of influenza, and now add the results of further experiments with that virus. They have been able to infect monkeys, rabbits, guineapigs and mice with bacteria free filtered sputum from cases in the early stages of influenza, producing in the infected animals the typical lung lesions of the disease. Sputum collected after the lapse of the first three days of illness proved far less effective in transmitting the disease to animals than did that obtained earlier. The inoculations were made subconjunctivally, into the nares, subcutaneously and intravenously, all giving positive results. Animals were also successfully inoculated with blood from acute cases of influenza, but success was less frequent than with the sputum. Cultures of the virus by Noguchi's method were successful in yielding good growth of the filterable virus, and such cultures were successfully employed in infecting animals, from one of which a culture was in turn obtained from a section of kidney removed postmortem. The virus was also examined microscopically after prolonged staining and found to appear in the form of minute coccoid bodies about one or two microns in diameter, usually single, but at times arranged in pairs or small agglomerations. These experiments seem to make it fairly probable that the virus which has been isolated is the cause of the influenza seen at the present time.

The Influenza Heart.—Hermann Eichhorst (*Correspondenz-Blatt für Schweizer Aerzte*, February 22, 1919) says that anatomical cardiac changes are not common among influenza patients. His observations cover 2,411 cases of influenza, with 351 deaths, all from pneumonia. In two of the latter fresh endocarditic vegetations were demonstrated on the mitral valves. In other patients, while under observation, signs of cardiac disease developed, but in only eight cases anatomical lesions of the heart were found, as follows: sero-fibrinous pericarditis, 2; endocarditis with mitral valve lesion, 6. Yet functional disturbances of the heart are quite common in the course of the disease. These took the form of tachycardia or bradycardia, extra systoles or cardiac neuralgia, but never endangered life by their severity. All of these patients were men, and Eichhorst thinks that alcohol and tobacco may have had something to do with the cause of the disturbance.

Concerning Influenza.—H. Sahli (*Correspondenz-Blatt für Schweizer Aerzte*, February 15, 1919) discusses the prophylactic measures which have been employed against influenza. He is emphatic that there is no medicament prophylaxis against influenza. The internal administration of antiseptic tablets containing formamint, etc., in his opinion favor infection. Insufflation of antiseptic powders and gargles with antiseptic washes are of no value except as fetiches. For a number of reasons the wearing of masks is not much of a protection. It would be better to cover the face of the patient, or have him wear a mask, to protect others from droplet infection, but this would be too hard on the patient, as his respiration is impeded already. During an examination of the chest the physician should protect himself by covering the face of the patient, and during an examination of the throat by wearing protective goggles, such as are worn in examining diphtheria patients, at the same time protecting his own mouth and nose with his hand. The greater part of the paper is an argument on theoretical grounds for prophylaxis by vaccination.

Influenzal Pneumonia with Meningitis and Hemorrhage into the Theca.—William Osler (*Lancet*, March 29, 1919) reports the case of a man, about forty-three years old, who had been ill for three days with influenzal pneumonia. When first seen his respirations were 44, pulse 132, and temperature 99° F. There were no paralyses, but his neck was so rigid that he could not lift his head from the pillow, the spine was arched, with the muscles strongly contracted, both upper extremities were in tonic spasm, and both legs were rigid. Fresh purpura was present on the feet, and the lungs showed clear evidences of marked consolidation. The patient died the following day and at the necropsy there was the typical hemorrhagic pneumonia of influenza; the retroperitoneum presented a uniform sheeting of blood clot around the vessels and extending over the psoas muscles. The brain showed nothing but engorgement of the blood vessels and one small yellow patch on the posterior surface of the cerebellum. A thick butyry exudate was present over the cervical and

lumbar enlargements of the spinal cord, over the cauda equina, and to a lesser extent over the remaining cord. There was a uniform sheeting of hemorrhage in the spinal theca and extending along the nerve roots and through the foramina. There was no free blood in the spinal canal.

Hemolytic Streptococcus Infection.—Meyer S. Fleisher, and C. D. Hamilton (*Journal of Laboratory and Clinical Medicine*, March, 1919) describe an epidemic of bronchopneumonia associated with empyema at Camp Wadsworth, while at about the same time a short outbreak of measles occurred in camp. The hemolytic streptococcus was probably the principal organism in the cases of bronchopneumonia, and during the epidemic and probably preceding it there were a large number of carriers of this organism in the camp. However, a bacteriological study of the wards showed that there was no evidence that the introduction of hemolytic streptococcus carriers into a ward had any effect in spreading the infection to other individuals in the ward, so that ward infection reported by other investigators does not seem to have taken place. The statement that hemolytic streptococci are found in the throats of measles patients has been rather widely accepted, but is still open to question, as cultures made at one time in measles and mumps wards showed that the proportion of positive carriers of this streptococcus was as high in one case as in another, and at a second examination sixty-one measles cases in one ward were all negative for this organism. While there may be some relation between measles and Streptococcus hemolyticus it does not appear to be a specific one, and perhaps the occurrence of measles and streptococcus infections is simply chance.

Extracerebral Intracranial Pneumatocele.—Reisinger (*Brun's Beiträge für Klinische Chirurgie*, Band 109, 1918) reports the case of a wound involving the face and skull produced by an exploding grenade. Three weeks after receipt of the injury a perfectly limpid fluid began to be discharged from the nostril on the right side, the discharge occurring periodically. Radiological examination revealed a circular light area the size of an orange in the right temporal lobe. At operation, this lobe was found to have collapsed on the base of the skull. The dura was relaxed and covered the frontal lobe in more or less large folds. The cavity measured seven by six by six centimetres. Eighteen days after the operation radiosopic examination showed that the temporal lobe had become full again and was separated from the cranial vault only by a narrow light space. The right frontal sinus had been perforated, one piece of grenade had perforated the dura and had become lodged in the brain where it was localized by the x ray, but had not been found at the time of the operation, even with the use of the electromagnet. The cerebrospinal fluid, which made its exit through the rent in the dura and became emptied through the opening in the posterior wall of the right frontal sinus, had been progressively replaced by air. The compression of the frontal lobe resulted in intellectual apathy in the patient, with a difficulty in verbal expression and attacks of unconsciousness.

A Pneumothorax Paradox.—Frederic C. Coley (*British Medical Journal*, March 15, 1919) points out the paradoxical occurrence of disappearance of dyspnea in cases with pulmonary tuberculosis when the affected lung is compressed by the production of an artificial pneumothorax. It is explained by the fact that the dyspnea of pulmonary tuberculosis is due to the influence of the toxins produced in the active lesions in the lung and the induction of pneumothorax promptly diminishes the production and absorption of such toxins and therefore removes the cause of the dyspnea. This explanation is borne out by the known fact that the induction of pneumothorax promptly causes a drop in the fever in the active cases of tuberculosis, the temperature often coming down to normal within a few days.

Double Pneumothorax.—Archie McCallum (*British Medical Journal*, March 15, 1919) reports the accidental production of bilateral artificial pneumothorax in a tuberculous patient through the rupture of the mediastinal septum. Although the pressure of the gas introduced into the chest was recorded as +12 which had been gradually reached by repeated introductions, the patient was found up and about and breathing quite comfortably. The discovery of bilateral compression of the lungs was made by fluoroscopy and by that means also the opening between the two pleural sacs was clearly seen. Immediately after it was discovered steps were taken to remove the gas, a total of 1,325 cc. having been withdrawn before the pressure was reduced to -2. The case was instructive, both as showing the absence of serious ill effects from moderate bilateral pneumothorax, and as demonstrating the need of carefully controlling all administrations of artificial pneumothorax by means of the fluoroscope.

Intussusception of the Sigmoid Associated with Tumor.—Donald C. Belfour (*Annals of Surgery*, December, 1918) presented a case with retrograde intussusception which occurred in association with a sigmoidal tumor. The case was unique as the condition was primary and had not developed as a complication to an intussusception of the usual variety, and was not a terminal event in peritonitis or obstructive vomiting. The method of its recurrence was observed at operation. The final deductions arrived at following the observations made during this operation were that in the large bowel antiperistaltic waves, due to the muscular contractions, were present, while they did not occur in the small intestine. Retrograde intussusception, when it occurred in the small intestine, was always a terminal event associated either with intussusception or with a reverse peristalsis of obstruction. The antiperistaltic waves which were the cause of intussusception in the colon, were, in this case undoubtedly initiated by the tumor. The attachment of the base of the tumor had caused a tonus ring just as these rings may be created experimentally. Pedunculated tumors are the only variety in which an intussusception may occur; carcinomas, diverticulitis, and inflammatory tumors involve the intestinal wall to an extent sufficient to produce a rigidity which prevents invagination, and these tumors are not pedunculated.

New Incision for Appendectomy.—Leigh F. Watson (*Virginia Medical Monthly*, March, 1919) lays stress on the fact, already noted by many writers, that whereas, in the cadaver, the base of the appendix is found at McBurney's point, in the living subject it is below this point, usually on a level with the centre of Poupart's ligament. Since 1910 the author has been using an incision with its centre over the base of the appendix. He believes it to be in many cases an improvement over the incisions now in general use. The incision is made from a point one and one half inches from the right anterior superior spine and on a line connecting the two superior spines, directly downward for two to three inches to a point just above and to the inner side of the internal abdominal ring. Traction to expose the appendix is avoided because this incision, in the external oblique and its aponeurosis, the most resistant structures, is directly over the base of the appendix. The incision can be enlarged without weakening the abdominal wall. The iliohypogastric and ilioinguinal nerves are not injured, the incision lying between them. Furthermore, the incision being made over the cecum, the small intestines do not crowd into the wound as they do where the McBurney or lateral rectus incision has been made.

Hernia Across the Lesser Sac of the Peritoneum. J. Hogarth Pringle (*Glasgow Medical Journal*, March, 1919) states that in a comparatively short time four patients were subjected to operation by him because of gastric symptoms, in each of which cases practically all of the small intestine was found to have herniated into and across the lesser peritoneal sac. The only portion not herniated was the last six to eight inches of the ileum. In each instance the bowel had entered the lesser sac through the portion of the transverse mesocolon bounded by the middle and left colic arteries, i. e., the part of the mesocolon usually divided in a posterior gastroenterostomy. In two cases the bowel escaped from the lesser sac into the general peritoneal cavity, again through the gastrohepatic omentum, and in the other two, through the gastrocolic ligament. The author was able to find in literature only five cases in any way similar to his, and of these, only two constituted operative findings, the other three being discovered only at autopsy. Reviewing the subject as a whole from both the pathological and etiological standpoints, Pringle divides hernias in the lesser sac into two main types, viz., those through the foramen of Winslow and those through an abnormal opening. The abnormal opening may be either in the mesocolon—usually within the vascular arch of the middle and left colic arteries—or in some part of the omentum. If the bowel passes beneath the colic arch, it may either remain in the lesser sac and present above or below the stomach, or may escape again into the general peritoneal sac above the stomach—gastrohepatic type—or below the stomach—gastrocolic type. In most recorded cases of hernia through the foramen of Winslow, a relatively short length of bowel was herniated. The larger hernias seem to have presented beneath the gastrohepatic omentum.

Proceedings of National and Local Societies

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

One Hundred and Thirteenth Annual Meeting Held at Syracuse, May 6, 7, and 8, 1919.

The President, Dr. THOMAS H. HALSTED, Syracuse, in the Chair.

Colon Bacillus Pyonephrosis in Infancy.—Dr. FRANK J. WILLIAMS, of Albany, reported a case of bacillus pyonephrosis in a two weeks old male infant. There was sudden onset of symptoms at the age of two weeks; death occurred one week later from Bacillus coli septicemia. The most prominent symptoms were marked abdominal distention, severe pain in the abdomen, and frequent loose green stools. The urine showed albumin and a large amount of pus. Postmortem examination revealed two abscesses in the left kidney and diffuse nephritis in both kidneys. The pelvic portions showed comparatively slight involvement. The mucosa of the entire urinary tract, ureters, bladder and urethra was involved in the inflammatory process, but the infection was looked upon as descending *via* the lymphatic channels rather than ascending. Pus from the kidney yielded Bacillus coli in pure cultures. This case gave evidence of high pathogenicity on the part of the colon bacillus for the kidney substance in young infants in whom the activities of this organism were less inclined to be limited to the pelvic portion. It appeared from cases reported in the literature that this infection claimed a much higher mortality among the very young than was the case in older children, and also that the generally recognized preponderance of female cases did not obtain in the very young.

The Present Conception of the Significance of Cardiac Phenomena.—Dr. ALLEN A. JONES, of Buffalo, said that the modern methods of the study of cardiac disease have resulted in a larger and deeper understanding of cardiac arrhythmias and morbid myocardial conditions. The part played by the development of the sphygmograph, sphygmomanometer, polygraph, and electrocardiograph afforded a deeper understanding of disorders of the heart. Mention was made of the value of clinicopathological conferences in the accurate study of heart disease. The importance of focal infection in the induction and perpetuation of cardiac disease was reviewed, and the part played by the war and exigencies of selective service were considered. Experiences gained by medical men in draft boards and camps had gone far to establish a firmer conviction of the living attributes of the heart muscle and the remarkable recuperative and accommodative forces of the heart than formerly seemed to exist. The mechanical had given way to the vital theory. Those in charge of the draft boards and medical advisory boards gathered facts of importance in relation to cardiac innervation and muscular power. Especially did members of the medical advisory boards find it necessary to examine referred cases with the greatest care and discrimination.

The work of the local and medical advisory examining boards in connection with the later examinations of registrants in the military camps afforded intensive studies in what constituted the largest heart clinic ever known; therefore, much valuable information was gleaned by the medical profession in reference to diseases of this organ. Not only was it ascertained which type of heart would bear active military training and service, but it was also discovered that there were certain nervous and muscular states of the heart which would not admit of military training. One of the chief of these proved to be hyperthyroidism, which was discovered in a considerable number of young men; it was almost always more or less atypical; but it was emphasized that the thyroid heart would not bear intensive nervous and physical strain. Another disorder of the circulation, which formerly was called irritable heart, was studied during the war period until a more complete understanding of it was forthcoming. It had been termed by those in charge of the examinations in the military camps as neurocirculatory asthenia. Some of those suffering from the syndrome of this condition might be so changed for the better by physical exercise as to admit of their carrying on active military duties, but some members of the group were found never to develop sufficient stability of circulation to enable them to withstand the hardships of military life. The value of the Karell diet was noted and the Eggleston method of the use of digitalis in large doses based upon Hatcher's cat unit standardization was considered; also the intravenous use of digitalis and strophanthin was mentioned.

Treatment of Pernicious Anemia.—Dr. LOUIS V. HAMMAN, of Baltimore, Md., commented upon the difficulty of estimating the value of treatment in pernicious anemia on account of the very irregular course of the disease. His remarks were summarized in the following conclusions: Pernicious anemia was inevitably fatal and treatment at best could but promote and prolong remissions that characterized the natural course of the disease. There was no conclusive evidence to prove that one method of treatment brought on remission more constantly than another, nor that it more surely prolonged remissions thus begun. We depended solely upon clinical impressions derived from the observation of individual patients for our estimate of the value of treatment. Such observation taught us that spontaneous remission might be in every way as satisfactory as remission following the use of any method of treatment. In pernicious anemia as well as in all other conditions for which we had only symptomatic or palliative treatment, success depended more upon a judicious selection from among all available methods of treatment and their proper combination than upon a one sided advocacy of a single method. Rest, feeding, arsenic, transfusion, the eradication of foci of infection and perhaps also splenectomy had a definite place in the treatment of pernicious anemia.

Chronic Osteomyelitis.—Dr. EDWIN W. RYERSON, of Chicago, stated that the cases he reported were due to gunshot fractures as observed in soldiers returned from overseas, characterized by almost constant localization at the site of injury, and by practically invariable presence of bony sequestra, which were probably due to the practice of leaving splinters of bone at the primary debridement. As received at Fort Sheridan, the wounds were usually healed except for sinuses, and there was little evidence of septic intoxication. In most cases, x ray examination disclosed one or more sequestra, and a cavity with steep or overhanging walls. Successful treatment depended upon thorough exposure of the diseased area, the removal of dead bone, and the conversion of the cavity into a shallow depression. This often meant the removal of two thirds or three fourths of the circumference of the bone, and of a considerable extent of the longitudinal surface above and below the cavity. Only enough bone might be left to preserve the continuity and to prevent shortening. Apparatus or splints might be required to prevent fracture. The periosteum must always be conserved. Mechanical cleansing was more important than attempts at chemical sterilization. The after treatment was a subject for discussion. As the infection was generally of low grade, vigorous antiseptic treatment was not often necessary. The wounds were left wide open, and packed for a day or two until the bleeding had ceased. Three methods were then applicable. The Carrel-Dakin system was advised by many, to be followed by secondary suture when the bacterial count was sufficiently low. Another way was to use one half strength Dakin's fluid to saturate a loose gauze packing, changed daily. The third was to expose the wound to air and sunlight, or incandescent electric light. The two latter methods were believed to be satisfactory in the majority of low grade infections.

Restoration of Loss of Bone in Gunshot Injuries.—Major FRED H. ALBEE, United States Army General Hospital, No. 3, Colonia, N. J., presented a paper on this subject which consisted of a careful analysis of the results in over 125 cases of loss of bone substance operated on by the author in his service at this hospital. The fundamentals of the work were touched upon as to the importance of so inserting the graft that it served as the sole internal fixative agent. He also spoke of the time which should elapse before doing such operations, and discussed the methods of ruling out latent infection and the choice of proper time to operate. He likewise discussed the selection of suture material for the skin and for holding the graft in place; also the selection of location of the skin incision and the importance of so placing the graft that it is not surrounded by scar tissue.

The Atropine Treatment of Pylorospasm and Pyloric Stenosis.—Dr. SIDNEY V. HAAS, of New York, stated that hypertrophic pyloric stenosis was probably only an advanced degree of pylorospasm, both being manifestations in the syndrome of hypertonia. The hypertonic infant was a definite clinical entity. It was characterized by hyper-tonicity of all the skeletal muscles, as shown by the

ability to raise the head and grasp objects even in the early days of life, and by general spasticity. The hollow viscera showed increased activity of their smooth muscle fibres. This expression itself in the form of spasm involving practically every part of the digestive tube, and, depending on the region, presented the symptoms of colic, visible peristalsis, vomiting, constipation, or any combination of these. Accompanying these symptoms was marked psychic irritability, expressed by insomnia, general restlessness and crying. The hypertonic infant belonged to the spasmophilic group and presented the symptoms of vagotonia. Its recognition was of importance in this, that while presenting symptoms in the main of disturbances of nutrition, food regulation alone did not correct the fault, whereas treatment by atropine was followed by rapid subsidence of symptoms, the results being so prompt and regular as to constitute specific action. The tolerance for milk, which was usually low in these infants, was at once materially increased, so that a normal amount might be utilized, a condition quite opposed to that existing before the atropine treatment was begun.

The etiology was probably a disturbance in the physiological action of the vegetative nervous system. The vegetative nervous system was made up of two parts, the autonomic and the sympathetic; normally in balance, in this condition there was an overaction of the autonomic or vagotonia. This did not gainsay the occasional existence of true organic stenosis of the pylorus. Despite the brilliant results of many surgeons by the Rammstedt operation, in this condition an operation should be rarely required, and only performed after atropine had been given a trial. Atropine properly used had been regularly effective in producing a cure. At the present time, the weight of authority would seem to indicate that hypertrophic pyloric stenosis and pylorospasm were two definite clinical entities. In favor of this view was the existence of a cartilaginous hard mass of the pylorus in cases of stenosis, and the persistence of this mass long after a cure had been obtained by operation or otherwise. Against this view was the experience of the last four years, all cases of pylorospasm, including four for whom operation had been advised, responded to treatment by atropine. A case of complete stenosis responded equally well. Among the arguments used against medical treatment was the sudden death, which not infrequently occurred. These were usually thymus deaths and occurred in patients operated upon as well as those medically treated. Atropine was the logical treatment in these cases owing to its paralyzing effects upon the vagus nerve endings. Certain facts must be borne in mind regarding atropine; the inconstancy in value resembling digitalis in this respect, its rapid deterioration, and it must be used in sufficient doses to be effective. A common dose of atropine for an infant of this type from a few weeks to a few months of age was one fiftieth to one twenty-fifth grain in twenty-four hours, with an extreme of one sixteenth grain divided among the day's feedings, a 1:1000 solution being used, beginning with one drop and increasing rapidly until effective. The most frequent toxic

symptoms were flushing, mydriasis, dryness, which disappeared promptly when the drug was withheld. There was no danger even when such symptoms presented themselves.

Anesthesia and Eutocia.—Dr. C. HENRY DAVIS, of Milwaukee, said that safety and cleanliness in obstetrics must be considered more important than the method of relieving pain. If the method of relieving pain did not increase the danger to mother or fetus, it should be employed. The choice and application of the anesthetic must vary with the patient and operator just as in other surgical work, but it should not be withheld until the perineal stage. There were no statistics that would indicate that the proper use of chloroform, ether or nitrous oxide oxygen during labor had increased the number of stillbirths or the number of infants dying during the first week of life. Chloroform had been extensively used in the past, but because of certain dangers discussed in other papers it was thought less desirable than ether or nitrous oxide oxygen. Ether, unless contraindicated, was considered the inhalation anesthetic of choice for long operations during pregnancy or labor. Nitrous oxide oxygen analgesia had proved most satisfactory for the painful second stage of labor. For the successful administration of nitrous oxide oxygen analgesia a few details must be carefully observed. First, the patient should be assured that when the pains become severe they could be relieved. This tended to remove fear and lessened the possibility of hysteria. Second, when first administering the gas, give enough to cause a deep analgesia or even a light anesthesia. This gave the patient confidence and it would relieve pain. Third, determine the number of inhalations necessary to cause analgesia and increase by one or more as the contractions become more severe. Fourth, start the inhalation with the first suggestion of an approaching contraction, since the patient must inhale enough of the mixture to produce analgesia before the height or painful stage of the contraction. If she experienced the sensation of pain, it was carried through the contraction without amnesia. Fifth, a continuous analgesia might be necessary over a few contractions, but should be discontinued as soon as the acute pain had been controlled. The same rules applied to the use of ether for obstetrical analgesia.

The acceptance of the present high mortality and morbidity of childbearing should no longer be tolerated as a necessary sacrifice to motherhood. Every pregnant woman should know the great importance of prenatal care. She should appreciate the advantages of confinement in a hospital by a well trained obstetrician whose first consideration was safety. She should know that anesthetic agents carefully selected and administered might not only mitigate the pain of labor, but also favored eutocia.

Acute Thyroiditis.—Dr. GEORGE E. BEILBY, of Albany, stated that in a series of ninety-one cases of the various forms of thyroid lesion operated upon by him at the Albany Hospital, he had met with three instances of acute thyroiditis. In two of the cases infection occurred in normal thyroid glands. The third case was an infection of cystic adenoma of the thyroid. In two of the cases the infection

was a direct extension from a laryngeal and tracheal infection. Here the infectious organism was staphylococcus. The third case occurred during an attack of influenza and represented a hematogenous infection. Cultures in this case yielded a hemolytic streptococcus. The patients were all operated upon under local anesthesia and all made complete recoveries. From the author's study of these cases the following points were particularly emphasized:

1. The relative infrequency of acute thyroiditis in either the normal gland or in preexisting pathological conditions.
2. The condition, particularly in the early stage, was apt to be unrecognized.
3. The diagnosis could be made more readily if the possibility of acute thyroiditis was borne in mind and confirmed by the stone like hardness of the gland.
4. Treatment by simple incision and puncture under local anesthesia, avoiding all possible injury to the gland tissue, would give the best results.

The Clinical Course and Treatment of Vincent's Angina.—Dr. CLEMENT F. THEISEN, of Albany, said that the diagnosis was based on the fusiform bacillus with the spirillum or spirochete which was found in smears from throat swabs in cases of Vincent's angina, but also in mastoiditis, hospital gangrene, diphtheria, throat syphilis, stomatitis and bronchopneumonia. Smears often showed mixed infections with other organisms mainly the pneumococcus, streptococcus, Kleb-Loeffler and staphylococcus. Ulcerations of Vincent's angina frequently were mistaken for syphilis. Dental caries, diseased tonsils and spongy gums predisposed to attacks of the disease. There were two main clinical types, the one simulating diphtheria and the other pseudomembranous anginas, the other very much like the ulceration of syphilis or ulcerative stomatitis. The first type occurred mainly in children and young adults, the other almost entirely in adults. The disease occurred at all ages, the youngest patient seen by the writer being a baby fourteen months old. In the very young children, it was hard to differentiate from diphtheria, the microscopical examination being sometimes the only way to make a diagnosis. The odor was characteristic and a diagnosis could be made by that alone.

The writer had had three fatal cases, all in adults, seen so late that nothing could be done. All died of exhaustion brought on by inability to take sufficient nourishment. Cases that resulted fatally were either not treated at all, or so late, that the entire throat was involved in a destructive ulcerative process, and there was great toxemia and prostration. In some of the severe cases, the diagnosis was not made early, and patients were treated for other conditions. Almost all cases were simple and yielded to treatment readily, if seen in the beginning before deep ulceration occurred. In his experience decayed teeth were responsible for the development of the disease in the majority of the cases, except in children so young that dental caries had not started. In such cases the clinical course of the disease was much like that of an ordinary membranous nondiphtheritic angina. In regard to treatment, locally, the best results had been obtained

in adults and children old enough to use gargles, by the use of a strong solution of potassium chlorate, powdered alum, carbolic acid, glycerine and water. When not possible to use this as a gargle, the throat could be sprayed with it. The arsenic preparations were almost specific in some cases. Enesol, an arsenate of mercury, used hypodermically had been recommended by Halsted. Locally, a solution of methyl blue in alcohol, or a fifty per cent. solution of alcohol, was very effective. Salvarsan, locally or intravenously, was also used.

Selection of the Proper Operation in Empyema of the Thorax.—Dr. HOWARD LILIENTHAL, of New York city, pointed out that empyema was not a disease *per se*, but was a complication, much the same as peritonitis was a complication. The more usual forms of pyothorax were: 1, That resulting from pneumonia; 2, from rupture of a lung abscess; 3, chronic empyema with thoracic fistula; 4, traumatic empyema with or without infected hemothorax. The writer called attention to the necessity for thorough exploration of the thorax whenever one of the usual minor operations failed to cure and he advised fluoroscopic examinations during treatment. He believed that unless there was perfect access to all parts of the infected cavity, the Carrel-Dakin treatment would rarely succeed but in properly selected cases it should be persistently tried. Cases were reported in which several sacculations of pus were reached by the wide incision and exposure which could not otherwise have been successfully treated.

(To be continued.)

NEW YORK NEUROLOGICAL SOCIETY.

*The Three Hundred and Seventieth Regular Meeting, Held at the Academy of Medicine,
February 4, 1919.*

The President, Dr. FREDERICK TILNEY, in the Chair.

A Case of Tumor of the Spinal Cord with Operation.—Dr. C. C. BELING and Dr. ALFRED S. TAYLOR presented this case, an American woman, thirty-nine years of age, who was apparently perfectly well. The patient was first seen on January 6, 1916. Three months before she noticed that her feet were numb, especially the ends of her toes. After a short period of time, how long she does not definitely remember, she began to experience a feeling of general stiffness and lameness, which increased gradually. This was followed by an intense localized pain in her back, across her shoulders and radiating down the right arm as far as the elbow. It was more excruciating at night, especially after she went to bed. In her own words, "One day it was an ache, the next day it was a pain and the next day it was as if I were being lashed across my shoulders." From then on the numbness in both lower extremities increased and was more marked in the right. The right leg felt much stiffer than the left during locomotion. Her bowels were constipated and she experienced some detrusor weakness in urination.

Examination showed a Brown-Séquard type of lesion of the spinal cord at the level of the fourth

dorsal vertebra. She entered the Newark City Hospital on January 11, 1916, and remained under observation until January 15th. Blood and urine examinations were negative and Wassermann tests of the blood and spinal fluid were negative. Röntgenograms showed some obscure bony thickening about the fourth and fifth dorsal vertebrae. About January 25th the sensory disturbances extended upwards and spread into her arms and hands, and the paraplegic symptoms became more pronounced. Regarding the sensory findings made the day before operation, the relative levels of the receptors for touch, pain, heat and cold were interesting. The pain receptors occupied the lowest level, the touch receptors the next, followed by the heat receptors and the cold receptors. Another remarkable feature of their distribution in the skin was their coalescence and interlacing at the axillary and cubital flexures. These sensory features were evidently of biological significance and showed an evolutionary adaptation of the organism to environmental influences.

Operation was advised and was performed on January 31, 1916, by Doctor Taylor. A right unilateral laminectomy was done, involving the laminae of the sixth cervical to the second dorsal inclusive. When the bone was removed there was a palpable tumor beneath the dura, just about in the middle of the exposure. The dura was split the full length of the exposure, and a soft, friable, vascular, lobulated tumor was found, situated chiefly on the right side of the cord dorsally, and extending a little backward and over to the left of the median line dorsally, and forward along the right lateral aspect of the cord. The tumor was about six cm. long by 2.5 cm. by one cm. It appeared to be situated beneath the arachnoid membrane. After the arachnoid was divided over the tumor it could be peeled out with comparative ease, and seemed to have no direct adhesions to the cord substance. The posterior veins of the cord were intensely congested. The cord was somewhat flattened posterolaterally on the right side. After careful hemostasis, the edges of the dura were sutured by interrupted fine catgut sutures. The muscles and aponeurosis were closed by chromic catgut and the skin by silk. No drainage was used.

Reaction from the operation was good; there was little or no nausea. On the second day the temperature was 103.6, and gradually went down to normal on the fifteenth day. Then it went up and down irregularly between normal and 101 until the twenty-ninth day, after which it stayed normal. This rise in temperature was later found to be the result of infection of vaginal excoriations, the result of an old forgotten pessary. For the first few days the pulse was about 120 a minute, then gradually settled down to eighty-eight. The blood pressure varied between 110 to 146 during the first few days, but after the sixth day never rose above 110.

On February 3d, three days after the operation, she had an involuntary movement. On that same day she felt a desire to urinate, and was able to hold urine until the bedpan had been brought to her. On February 4th she felt a smarting pain about the vulva, which was somewhat excoriated. On Feb-

ruary 6th, six days after operation, the sutures were removed, and she had a good primary union. At this time she had regained complete control of bladder function. On February 14th she sat up in a chair for half an hour. On February 19th she felt pain in her left side, which had been previously anesthetic. On February 21st she remembered that a pessary had been inserted several months previously and left. This pessary was removed with considerable difficulty, was encrusted with lime salts, had caused considerable vaginal ulceration and foul discharge, which had excoriated the vulva. This had undoubtedly been the cause of her irregular temperature, which ceased after the pessary was removed and she had been given a few douches. On March 6th, the thirty-fifth day after operation, she had a large, formed, voluntary stool, and from that time on had control of the bowel. On March 11th, forty days after operation, she was able to take a few steps, with assistance, and was taken home on that date. From this time on there had been steady improvement.

Pathological examination and report state that the tumor was an atypical neurofibroma. At one point near the middle of the tumor a nerve was found, the branches penetrating the growth. It was very cellular in some places, while in other places fibrous elements predominated. The blood-vessels showed dilatation, thickening, congestion, and a nuclear increase in the vessel walls. In some places the vessels appeared obliterated and there were many small hemorrhages distributed throughout the field.

Dr. I. ABRAHAMSON thought it was very unusual in a unilateral tumor to get bilateral sensory symptoms so early. All the signs seemed to have pointed to its being an extramedullary tumor. Fourteen years ago he showed a case of extramedullary tumor without pain in which the first symptom was paresthesia, at first in the toes of the right foot and soon afterwards in the left toes, one of the earliest cases of neoplasm of the cord without pain that he had ever seen. The tumor was found, as diagnosed, situated anterolaterally.

Dr. JOSEPH BYRNE remembered a case parallel with this one except that the growth was a little further down in the cord. In that case, the symptoms were almost like those of Doctor Beling's case, beginning with root pains around the level of the twelfth thoracic on the left; this was followed by stiffening in the left foot and then by weakness in the other foot after several years.

Two Stage Laminectomy for Intramedullary Tumor of the Spinal Cord.—Doctor ELSBERG presented this case: A young woman, seventeen years of age, who was admitted to the neurological service of Doctor Sachs, at the Mount Sinai Hospital, in January, 1912. She gave a history dating back a year, of increasing weakness in all her extremities with marked sensory disturbances and changes in her reflexes. She had been treated for a period as a case of Pott's disease and had been in a plaster cast. Her symptoms were those of a compression of the spinal cord at the seventh dorsal level and she was transferred to the surgical service for operation. On March 20, 1912, Doctor Elsberg

performed a laminectomy removing the arches of the sixth and seventh cervical and first and second dorsal vertebrae. When the dura was opened a tumor two inches long situated on the posterior surface of the cord was exposed. The tumor was either covered by a thin capsule or it was covered by a thin layer of spinal cord tissue; this could not be definitely determined. This tissue over the tumor was incised and the wound then closed for the time being. A specimen of the tumor was removed for examination. The patient had lost complete control in the lower extremities and had very little power in her upper extremities when she was operated upon. Within a few days of the operation she improved markedly and had recovered considerable power in both upper and lower extremities. One week later the wound was reopened and the tumor was found to be lying outside of the cord.

The pathological report was that the tumor was a fibrolipoma. When an attempt was made to remove the growth it was found to be still partly imbedded in the cord, but with care it was carefully peeled out of its bed. As the result showed, this procedure was wrong. The operation was done in the early period of the knowledge of intramedullary surgery and the proper procedure should have been to have excised the tumor outside of the cord and to have left the remainder in situ. It was most inadvisable to attempt to enucleate a tumor when partly imbedded in the cord substance, because even with the gentlest manipulation there was severe trauma to the cord. Recovery from the second operation was normal but the patient presented within twenty-four hours all the symptoms of complete transverse lesion of the cord with paralysis of all the extremities and a loss of all her reflexes. This condition persisted; large bedsores and a severe cystitis developed and an irregular fever from the cystitis. The bedsores lasted for many weeks and her condition was deplorable. She remained in this condition for several months, and then gradually improved. The lower limbs, however, gradually became spastic, and by April of the following year were markedly contracted, and flexed at the knees and hips almost to the body. Finally an attempt was made to ameliorate her condition a little by posterior root section for the spasticity of the lower limbs. On April 2, 1913, laminectomy was done and the second, fourth, and fifth posterior roots on each side were divided. The patient recovered satisfactorily from this operation and the contractures in the lower limbs gradually relaxed so that within two months the legs were fully extended. For about two years she had little power in her lower limbs but considerable return of power in her upper limbs, and her condition was considered hopeless. In 1918, she returned to the hospital remarkably improved. The power in her upper extremities was now normal and she had good power in her lower extremities except for a slight limp on the left side when she walked. She has remained in excellent condition since that time and she was presented at the meeting, and walked around without any trouble, with only a slight limp. The patient was presented in order to show what

remarkable recuperative powers the spinal cord has even after a number of years, what can be accomplished by surgery, and finally as an evidence of the dangers of intramedullary surgery.

Doctor BYRNE remembered seeing this patient at the Neurological Hospital some years ago before she went to Mt. Sinai for the second operation. At that time she had very poor use of her limbs and he tried to think of some reason to account for this. He concluded that the interference with cord function was the result of an inflammatory reaction following the evulsion of the tumor at the first operation in that region and the cord succumbed, a condition similar to spinal shock. He thought the case remarkable as illustrating what surgery could do for one so helpless. Considering the condition in which he saw the patient, one would have thought it almost impossible that anything could have been done to restore function to the degree that she now enjoyed.

Prevalence of Infectious Lethargic Encephalitis.—Dr. I. ABRAHAMSON called attention to the alarming frequency with which this condition was now being encountered in private practice throughout the city. Various types had been established. Among them was a type where the third nerve was involved, or the pons and medulla or the paraplegia or hemiplegia type. There was a type with involvement of the cervical cord. One case he had seen was an acute Parkinson beginning with diplopia and ptosis. The patient was an intelligent man, absolutely without symptoms before, whose statements were fully corroborated by his wife. Doctor Abrahamson had just received the discussion of infectious encephalitis which preceded an attack of influenza on the other side and which the Royal Medical Society had studied. The report was dated October 22, 1918, and Sir William Osler, Dr. George Draper, and Colonel James Newsholme were members of the committee. They first studied the cases from the point of view of botulism and found they could exclude it. They then considered the relationship of the condition to poliomyelitis but it was found to differ very materially; animal experiments were done but in no case did they get any picture resembling poliomyelitis. The condition was *sui generis* and differed from all analogous conditions. There were many of these cases in New York at present. The distinguishing features were lethargy in all grades of encephalitis. This was an important and really infectious disease and the Neurological Society ought to do something as a body to study it. The speaker moved that a committee be appointed to get in touch with the Board of Health and make this a reportable disease, and also to go to the various hospitals and study these cases individually and in groups, and perhaps be successful in isolating the infectious agent, which was probably of the same nature or allied to influenza.

Dr. WILLIAM LESZYNSKY said that he had seen a number of these cases of lethargic encephalitis accompanied by symptoms of polioencephalitis and that the prognosis was favorable. He nevertheless approved the move to appoint a committee to study the condition.

(To be concluded.)

Letters to the Editors.

TEACHING GYNECOLOGY IN MEDICAL SCHOOLS.

PHILADELPHIA, PA., May 11, 1919.

To the Editors:

I have read with much interest Dr. J. H. Carstens's criticism of my paper, *The Two Most Common Sequelæ of Labor and the Two Most Frequent Diseases of Women*, which was published in the *NEW YORK MEDICAL JOURNAL* a short time ago. I am gratified that he is so much interested in a subject which should be interesting to all of us who wish for the advancement of medical education and of our special branch of medicine.

He states that he does not believe our obstetrical education is inferior to that of other countries. I am quite sure that he is incorrect in this, having spent two years in Europe myself and having revisited the medical centres of Great Britain and the Continent just before the war. I saw many things in which the best medical schools of Europe were superior to the best schools here. There is no denying the fact that much more time is given to this subject in the medical curriculum abroad than in our country.

He also states that he does not believe the self-styled gynecologists in this country are diminishing in number. As most of the best medical schools in the country are closing the separate departments of gynecology, as they all will in time, in accordance with the practice of other civilized countries, this necessarily means a diminution in the number of the kind of gynecologists who formerly filled such positions.

In regard to his third objection, I am not aware of any campaign conducted by the older line of gynecologists with the object of diminishing the pathological consequences of labor.

I am glad that my article has aroused enough interest in Doctor Carstens's mind to prompt his criticism of it.

BARTON COOKE HIRST.

THE PROPER ADMINISTRATION OF ARSPHENAMINE.

WASHINGTON, D. C., May 3, 1919.

To the Editors:

It appears that there is a lamentable want of care on the part of many physicians who administer arspenamine as to the concentration of the drug used and the time required for administration.

The hygienic laboratory of the United States Public Health Service receives many complaints in regard to untoward results from the administration of arspenamine made by various American producers. When careful investigation is made it is almost invariably found that the drug has been used in a solution that is too concentrated, and that it has been administered too rapidly. We have reports of a dose of .4 gram being given in a volume of as little as twenty-five cc. and injected within thirty seconds. Such practice is abuse, not use, of a powerful therapeutic agent.

If, in addition to the usual precautions as to the

use of perfect ampules and neutralization, physicians would give the drug in concentration of not more than .1 gram to thirty cc. of fluid and allow a minimum of two minutes for the intravenous injection of each .1 gram of the drug, in thirty cc. of solution, the number of reactions would be very materially reduced. This would necessitate from ninety cc. to 180 cc. of the solution for the doses usually given and would require from six to twelve minutes for the injection.

Any physician who fails to observe these precautions should be considered as directly responsible for serious results that follow the improper use of the drug.

G. W. McCoy.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Anaphylaxie et Antianaphylaxie. Bases experimentales. A. BESREDKA, Professeur a L'Institut Pasteur. Preface de E. Roux, membre de l'institut directeur de l'institut Pasteur. Paris: Masson et cie., 1917. Pp. vi-147.

The innocent mussel, known to most of us chiefly as a specialty *hors d'oeuvre* of Delmonico's or the Café de Paris, has been the means of exciting quite a wave of curiosity in the world of science, from the time that Richet first became inquisitive concerning certain of its peculiar poisonous properties. This is now some eighteen years ago. Anaphylaxis as a phenomenon of poisoning after certain types of sensitization has become known to most reading medical men. Besredka has here given us a short and rather readable monograph on the subject. He first discusses the phenomenon itself in its historical development up to the time it has been lost in a quagmire of divergent speculations. He then takes up various types of sensitiveness. This is followed by resulting toxemia possibilities and then by the things that happen from various vaccinations. A further chapter discusses the anaphylactic properties of various substances all from a physicochemical point of view. A final chapter takes up the evolution of the various hypotheses which have grown with every new series of observations; hypotheses which for the most part have been rapidly advanced to rationalize this or that detail of observation, but which have seemed to neglect the process as a whole in most instances. In looking over these hypotheses one is struck with the paucity of imagination shown, by this we mean real constructive imagination. Apparently every author must travel the purely chemical pathway trod by his predecessors. There is not a scintilla of ideation concerning the human being as a nervous synthetic mechanism. No mention is made of Roncoroni's clever and far reaching study on the vegetative nervous system and anaphylaxis in the *Journal of Nervous and Mental Diseases*, 1917. In many respects Besredka's study is one sided and propagandist of the Pasteur Institute and of interests of a narrower laboratory type.

Pye's Surgical Handicraft. A Manual of Surgical Manipulation, Minor Surgery, and Other Matters Connected with the Work of House Surgeons and Surgical Dressers. Edited and Largely Rewritten by W. H. Clayton-Greene, B.A., M.B., B.C. (Camb.), F.R.C.S., England; Surgeon to St. Mary's Hospital; Lecturer on Surgery in the Medical School, etc. Eighth Edition. Illustrated. New York: William Wood & Company, 1919. Pp. xvi-640.

This is the eighth edition of this useful, if somewhat rudimentary textbook on general surgical technique. The author assumes that the reader is not familiar with the simple everyday surgical procedures. This can hardly be ascribed as a fault, however, for it was found that many physicians, when called upon for the ordinary surgical work incidental to the handling of wounded soldiers, were quite at sea. It was also found that the men who had a sound rudimentary knowledge, similar to that which is outlined in this book, were the most adaptable and made the best surgeons. A special section is devoted to the treatment of the teeth, and especial attention is given to certain emergencies which may arise in a general surgical practice. Another chapter is devoted to the preparation of the patient and the administration of anesthetics. The book is of value to the advanced medical student and the busy general practitioner.

Births, Marriages, and Deaths.

Died.

BANCROFT.—In Leavenworth, Kans., on Monday, April 28th, Dr. Sidney C. Bancroft, aged seventy years.

BROWN.—In Jackson, Tenn., on Wednesday, April 9th, Dr. Homer B. Brown, of Mifflin, Tenn., aged thirty-seven years.

CLAYBAUGH.—In Seattle, Wash., on Sunday, April 27th, Dr. Joseph P. Claybaugh, of Castle Rock, Wash., aged sixty-six years.

CRITTENDEN.—In Buffalo, N. Y., on Wednesday, April 30th, Dr. D. W. Crittenden, of Fredonia, N. Y.

FROST.—In Brockton, Mass., on Monday, May 5th, Dr. Edward Clayton Frost, aged sixty-one years.

GOULD.—In Boston, Mass., on Friday, March 28th, Dr. Clarke Storer Gould, of Norwood, Mass., aged fifty-five years.

HOBART.—In Richmond, Va., on Monday, May 5th, Dr. John W. Hobart, aged eighty years.

HOLBROOK.—In Concord, N. H., on Saturday, May 3d, Dr. Henry Carroll Holbrook, aged sixty years.

LAMKIN.—In Ashby, Mass., on Thursday, May 1st, Dr. John S. Lamkin, aged sixty-five years.

LOWE.—In Kewanee, Ill., on Monday, April 28th, Dr. Francis O. Lowe, aged fifty-eight years.

MOREY.—In Manchester, N. H., on Tuesday, April 29th, Dr. Gustavus B. Morey, aged eighty years.

MORROW.—In Altoona, Pa., on Saturday, April 5th, Dr. Thomas Milton Morrow, aged fifty-two years.

RIDGWAY.—In Gowanda, N. Y., on Friday, May 2d, Dr. Guy Ewing Ridgway, of Jamestown, N. Y., aged forty-five years.

STURGIS.—In Boston, Mass., on Tuesday, May 6th, Dr. Frederick Russell Sturgis, aged seventy-five years.

WILBER.—In Brooklyn, N. Y., on Monday, May 5th, Dr. Henry Clay Wilber, aged seventy-three years.

WILLIAMS.—In Absecon, N. J., on Friday, May 2d, Dr. Frederic A. Williams, of New York, aged forty-eight years.

WORT.—In Kokomo, Ind., on Thursday, April 17th, Dr. George B. Wort, of Breeman, Ind., aged seventy-three years.

YOUNG.—In Terre Haute, Ind., on Sunday, April 27th, Dr. Stephen J. Young, aged ninety years.

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Original Communications

THE TRAINING OF THE PERSONNEL OF AN EVACUATION HOSPITAL FOR SERVICE AT THE FRONT.

BY ELLSWORTH ELIOT, JR., M. D.,
New York.

The functions and administration of evacuation hospitals at the time that the United States declared war, and for almost eighteen months afterward, were not, at least in this country, clearly understood. For example, in the latter part of 1917, one of the senior instructors on the staff of a well known training camp stated to a company of student officers that his knowledge of this subject was nil. Shortly after, the remark "there goes evacuation No. X," from friends casually met in the camp, greeted a popular member of this same company, who had just been designated adjutant to an evacuation hospital recently authorized by the War Department. In the following spring and even as late as September, 1918, the same lack of knowledge still prevailed and discussion and speculation by commanding officers of evacuation hospitals, about to be sent overseas, concerning the administration of those already in service behind the western front were freely indulged in without, however, throwing any light on the matter. In one instance the conclusion was reached by a commanding officer, whose unit was at that time in a rest camp in England, that further preparation was useless and that the various problems under discussion would have to be dealt with and solved as they arose. In another instance no effort had been made by the commanding officer, for two months prior to embarkation, to provide a course of instruction for the officers of his company, the excuse being given "that, if they didn't know it now, they never would."

Such a lack of knowledge might have been excusable at the beginning of hostilities, for the civil war was so remote and the science of surgery since that time so radically changed that the knowledge and experience gained then was inapplicable to present conditions. Nor was the Spanish war in 1898 of sufficient length and extent to standardize methods that could be applied to the war surgery of today. But why such a state of ignorance was allowed to continue is difficult to explain for, prior to our entrance into the war, and during the early months of preparation that followed, abundant opportunity was afforded us to learn, from the experi-

ence of those who then became our allies, not only the most urgent requirements in the surgical training of our officers, but the most efficient methods of administration of the hospitals at the front, as well. Sporadic attempts, to be sure, were made to provide suitable instruction for those officers who were expected to participate in active service overseas. Courses in various medical centres were organized and officers were assigned in groups to receive instruction at hospitals and schools in general and special surgery. To a portion of each company in officers' training camps, a short course of instruction in war surgery was given by some instructor who had seen service at the front and occasionally a lecture with lantern slide demonstrations, presenting various phases of the same subject, was delivered by some noted surgeon to the student body as a whole. It is the testimony of those who served at the front, however, that, with few exceptions, this instruction was of little or no value. In fact, in certain instances, it was actually harmful, as, for example, in the case of dentists who, after a course of six weeks' duration, in oral and plastic surgery, considered themselves qualified plastic surgeons, or in the case of graduates in medicine who, after witnessing for a similar period the operative surgery of some large clinic, believed themselves experts in laparotomy.

While criticism that condemns and destroys is rarely wise, constructive criticism which suggests a remedy is always helpful, even though it serve merely as a text for a discussion. Still more, criticism which is offered with a view to promote the efficiency of the medical department of this country is unquestionably desirable. It is entirely from this viewpoint and in the hope that they may prove of service that these few suggestions, the result of actual experience both in training camps and at the front are presented by a former reserve officer.

The personnel to which the title of this paper refers, includes officers, nurses and enlisted men. To all these alike the exacting service at the front requires the very best possible physical condition. For them this is just as indispensable as it is for the actual combatants. For officers and men, setting up exercises and drill, supplemented, if possible, by cross country walking, are highly recommended. Horseback riding and gymnasium exercise, the latter if possible in the open air, are also of value. For women, setting up exercises and cross country walking with exercise in the gymnasium are sug-

gested, and in this connection it is the strong belief of the writer that the health of members of our training schools would be greatly benefited by some such form of daily calisthenics. Two periods, daily, of one hour each, should be devoted to exercise. Extremes are to be avoided. The ascent of steep hills (a prescribed form of exercise in one of our training camps) several hundred feet in height, at double quick by men past fifty accustomed, perhaps, for many years to some form of sedentary office practice, resulted occasionally in a disturbance of a compensated valvular lesion or, in an acute dilatation, or in a breaking down of weakened arches, where a less violent form of exercise would have strengthened impaired organs and the loss of an excellent volunteer officer would have been averted. On the other hand a partial or complete lack of proper physical exercise, in the case of this same type of officer, proved quite as disadvantageous as indulgence in excessive and unaccustomed exercise and many of those who entered active service under these conditions proved incapable of undergoing the severe strain of hardship at the front, a result to which, perhaps, the previous use of the cigarette and of stimulants, although in moderation, may have in part predisposed.

As a matter of fact, so frequently did this prove the case, that service at the front in an evacuation or mobile hospital, came to be regarded as a young man's job. And yet exceptions were not infrequent for several officers in my own hospital, over fifty, proved fully the equals of their younger colleagues in the quantity of their work and much their superiors in the results which they obtained.

Apart from the question of physical condition, the training of officers for service in an evacuation or mobile hospital depends entirely upon whether they are to serve in an administrative or professional capacity. Left to their own choice in this matter an overwhelming majority would unquestionably elect a surgical career, a preference shared also by those who are to serve in internal medicine or in any one of the various surgical specialties. To provide a sufficient number of officers for the less popular administrative department, the separation of officers into these two groups must be made in such a way that those of the greater medical and surgical experience shall be selected and trained for the care of the sick and wounded. This separation should be made at the earliest possible moment and should be based upon what may be learned of the professional records of the officers from those with whom they have been associated in civil life rather than upon the information supplied by officers' qualification cards which, although well meant and truthfully stated, may yet be extremely misleading. Such a method of selection is entirely practicable through the medium of suitable committees arranged by States and representing both large and small hospital centres of recognized standing, for the basic principle must be recognized that only those officers who have served as internes to a hospital or who have had equal clinical opportunities elsewhere, are eligible for service at the front.

Whether it is possible to secure a sufficient number of volunteers from the ranks of the medical profession in a war of any magnitude or length, especially for the less popular administrative branch of the service, is extremely doubtful. The number of those who, impelled by patriotism, are prompt to respond to the call for volunteers and who are willing to serve, irrespective of rank, in any capacity, no matter how menial, is not likely to prove adequate to the demand. The resulting deficiency must be compensated by the draft, which should be applied without fear or favor, within certain age limits, to all classes of society alike.

The organization of the staff of an evacuation hospital includes the appointment of a director together with from twenty-five to fifty other officers, depending upon the capacity of the hospital, arranged according to their ability and experience into two groups, namely, those to whom the more serious operations are to be assigned and those who are to serve as their assistants. Directors should be, as far as possible, men of wide experience who previously have been visiting surgeons or assistant surgeons to civil hospitals. Of these a considerable number have trained successive generations of internes and through this association are peculiarly well qualified to suggest candidates for appointment to the staff. The recommendation by the director of such officers for appointment, especially if approved by the committee at large, should when possible receive favorable consideration. Such a nucleus of men, of more than average ability, trained by similar methods, and enthusiastic and eager to serve under a former leader, vastly increases the efficiency of any hospital unit. Unfortunately a request of this kind by the writer when about to organize an evacuation hospital, was refused owing to "lack of feasibility." Of the six candidates so recommended not one reached the front until after the armistice was signed and several remained in this country during the entire war. It is, however, a pleasure to mention that, during the Argonne campaign, several former students, temporarily assigned to duty on the writer's staff, rendered service of the greatest value and clearly demonstrated the advantages to be derived from the appointment of those, more or less closely affiliated, to the staff of the same hospital.

The director and his assistants, appointed by competent medical authority, should be independent of the commanding officer in the care of the sick and wounded, in which most important function it is desirable that the relation between the administrative and surgical departments should correspond to that existing between the superintendent and medical board of a civil hospital. For the commanding officer to be invested with the power to depose the director and to appoint a junior officer in his place (as was and still is the case) is most unwise. Directors, if incompetent, may be relieved from duty by the action of the appropriate committee. Furthermore for the commanding officer to direct, even in part, the technical training of officers or enlisted men should not be tolerated. The director and his assistants should have complete charge of this particular duty.

The writer is not qualified to discuss the training of those officers who are to be appointed to the administrative departments of the service. It is to be hoped, however, that this special subject will receive, in future, the attention and consideration which it deserves. Nor is it desirable, within the limits of this paper to discuss the training of officers who are to serve as specialists in the different departments of surgery in hospitals at the front. It is merely the intention of the writer to suggest what measures, in view of recent experience, would be likely to qualify the general surgeon most effectively for the treatment of the seriously wounded in evacuation or mobile hospitals.

While the training of this group of officers should be chiefly technical, instruction in the general duties of medical officers is of value and should not be omitted. The writer recalls with the keenest pleasure and enthusiasm a course of instruction conducted in Plattsburg in 1916 by Lieutenant Colonel (now Colonel) Henry Page and Major (now Lieutenant Colonel) Philip Huntington. Besides physical exercise and drill, daily instruction was given in paper work; in camp hygiene including the demonstration of the construction and care of latrines and incinerators; in the making and interpretation of maps; in the selection of sites for dressing and regimental aid stations; in the construction and equipment of field hospitals, and in the formation and scope of the different departments of the army. The examination, enlistment, and discharge of the soldier, together with the general principles and application of army law, received due consideration. For twelve hours daily extending over a period of three weeks, this instruction was given to a most enthusiastic and appreciative company of about thirty men, many of whom have, since then, creditably served in the army both in this country and abroad. Such a course of instruction, to which the technic of the use of the gas mask should be added, is to be followed by the technical surgical training of the officer. During this period and subsequently throughout the actual period of hospital service, physical exercise should be continued whenever practicable. The technical training includes courses in anatomy, the traumatic surgery of the head, thorax, abdomen, and extremities, together with the clinical features, complications, and treatment of wounds. Too much emphasis cannot be placed on the necessity of a knowledge of practical anatomy. While, in the practise of civil surgery, a knowledge of gross pathology is most essential, this particular subject becomes in war surgery, except for infection, a matter of secondary importance. On the other hand, the value of a knowledge of practical anatomy, especially the anatomy of the neck, abdomen, and extremities, cannot be overestimated and is to be acquired, not by the review of some standard work on that subject, but only, as in medical student days, by actual experience in the dissecting room, where a period of at least three months should be devoted to this most important topic.

The study of war surgery should immediately follow that of practical anatomy, the necessary instruction being given in hospitals near the front. While opportunities for observation of practical

work under these conditions were extended during the past war to a limited number of officers, no serious attempt was made to provide a comprehensive course of instruction and the observer left to his own initiative was inclined to spend the larger amount of his time in the operating room. This most important part of an officer's training, which he should receive not as a spectator but as an actual assistant to an experienced member of the staff, must unquestionably be supplemented by training in the triage, in the evacuation wards, in the shock ward, where the desperately wounded are treated both before and after operation and in the post-operative wards. In all of these different departments as in the operating room the student officer must be not a mere observer, but an actual assistant to the surgeon in charge. This period of training affords an opportunity for determining the capacity of student officers as well as their qualifications for the responsibilities of actual service. Their work is also not without value as a part of the routine work of the hospital and their assistance is especially welcome during those periods of activity when the resources of the hospital are taxed to the utmost. The surgical staff of an evacuation hospital should not be definitely selected until the completion of this course of training. While many will qualify, some will fail to develop requisite standards and will have to be assigned to duties elsewhere.

To prescribe the same number of officers for all evacuation hospitals is obviously unwise, although it is desirable to determine the number required for the care of from 250 to 1,000 seriously wounded patients. The number hitherto indicated in speaking of hospital units of from twenty-five to fifty officers merely suggested a convenient number for purposes of instruction. It is also quite apparent that the final organization of any unit should be completed at a place near the zone of hostilities to which, from nearby camps, the requisite number of officers who have completed a satisfactory course of training can be most quickly and conveniently despatched.

The consideration of special needs required in the training of nurses for service at the front is a most interesting subject. Perhaps it is best approached by first briefly stating the number and the qualifications of those detailed for service in an evacuation hospital in the Argonne campaign of September and October, 1918, and then suggesting in what way and by what means their services could have been rendered more effective. For duty in the triage or reception ward no nurse could be spared; in the shock ward, crowded sometimes with as many as twenty desperately wounded patients, only one nurse was on duty; in the operating space a head nurse with two assistants for three or four operating teams. There also worked under her direction one nurse attached to each operating team, temporarily assigned to duty with the evacuation hospital. In the sterilizing room one nurse was in attendance and when supplies were running short, two had to be provided. During the lulls, when only a small number, if any, operations were in progress, all nurses, not engaged in assisting at ward dressings, participated in the preparation of as large an amount of surgical supplies as possible,

in anticipation of the next drive. In each post-operative ward containing about fifty seriously wounded patients, including those recovering from the effects of a general anesthetic as well as those who were retained until their condition justified evacuation, one and, when possible, two nurses were assigned during the day and one at night.

From this it is evident that the number of nurses was totally inadequate although a larger number, proportionately, served in the operating room than in other departments of the hospital. This deficiency was all the more keenly felt, for our own individual sick list ordinarily included from two to five nurses temporarily incapacitated for duty.

In speaking of the qualifications of these nurses too much praise cannot be given them for their energy, their enthusiasm, and their devotion to duty. At the same time it must be pointed out that instances were numerous in which sufficient surgical experience was either lacking or had taken place so long ago that much had been forgotten. In order to maintain a high state of efficiency it is as essential for the nurse, as it is for the surgeon, to keep abreast of the times, and to secure this desirable end, all those nurses who have followed other pursuits should receive a short course of postgraduate instruction in the nursing of surgical cases. While officers should unquestionably receive their preliminary training in practical work at the front, nurses may be more conveniently if not more satisfactorily prepared in civil hospitals at home, and preferably in those with which they were previously affiliated as student nurses.

To promote maximum efficiency the nursing staff, as in the case of officers, must not be frequently changed. This evident truth was unfortunately broken on more than one occasion in the evacuation hospital with which the writer was affiliated when nurses were transferred elsewhere, an equal number arriving almost simultaneously, to take their places. On the other hand, a temporary transfer of both surgeon and nurse (but not their interchange) is at times imperative, and for such emergencies adequate transportation should always be available, for the shifting of activities in the same sector is not uncommon and makes fresh demands for the care of the wounded in other hospitals than in those hitherto actively engaged which, becoming relatively idle, are therefore able to dispense with a considerable portion of their staff. Quite similarly surgeons, assigned teams and nurses, when the entire front becomes inactive, should be moved without delay to the base hospitals in the rear, which then become greatly congested and are in urgent need of additional assistance. While this was undoubtedly the policy in the American sector during the recent campaigns the changes were not always promptly executed and nurses and doctors sometimes remained idle at the front for several weeks after the conclusion of any marked activity when they could have rendered invaluable aid elsewhere.

Whether the defect in the number of nurses could have been remedied must be answered affirmatively, provided that the necessary transportation overseas could have been secured. For example,

repeated requests by the writer to enlist the services of twenty-five trained nurses who were anxious to volunteer for service in an evacuation hospital were refused on the ground that hospitals of this class were not to be provided with female nursing staffs. Furthermore, the writer has learned from a most reliable source that, at no time since the United States entered the war, was there a lack of graduate nurses of our best training schools who, having been mobilized by the Government, were ready and eager to be sent abroad. A delay (not without pecuniary loss to the waiting nurse) ensued, which, in the early part of 1918, might well be explained by the scarcity of overseas transportation. Later on, however, when large numbers of troops and supplies were being sent across on British transports, the need of additional nurses might readily have been foreseen and, to at least a limited extent, provided for. This, however, would have made such demands that, had the armistice not been signed, the rapid expansion of the American army, then contemplated, would doubtless have quickly exhausted the available supply and rendered the adoption of some means to meet the emergency imperative. The recognition of this fact was at least partially responsible for the suggestion that a course of training of six months' duration for volunteer nurses aids should be organized. When, and by whom such a course should be given, in what the more or less radical modification of the curriculum now in vogue in training schools of recognized standing should consist, what measures should be adopted for the selection of proper candidates for admission, are all most interesting topics for discussion.

Such a course could only have been given in a civil or army hospital. Whether it could have been arranged in a civil hospital, in addition to the regular course of training for the pupil nurse, is questionable. The accommodation of any considerable number of applicants would have required a pro rata expansion of living conditions which, in large cities, usually cannot be quickly provided. The organization of such a course would also have meant a marked increase in the size of teaching staffs as well as in teaching space. Had it been given in civil hospitals it cannot be too strongly emphasized that the welfare of the hospital and the community it serves would have required the preservation of the standard of education of the civil pupil nurse.

On the other hand the establishment of such a school in United States Army hospitals would have served a most useful purpose. A staff of experienced graduates from our best training schools could have most effectively organized and conducted the essential administrative and teaching departments and under their supervision a full course of both theoretical and practical instruction, extending over a period of two years, could have been arranged. With the nation at war, the theoretical instruction could have been largely omitted and the practical instruction so given that, at the end of six months, the pupil nurse could have been sent as a nurses' aide to an active base hospital, thereby liberating her more experienced predecessor for the more important service at the front. In

due course of time, as the war continued, and probably before the expiration of her training, she would have seen service at the front herself. With the advent of peace the entire course, as originally planned, could still have been continued in this country, with the number of schools diminished according to the need of the regular standing army.

The necessary qualifications for admission to the proposed army training school would correspond very closely to those long recognized as essential for applicants to training schools connected with civil hospitals, save for the fact that, owing to the necessity of securing an adequate number of pupils, the educational requirements might have to be somewhat lowered. In the wave of patriotic enthusiasm that marked the entry of this country into war many volunteers applied for instruction in our hospitals with a view of becoming nurses' aides. Of these, some who were married hoped, thereby, to be able to be near their husbands, in active service overseas, which, of course, was impossible. Others believed that witnessing a number of major operations at home would qualify them to serve as nurses in the operating rooms at the front, for which duty alone they wished to prepare. Still others attracted by an opportunity of becoming "a trained nurse" after several months' study thought it a favorable time to enter a calling by which, at the conclusion of hostilities, they might reasonably hope to secure a livelihood. In the case of both of these latter classes the prospect of a two years' course of training in an army hospital school would quickly have eliminated all undesirable candidates. While the proposed method of training seems most desirable in many ways, it cannot be denied that, as was the case in the Civil War, the volunteer nurse with little or no previous training, at times, accomplished wonders. I shall never forget the remarkable work of Miss Hopkins, of Rochester, N. Y., who served most faithfully and untiringly as a Red Cross nurses' aide in one of our most busy wards and who, by her cheer and kindly attention, quickly won the hearts of all the wounded. Her presence was an inspiration and her great success was one of the most remarkable instances I have ever witnessed of the value of a sympathetic personality as contradistinguished from the unquestioned value of technical nursing skill, in the care of the sick.

The preparation of the enlisted personnel is a matter of the greatest interest. A considerable number, like the nurse, are already fitted by their previous occupation to render valuable service on reaching the front. Thus, the members of the quartermaster's staff, the cooks, stenographers, clerks, druggists, and chauffeurs are all selected in view of their past experience. Very few of this important contingent of a hospital unit, however, are fitted for the duties of corps men, in the wards and operating rooms and those selected for this work, must, like the officers, receive instruction and technical training before they can be expected to render effective service. The selection of suitable men for these duties is made from those who have received a partial or complete high school education (there are almost no college graduates)

and especially from the more intelligent, who manifest an inherent enthusiasm for work. Almost from the very start, the ambition of some to excel in drill as well as to learn the principles of first aid to the injured attracts the attention of the officer and it is very rare that men of this type fail to fulfill expectations in the special work to which they are assigned, both during their training period and in actual service at the front.

It is only in hospitals that these men can be satisfactorily trained for the duties of an orderly and Dr. J. W. Brannan, president of Bellevue and Allied Hospitals, and Dr. Charles H. Young, representing the manager of the Presbyterian Hospital, were good enough to offer the facilities of those hospitals for that purpose to members of our enlisted personnel. This excellent opportunity we could not take advantage of, although, at first, it seemed to meet the approval of the war office, for six weeks after the offer was made our unit was transferred to Allentown, Pa., so far distant from New York as to make the proposed use of the hospitals impracticable. In the interval, arrangements had been made by the war office for the accommodation of a limited number of men in several of the New York and Philadelphia hospitals, although they received no special instruction from those under whose supervision they chanced to be placed. About thirty of our men were afforded this opportunity, the length of the service to be six weeks. This period could be terminated at any time by order of the commanding officer. Unfortunately ten days had scarcely elapsed before the men of our unit without any reason were ordered back to camp. Their sudden withdrawal from the hospitals to which they had been assigned necessarily caused great inconvenience and ultimately led to the suspension of this privilege by the hospital boards, which, under proper supervision and extended generally to all camps near large medical centres, would have proved a most valuable method of training.

Fortunately, through the kindness of Dr. C. D. Shaffer, surgeon in charge, and Miss A. M. Viederhofer, directress of the school of training in the Allentown Hospital, to whom I wish to express my grateful appreciation, the opportunity of using the facilities of that hospital were extended to our unit. Here, during three months at Camp Crane, groups of specially selected men were taken into the operating room and wards and were given systematic instruction in the care of general and special surgical cases. It is most interesting to record that eighteen of our brightest men who only had the opportunity of witnessing the administration of the anesthetic (but not of giving it) supplemented by a series of conferences with free discussion and cross examination, the entire course extending over a period of a month, became most satisfactory anesthetists, acting in that capacity to more than 5,000 patients in the Argonne campaign without an accident. It is worth while to record this experience in view of its economic value for these men liberated an equal number of nurses or surgeons on whom that duty would ordinarily have devolved and whose services were sorely needed in other fields. It also seems to

demonstrate the feasibility of selecting and training the more intelligent members of the enlisted personnel of each hospital unit for this all important function, without previous medical instruction of any kind. The writer fully believes that one or more schools of anesthesia conducted in the manner indicated, could be established with great benefit, in case of a renewal of hostilities.

The entire course of training, whether for the ward, the operating room, the laboratory or other technical part of the hospital, must be solely under the supervision of the director of surgery and not of the commanding officer. Such an arrangement prevents all interference and promotes equal development of the various departments of the hospital.

It has not been intended in the consideration of this most important and interesting subject to manifest a lack of courtesy to those with whom it was the writer's good fortune to be associated during the past year. Whatever criticisms have been indulged in, have been made solely for the purpose of promoting the future efficiency of the service in case of the recurrence of conditions requiring the rapid enlistment and training of so many of the country's medical men. The fact that hostilities so promptly ceased after the power of this country became manifest is not to be cited as a proof of the excellence of our methods. "Hindsight is better than foresight" does not mean that hindsight should in any way be neglected. Above everything else, experience is the best teacher if only her admonitions are heeded.

In conclusion, it is a great pleasure to take this opportunity to extend my thanks to Colonel Duval, our commanding officer who took us overseas, for his unfailing kindness and courtesy, to the nurses assigned to us, to my fellow officers for their faithful and conscientious attention to arduous surgical duties, and especially to the members of our all important enlisted personnel who, more than any other factor, were responsible for whatever little success the unit may have achieved and whose faithful cooperation I shall always remember with the deepest gratitude.

EXPERIMENTS CONDUCTED TO PRODUCE HUMAN TUBERCULOSIS IN FISH (CARASSIUS AURATUS).

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In a previous paper (1) I reported observations on tubercle bacilli which had remained submerged in water for three years and which had retained their virulence for guineapigs after this time. In this former series of experiments I used a glass vessel which contained 6,000 c. c. of water, and I have repeated the experiments, using at this time a wooden wash tub which would hold sixteen gallons of water. The infective material (feces from a case of tuberculous enteritis containing tubercle bacilli) was collected November 1, 1912, and was added to the tub of water January 1, 1913. My

intention at the beginning of the study was to place fish in the tub and to determine whether I could demonstrate tubercle bacilli in their feces and to see whether these organisms were destroyed by the fish. Later I determined to see whether tuberculosis could be developed in them by raising the temperature of the water.

One month after adding 200 c. c. of feces to twelve gallons of water, I introduced several gold fish, but these did not survive a day; they all died. A week later I again put several fish in the mixture and these died. I then waited for several months and on June 1, 1913, put seven gold fish in the tub. A couple of the fish died and one was sacrificed. Apart from these three, the remaining four were alive June 1, 1916. Upon this latter date the remaining fish were sacrificed and studied histologically and bacteriologically.

November 14, 1913, I took about 100 c. c. of the water, ten months after adding the feces, and after thoroughly stirring it, centrifugalized it, treated it with antiformin and found numerous acid fast organisms which could not be differentiated from the tubercle bacillus.

February 2, 1914, I removed the fish by means of a net, placed them in 500 c. c. of sterile water and allowed them to remain in this for six hours. They were replaced in the tub and I then collected the feces, treated it with antiformin and was able to demonstrate tubercle bacilli.

November 2, 1914, I stirred the water thoroughly, and three hours later removed the fish, placed them in clean sterile water for three hours and was again able to find tubercle bacilli in the feces.

On November 5, 1914, one fish died and this was undoubtedly due to an injury received during its removal from the tub.

June 7, 1915, after stirring the water daily for five minutes by the watch for a whole month, I removed about 300 c. c. of water, centrifugalized it, treated it with antiformin, and after prolonged search, tubercle bacilli were found.

June 25, 1915, the fish were removed and placed in sterile water for two hours; the feces were collected, stained and few tubercle bacilli were found, after a prolonged search.

July 28, 1915, collected 200 c. c. of the water, allowed it to sediment, collected this, dried it for several days, inoculated some of this dried sediment intraperitoneally into a guineapig. The animal died within three days from peritonitis, and before spreads could be made from the peritoneal cavity, some one had disposed of the carcass.

October 1, 1915, the fish were removed from the tub and placed in sterile water for several hours. A few tubercle bacilli were found after prolonged search in the antiforminized specimen of feces. From this latter preparation of fish feces, a guineapig was inoculated (October 8, 1915) subcutaneously, which was followed by slight induration at site of inoculation which lasted several days and then subsided. I was unable to demonstrate tubercle bacilli in spreads made from this preparation.

February 16, 1916, a guineapig was inoculated with the remainder of the sediment collected July, 1915, and which was left in the ice box for almost

seven months. After three weeks the animal died and adhesions to the abdominal wall were found at site of inoculation. Spreads made from the lesions showed few acid fast organisms which resembled tubercle bacilli.

On January 31, 1916, the temperature of the water in the tub was 13° C. and I attempted to raise the temperature by placing a sixteen candle power electric bulb in the tub. This raised the temperature to about 20° C. About this time I added twenty c. c. of sputum containing tubercle bacilli, which was thoroughly mixed with the water.

The temperature of the water was taken daily and reached no higher than 25° C. by March 10, 1916. At this time I placed a 250 watt lamp upon the surface of the water and the temperature during the remainder of the month of March was from 30° to 33° C. During the latter part of April, due to the heat from the lamp, the water had evaporated considerably and the medium was more or less concentrated. The fish seemed sluggish, were removed, and rejuvenated in salt water and after forty-eight hours again put in the tub. The temperature was 22° C. and a day or two later the lamp was again placed in the tub and for the last ten days the temperature had been 33° C.

June 9, 1916, sacrificed one of the fish. There were no visible lesions and the fish was apparently in good condition as there was a large amount of fat present and no lesions were demonstrable histologically.

June 26, 1916, the lamp was taken from the water and on July 5, 1916, one fish was found dead. No gross or microscopic lesions were found.

On July 7, 1916, two months after having added the sputum, placed the four fish in 2,000 c. c. of sterile water and allowed them to remain forty-eight hours. The sediment of feces was collected, treated with antiformin, stained and few tubercle bacilli were demonstrable.

The tub during these three years was upon a laboratory table, always had the morning sun, and as the water evaporated more was added. The fish seemed to be in the best of health, always lively, and showed no evidence of being in any way affected by their confinement in this green, dark and always cloudy water, except the one period during April, 1916, referred to.

The histological examination of these fish showed no evidence of tubercle formation, and in sections stained for tubercle bacilli few acid fast organisms were demonstrable in the intestinal contents, but in no case were any organisms demonstrable in the musculature. There appeared to be an unusually large number of small round cells in the submucous coat of the intestinal canal, but, apart from these, there was no evidence of any diseased condition whatsoever. During the first eighteen months of these experiments, a three gallon aquarium, containing clear water and apparently normal gold fish, was kept on the same laboratory table as the tub containing the experimental fish, and at the same intervals as the experimental fish were studied, control studies were made of the feces of these fish. In none of the specimens were any acid fast organisms demonstrable.

CONCLUSIONS.

These studies lasted for a period of over three years, and my object was to try and determine if tuberculosis could be produced in fish with the human tubercle bacillus by raising the temperature of the water to or near the body temperature of man. As is well known, in certain parts of the world the eating of raw fish is quite common, and it occurred to me that this might be one of the means of the dissemination of the disease.

During the entire period of my experimentations in all of the spreads studied both from the sediment of the water and the feces of the fish, tubercle bacilli were always demonstrable, although in gradually decreasing numbers. It is seen that tubercle bacilli are taken up by fish and discharged by them without undergoing any change morphologically or tinctorially and that the decrease in number of organisms may have been due to a disintegration which is natural in the undesirable medium in which they were contained, and possibly, to the action of the rays of the sun, which in the mornings had played upon this water. It is also probable that a small number were destroyed by the fish. My object in stirring the water for a period of five minutes daily by the watch for a month was to make the water as heavily polluted as possible with these organisms, to simulate, as far as possible, concentration of bodies of water, the banks of which have been washed by rains and freshets.

It seemed that the time (three years) mostly at ordinary room temperature, and for several months from 30° to 33° C., was sufficient for infection to have taken place in these fish, and in not one fish was the least suggestion of a tubercle found, except a seemingly increased number of small round cells in the submucosa of the intestinal canal. I made histological studies of a number of control fish of the same variety as those experimented upon, and in all of them great numbers of small round cells were observed in the submucosa of the intestines.

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THE PERFORATED ZINC INHALER IN THE TREATMENT OF RESPIRATORY AFFECTIONS.

BY BEVERLEY ROBINSON, M. D.,
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We all know how unsatisfactory much of our treatment is in the diseases of the respiratory tract whether they are acute or chronic. Take for example, the acute cold in which cough and expectoration predominate. How can we cure or ameliorate them? Many cough mixtures upset the stomach, and also do little appreciable good. By reason of their syrupy content, they soon pall upon the taste and produce nausea and loss of appetite. The different anodynes contained in them are also objectionable. Cannabis indica and belladonna are of little real service in the majority of cases. Morphine constipates, dulls the faculties, and if con-

tinued, makes the patient apathetic and listless. Besides, unless given in quite frequent, even though small single doses, it is of slight service in lessening the cough and does not promote a cure. Codeine is probably the best of the anodynes used in the treatment of cough and yet it often fails us and certainly has very little curative effect. Warm, moist inhalations are only useful and desirable, with few exceptions, when the patient is confined to his room and has an acute attack with fever. Hand ball sprays are temporarily soothing at times, but do not reach far below the visible pharynx and surely, do not penetrate the interior of the larynx. Even sprays, manipulated by the aid of an air condenser, can only be made available in a physician's office and at best, can be made serviceable only once or twice a day and at the outlay of much time and money. In subacute, or even chronic pharyngitis and particularly laryngitis, local applications of different pigments with the aid of the throat brush or sponge and a suitable applicator are without doubt often serviceable but they can only be properly made, as a rule, by the physician or surgeon and cannot be trusted to the patient.

When the affection has penetrated below the vocal cords, and also, involved them and the pharynx and the nose to a certain degree, all of the agents mentioned are of little value in a practical way. What have we then to fall back upon and rely upon in our need? I know of only one, i. e., the perforated zinc inhaler. It may be used with many volatile remedial agents. It never does harm, if used with even a modicum of knowledge and experience. It may be worn frequently and sometimes, almost constantly for hours, and even days and nights, if indicated or required.

I have repeated and dwelt upon all this many times in the past and could readily go on and repeat much of what I have already mentioned. To afford actual and timely proof of what can be effected by the perforated zinc inhaler, I beg to quote from a letter received a few days ago from Dr. H. N. Vermilye, lately one of the Presbyterian Hospital unit, which served nobly at the front, in France.

Doctor Vermilye writes: "The Robinson inhaler was used by the Presbyterian Hospital Unit and by the English. Many gassed cases came to the United States Army General Hospital No. 1 (Presbyterian Hospital) with inhalers in place. We used equal parts of alcohol, chloroform, and creosote, and found that it lessened the amount of coughing due to laryngeal irritation quite effectually, if sufficient solution were used. The inhaler was also used quite effectively among the influenza patients with marked laryngeal irritation. In the gassed patients if worn continually, we considered that it limited the incidence of secondary inspiration infection. In the influenza patients it tended to limit the spread of the disease."

It seems to me, this statement has the highest practical value now and will have in the future. If influenza is prevalent, as it surely will be sooner or later, why not make use of an inhaler which is at once more curative and more protective than any other of which I have any knowledge? Of course, besides making use of the inhaler, one

should also make use of the best remedial drug internally and this drug I have already affirmed many times, is without doubt, salicylate of ammonium.

42 WEST THIRTY-SEVENTH STREET.

THE DANGER OF PESTILENCE IN EUROPE AND THE NEED OF AN INTERNATIONAL HEALTH COMMISSION.

BY GEORGE A. SOPER, PH. D.,

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The most reliable information available indicates that a large part of Europe is in a state bordering upon anarchy. Civic and national governments are without capacity, crime is rampant; famine is not merely a menace but a reality. War, with its terrible accompaniment of suffering has laid its hand with unexampled severity upon the human race. There is reason to believe that we are at the beginning rather than at the end of these troubles. Western civilization is striving anxiously to determine the extent of the evils and is endeavoring to devise means to alleviate them. Prominent in the prospect stands the spectre of famine. It is known that the people must be fed or they will perish. This is the most imminent danger. Steps are being taken to meet it.

There is another spectre no less ghastly than famine and one which seems not as yet to have been provided for. It is pestilence. War, famine, and pestilence are companion miseries which have gone hand in hand throughout the history of the human race. War has sometimes occurred without either famine or pestilence, but famine has never occurred over a wide area without an excessive prevalence of disease. Europe has never before been visited by such a terribly destructive war. It has never faced such widespread famine conditions. Is it possible that it will escape pestilence?

In speaking of pestilence a liberal definition of the word is here used. It is an expressive term and one which deserves to be more frequently employed. An extensive epidemic of any malignant disease is a pestilence. Pestilences should not be thought of only as sudden, dramatic explosions of disease; they are more common than that. They may be so insidious in onset and progress as hardly to attract attention. Epidemics of this kind, when continued over a long period are often terribly fatal. Malaria is an example, tuberculosis is another. Some scarcely noticed diseases are of profound economic importance and must be included in any complete reckoning of the consequences of the European war. But it is to the more striking diseases such as plague, typhus, and cholera that the term pestilence ordinarily attaches, and it is to such forms of sickness as these that attention is particularly drawn at the present moment.

Although the spread of disease is encouraged by crowding, by filth, by want of personal precautions, by improper and insufficient food, by excessive fatigue and by cold and exposure, it is want of proper supervision over public health questions that is the most serious factor. This central guardianship is of the utmost consequence. Properly con-

stituted and exercised it is capable of doing more than anything else for the management of disease. The conditions need to be controlled. People in masses need to be guided and instructed and the disobedient and careless ones disciplined in order that, as with crime, the few may not do harm to the many. Under circumstances of civilized and stable government, definite forms of administrative machinery exist for the prevention of disease. This machinery may be likened to that for the protection of the public against crime on the one hand and fire on the other. First, there are strictly preventive measures such as water supplies, sewerage systems, and refuse disposal works. Second, a definite set of laws and precepts exists for the prevention and correction of trouble. Third, there are procedures for the early detection of the disturbances which break out. Fourth, prompt measures are put into action to prevent the centres of infection from spreading.

Aside from those countries which were neutral or associated with America in the great war, public health administration outside of Germany was nowhere upon a high order of efficiency before the war broke out. Sewers and public supplies of pure water as they are known in America did not exist. The supervision of milk and food was neglected. Reports of disease conditions were unsatisfactory. As far as statistics indicate, the mortality was high, and the average length of life was short as compared with the conditions in western nations. Disease was known to occur beyond the limits which existed elsewhere. Tuberculosis, malaria, dysentery, diarrhea, smallpox, and other economically important forms of illness were sometimes prevalent. In some regions they were more severe and more common than in others. Always the Near East has been a danger zone for Europe as far as the great epidemic diseases are concerned. Not only typhus and certain other pestilences have been endemic there, but the transportation afforded by the Danube and other large rivers has been the means whereby cholera has been repeatedly spread westward.

Cholera, typhus, and plague have recently made their appearance in Europe. Cholera has been reported at all the Baltic ports of Russia, in Germany, in France, Sweden, and Spain. With the advent of summer it may be expected to break out in various centres. Typhus is more widely distributed than cholera. It has been reported throughout the Balkan states, Germany, Italy, France, Spain, Ireland, Scotland, and Russia. It is supposed that the danger from typhus will be reduced when warm weather occurs. Plague may occur throughout the year; it has been reported in Spain, in the Ukraine and in Russia.

The prevention of epidemic diseases should be one of the principal objects to be accomplished in the efforts which are being made to provide means whereby the demoralized populations of Europe may regain their industrial and commercial equilibrium. But it is not the whole duty which civilization owes to those whom it has undertaken to assist. It is desirable that something more be done than the prevention of disease in its terrible aspects, however urgent this is.

The less spectacular forms of disease should be suppressed. It must not be forgotten that even in western countries there is a great wastage of human life through diseases which, because they do not possess dramatic aspects, fail to receive their due share of attention. For example, tuberculosis receives very little notice among the backward peoples of southeastern and northern Europe. The question of infant mortality is not there recognized as a serious question at all. Sanitation as it is known in America, is not dreamed of. Personal cleanliness, which is not only one of the greatest barriers of disease but one of the most uplifting elements of social progress, does not exist. The whole subject of sanitation and health should be put upon a new and efficient basis in the backward countries.

The detailed steps which should be taken in order to avert the peril of pestilence can only be determined by a thorough investigation of the conditions. The opportunities and the needs will vary in different countries, from place to place and from time to time. It is probable that two main necessities will have to be faced: the first is to meet the present situation and the second is to provide for the future.

In order to meet both it may be desirable to create an international health commission. The duties of this board would probably be investigative, supervisory, and coordinating. Its functions would not necessarily replace those of any existing body or authority, but would assist and supplement those agencies which already possess specific functions and are exercising them efficiently. Where no efficient local bodies exist, the commission might take steps looking to their creation.

The first object to be accomplished would be the international control of those diseases which are of international import. The second object would be the standardization of administrative health procedures everywhere so far as local conditions would permit. Responsibility for the results would rest wherever the authority was located. A commission already exists which might serve as a nucleus for the organization here proposed. At an international sanitary conference held in Paris in 1903, an agreement was drawn up for the better management of plague, cholera, and yellow fever all of which possessed international significance. This agreement was ratified in 1907. It specified, among other things, the procedures by which the epidemic diseases just named were to be handled, especially in the eastern countries which heretofore had neglected them. The chief object was to keep cholera and plague from getting into the commercial centres of Europe. There was also to be established at Paris an international office of public hygiene. This office was to be under the control of a committee formed of delegates from each of the contracting governments. The name of this central bureau was to be the Office International d'Hygiene Publique. This office was duly established and has been functioning for eleven years.

The Paris office was to have for its objects the receipt and notification to the several governments of facts of interest concerning public health mat-

ters and infectious diseases, particular attention being given to plague, cholera, and yellow fever. There was to be published each month a bulletin containing a digest of laws promulgated in different countries concerning the management of transmissible diseases; information concerning the existence and progress of infectious diseases; information relating to sanitary works and measures taken for the sanitation of localities; statistics; and bibliographical abstracts relating to the occurrence and study of disease. This has been done. Although it has performed valuable functions, it cannot be said that the office has thus far met the needs of an international public health service as contemplated in this paper. Its scope is not as broad, nor are its authority and financial resources as large as they should be. Germany and Austria-Hungary have never been represented.

The commission, whether a new one or the present one is considered, should have power to make investigations and reports on the existence of all forms of infectious disease and on the conditions which make for disease; it should draft and recommend the adoption of model health laws and the most suitable methods of enforcement; it should investigate the underlying principles for the prevention of disease and the promotion of health and should announce the results of its investigations in publications to which all students and executives concerned in health work would have access. It might be necessary that this central bureau should have certain mandatory powers in order to insure that appropriate steps be taken to prevent disease. Above all it should be a live, efficient, energetic institution possessing real powers and capable of doing large things.

Attention has, in this brief paper, been given only to European conditions, but there are endemic sources of disease in many countries especially those in eastern and southern regions which need attention. These diseases should be hunted down and controlled at their source. It should not be left to private enterprise, as it is now, to stamp out yellow fever from a continent; it should not be left to missionaries, however qualified they may be, to handle pestilences in the Near East; it should not be left to the vagaries of chance to encourage or stay the progress of those forms of disease, which neglected, become pestilences either of the dramatic type or of the scarcely noticed but no less fatal variety.

There are indications that the Red Cross may initiate an extensive health campaign throughout the world. A conference is being held at Cannes, France, to consider the preliminaries and it is expected that upon the conclusion of peace a general congress will be held in Switzerland to formulate the details. This is admirable but it is not sufficient. The international health problem is too big to be completely handled by even the biggest private humanitarian agency that the world has ever known.

A great deal of health work is police work; authority is required to collect the data, make the inspections and compel the adoption of the preventive and suppressive measures demanded. Let us

hope that the nations will see the need and in the peace negotiations, or later, initiate the work which so greatly requires to be done. The project of an international commission which shall exercise jurisdiction over preventable disease throughout the world ought to go hand in hand with the Red Cross program.

MEMORY AS AN AID TO VISION.

BY W. H. BATES, M. D.,
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Associated with all functional eye troubles, including errors of refraction (1), strabismus, amblyopia (2), and various other conditions, is a strain or effort to see. This strain always originates in mental strain of some kind, and when the latter is relieved the sight always becomes normal. But the sensations of the eye and mind supply very little information as to the strain to which both are being subjected, those who strain most often suffering the least discomfort. In the treatment of these conditions, therefore, it is important to have some test by which the patient can know whether he is straining or not. This is supplied by the memory of black.

When the mind is able to remember perfectly any phenomenon of the senses, it is always perfectly relaxed. The sight is normal if the eyes are open, and when they are closed and covered so as to exclude all the light one sees a perfectly black field, that is, nothing at all. If one can remember the ticking of a watch, or an odor, or a taste, one's mind is completely at rest, and one will see a perfect black when one's eyes are closed and covered. If one's memory of a sensation of touch could be equal to the reality, one would see nothing but black when the light was excluded from the eyes. If one were to remember a bar of music perfectly when one's eyes were closed and covered, one would see nothing but black. But in the case of any of these phenomena it is not easy to test the correctness of the memory, and the same is true of colors other than black. All other colors, including white, are altered by the amount of light to which they are exposed, and are seldom seen as perfectly as it is possible for the normal eye to see them. When the sight is normal, black is just as black in a dim light as in a bright one. It is also just as black at the distance as at the nearpoint, while a small area is just as black as a larger one, and, in fact, appears to be blacker. Black is, moreover, more readily available than any other color. There is nothing blacker than printer's ink, and that is practically ubiquitous. By means of the memory of black, therefore, it is possible to measure accurately one's own relaxation. If the color is remembered perfectly, one is absolutely relaxed. If it is remembered almost perfectly, one's relaxation is almost perfect. If it cannot be remembered at all, one has very little or no relaxation.

By means of simultaneous retinoscopy, these facts can be readily demonstrated. An absolutely perfect memory is very rare, so much so that it need hardly be taken into consideration; but a

practically perfect memory, or what might be called normal, is attainable by every one under certain favorable conditions. With such a memory of black the retinoscope shows that all errors of refraction are corrected. If the memory is less than normal, the contrary will be the case. If it fluctuates, the shadow of the retinoscope will fluctuate. The testimony of the retinoscope is, in fact, more reliable than the statements of the patient. Patients often believe and state that they remember black perfectly, or normally, when the retinoscope indicates an error of refraction; but, in such cases, it can usually be demonstrated, by bringing the test card to the point at which the black letters can be seen best that the memory is not equal to the sight. That the color cannot be remembered perfectly when the eyes and mind are under a strain, the reader can easily demonstrate by trying to remember it when making a conscious effort to see—by staring, partly closing the eyes, or frowning—or while trying to see all the letters of a line equally well at one time. It will be found that it either cannot be remembered at all under these conditions, or that it is remembered imperfectly.

When the two eyes of a patient are different, it has been found that the difference can be exactly measured by the length of time a black period can be remembered while looking at the Snellen test card with both eyes open, and with the better eye closed. A patient with normal vision in the right eye and half normal vision in the left, could, when looking at the test card with both eyes open, remember a period for twenty seconds continuously; but with the better eye closed it could be remembered only ten seconds. A patient with half normal vision in the right eye and one quarter normal in the left, could remember a period twelve seconds with both eyes open, and only six seconds with the better eye closed. A third patient, with normal sight in the right eye and vision of one tenth in the left, could remember a period twenty seconds with both eyes open, and only two seconds when the better eye was closed.

In order that patients under treatment for the cure of functional eye troubles may recognize and avoid the conditions that produce strain, they are advised, whatever other method of improving their sight they may be using, to carry with them always the memory of a small area of black, such as a period. Some patients have obtained a complete cure in a very short time by this means alone. One advantage of the method is that it does not require a test card or any other equipment. At any hour of the day or night, whatever the patient may be doing, he can always place himself in a condition favorable to the perfect memory of a black period.

The condition of mind in which a black period can be remembered cannot be attained by any sort of effort. The memory is not the cause of the relaxation, but must be preceded by it. It is obtained only during moments of relaxation and retained only as long as the causes of strain are avoided; but how this is accomplished cannot be fully explained, just as many other psychological phenomena cannot be explained. We only know that under certain conditions that might be called favorable, a de-

gree of relaxation sufficient for the memory of a black period is possible, and that by persistently seeking these conditions, the patient becomes able to increase the degree of the relaxation and prolong its duration, and finally becomes able to retain it under unfavorable conditions.

The majority of patients find the conditions most favorable for the memory of black when their eyes are closed and covered with the palms of the hands in such a way as to exclude all the light, while avoiding pressure on the eyeballs. This usually lessens the strain to see to such an extent that the patient becomes able to remember a black object for a few seconds or longer; but there is a considerable minority of cases in which this result is not obtained. Such patients not only get no relaxation by palming, but may so increase their strain as to produce very serious symptoms. Their treatment often requires much patience and ingenuity, and cannot be considered here.

When the closing and covering of the eyes does produce sufficient relaxation for the memory of black, this period of relaxation can be prolonged in one of two ways: Either the patient can open his eyes and look at a black letter by central fixation—by which is meant seeing best the part fixed (1)—at the distance at which it is seen best, or he can shift mentally from one letter to another, or from one part of a letter to another. By this means, and perhaps also through influences that are not clearly understood, most patients become able, sooner or later, to remember black for an indefinite length of time with their eyes closed and covered.

With the eyes open and looking at a blank surface, without trying consciously to see, the unconscious strain to see is lessened so that the patient becomes able to remember a black period, and all errors of refraction, as demonstrated by the retinoscope, are corrected. This result has been found to be invariable; and so long as the surface remains blank and the patient does not begin to remember or imagine things seen imperfectly, the memory and the vision may be retained. But, if with the improved vision, details upon the surface begin to come out, or if the patient begins to think of the test card which he has seen imperfectly, the strain to see will return and the memory of the period will be lost.

When looking at a surface on which there is nothing to see, distance makes no difference to the memory, because the patient can always look at such a surface, no matter where it is, without straining to see. When looking at letters, or other details, however, the memory is best at the point at which the patient's sight is best, because at that point the eyes and mind are more relaxed than when the same letters or objects are regarded at distances at which the vision is not so good. By improving the sight at the most favorable distance, therefore, the memory of the period may be improved in some cases very rapidly.

If the relaxation gained under these favorable conditions is perfect, the patient will be able to retain it when the mind is conscious of the impressions of sight at unfavorable distances. Such cases are, however, very rare. Usually the degree of re-

laxation gained is markedly imperfect; and is, therefore, lost to a greater or less degree when the conditions are unfavorable, as when letters or objects are being regarded at unfavorable distances. So disturbing are the impressions of sight under these circumstances, that just as soon as details begin to come out at a distance at which they have not previously been seen the patient usually loses his relaxation, and with it the memory of the period. In fact, the strain to see may even return before he has had time to become conscious of the image on the retina, as the following case strikingly illustrates:

A woman of fifty-five who had myopia of fifteen dioptries, complicated with other conditions which made it impossible for her to see the big C at more than one foot, or to go about, either in her house or on the street, without an attendant, became able, when she looked at a green wall without trying to see it, to remember a perfectly black period, and to see a small area of the wallpaper at the distance as well as she could at the nearpoint. When she had come close to the wall she was asked to put her hand on the door-knob, which she did without hesitation. "But I do not see the knob," she hastened to explain. As a matter of fact she had seen it long enough to put her hand on it, but as soon as the idea of seeing it was suggested to her she lost the memory of the period, and with it her improved vision, and when she again tried to find the knob she could not do so.

When a period is remembered perfectly, while a letter on the Snellen test card is being regarded, the letter improves, with or without the consciousness of the patient, because it is impossible to strain and relax at the same time, and if one relaxes sufficiently to remember the period, one must also relax sufficiently to see the letter, consciously or unconsciously. Letters on either side of the one regarded, or on the lines above and below it also improve. When the patient is conscious of seeing the letters, this is very distracting, and usually cause him, at first, to forget the period; while with some patients, as already noted, the strain may return even before the letters are consciously recognized.

Thus patients find themselves on the horns of a dilemma. The relaxation indicated by the memory of a period improves their sight, and the things they see with this improved vision cause them to lose their relaxation and their memory. It is very remarkable to me how this difficulty is ever overcome, but some patients are able to do it in five minutes, or half an hour. With others the process is long and tedious. There are various ways of helping patients to deal with this situation. One is to direct them to remember the period while looking a little to one side of the test card, say a foot or more; then to look a little nearer to it; and, finally, to look between the lines. In this way they may become able to note the blackness of the letters in the eccentric field without losing the period, and when they can do this they may become able to go a step further and look directly at a letter without losing control of their memory. If they cannot do it, they are told to look at only one part of a letter—usually the bot-

tom—or to see the period as part of the letter, while noting that the rest of the letter is less black and less distinct than the part directly regarded. When they can do this they become able to remember the period better than when the letter is seen all alike. If the letter is seen all alike (1) the perfect memory of the period is always lost. The next step is to ask the patient to note whether the bottom of the letter is straight, curved, or open, without losing the period on the bottom. When he can do this he is asked to do the same with the sides and top of the letter, still holding the period on the bottom. Usually when the parts can be observed separately in this way the whole letter can be seen without losing the memory of the period; but it occasionally happens that this is not the case, and further practice is needed before the patient can become conscious of all sides of the letter at once without losing the period. This may require moments, hours, days, or months.

In one case, the following method succeeded:

The patient, a man with fifteen dioptries of myopia, was so much disturbed by what he saw when his vision had been improved by the memory of the period, that he was directed to look away from the Snellen test card, or whatever object he was regarding, when he found the letters or other details coming out; and for about a week he went around persistently dodging his improved sight. As his memory improved, it became more and more difficult for him to do this, and at the end of the week it was impossible. When he looked at the bottom line at a distance of twenty feet he remembered the period perfectly, and when asked if he could see the letters, he replied: "I cannot help but see them."

Some patients retard their recovery by decorating the scenery with periods as they go about during the day, instead of simply remembering a period in their minds. This does them no good, but is, on the contrary, a cause of strain. The period can be imagined perfectly and with benefit as forming part of a black letter on the test card, because this merely means imagining that one sees one part of the black letter best, as the normal eye sees it; but it cannot be imagined perfectly on any surface which is not black, and to attempt to imagine it on such surfaces defeats the end in view.

The smaller the area of black which the patient is able to remember, the greater is the degree of relaxation indicated; but some patients find it easier at first to remember a somewhat large area, such as one of the letters on the Snellen test card, with one part blacker than the rest. They may begin with the big C, then proceed to the smaller letters and finally get to a period. It is then found that this small area is remembered more easily than the larger ones and that its black is more intense. Some patients, instead of a period, find it easier to remember a colon, with one period blacker than the other, or a collection of periods, with one blacker than all the others, or the dot over an i or j. Others again prefer a comma to a period. As it is impossible for the mind to think of one thing continuously, some patients find it helpful in the beginning to shift consciously from one of these black

areas to another, or from one part of such an area to another, and to realize the swing, or pulsation, produced by such shifting; but when the memory becomes perfect one object may be held continuously, without conscious shifting, while the swing is realized only when attention is directed to the matter.

Although black, as a rule, is the best color to remember, some patients are bored or depressed by it, and prefer to remember white, or some other color. A familiar object, or one with pleasant associations, is often easier to remember than one which has no particular interest. One patient was cured by the memory of a yellow buttercup, and another was able to remember the opal of her ring when she could not remember a period. Whatever the patient finds easiest to remember, is the best to remember, because the memory can never be perfect unless it is easy.

When the memory of the period becomes habitual it is not only not a burden, but is a great help to other mental processes. The mind when it remembers one thing better than all other things possesses central fixation, and its efficiency is thereby increased, just as the efficiency of the eye is increased by central fixation. In other words, the mind attains its greatest efficiency when it is at rest, and it is never at rest unless one thing is remembered better than all other things. When the mind is in such a condition that a period is remembered perfectly the memory for other things is improved. A high school girl reports that when she was unable to remember the answer to a question in an examination she remembered the period and the answer came to her. When I cannot remember the name of a patient I remember a period, and behold, I have it! A musician who had perfect sight and could remember a period perfectly had a perfect memory for music; but a musician with imperfect sight who could not remember a period could play nothing without his notes, only gaining that power when his sight and visual memory had become normal. In some exceptional cases, the strain to see the letters on the Snellen test card has been so terrific that patients have said that they not only could not remember a period while they were looking at them, but could not remember even their own names.

The accuracy of the memory of the period may be measured, not only by comparing it with the sight and by means of the retinoscope, but by the following tests:

When the memory of the period is perfect it is instantaneous. If a few seconds or longer are necessary to obtain the memory, it is never perfect.

A perfect memory is not only instantaneous, but continuous.

When the period is remembered perfectly perfect sight comes instantaneously. If good vision is obtained only after a second or two, it can always be demonstrated that the memory of the period is imperfect and the sight also.

The memory of a period is a test of relaxation. It is the evidence by which the patient knows that his eyes and mind are at rest. It may be compared to the steam gauge of an engine, which has nothing

to do with the machinery, but is of great importance in giving information of the ability of the mechanism to do its work. When the period is black one knows that the engine of the eye is in good working order. When the period fades, or is lost, one knows that it is out of order, until a cure is effected. Then one does not need a period, or any other aid to vision, just as the engineer does not need a steam gauge when the engine is going properly. One patient who had gained perfect eyesight by treatment without glasses said, in answer to an inquiry about the method, that he had not only done nothing to prevent a relapse, but had even forgotten how he was cured. The reply was unsatisfactory to the inquirer, but is quoted to illustrate the fact that when a patient is cured, he does not need to do anything consciously in order to stay cured. It is only those who are imperfectly cured who have to continue the treatment in order to retain what they have gained. It should be added, however, that complete cures, by which is meant the attainment of a measure of microscopic and telescopic vision, are very rare, and even in such cases the treatment can be continued with benefit, for no limits can be set to the visual powers of man, and it is always possible to go on improving them.

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40 EAST FORTY-FIRST STREET.

Union of Compound Fractures after Primary Closure of the Wound.—P. Duval and Picot (*Presse médicale*, February 20, 1919) report fifty-six cases of primary suture of war fracture after careful surgical cleansing of the site of fracture. The results comprised three cases of pseudarthrosis, three of delayed union, and fifty of satisfactory union within the following average periods of time: Ten fractures of one or both bones of the forearm, twenty-three days; twenty-one fractures of the humerus, thirty-five days; eleven fractures of the leg, sixty-eight days, and eight fractures of the femur, eighty-six days. The time required for consolidation of fractures of the arm and forearm was the same as that for simple fractures of the same limb segments, whereas in the case of the lower limb the time was longer. The sole cause of this difference was that the fractures of the upper extremity were mobilized very early, and those of the lower, very late. In brief, compound war fractures should be closed as soon as possible in order that they may be promptly treated like simple fractures. X ray studies showed that in war fractures the exudation of blood about the site of fracture and the contused soft parts, which exist in simple fractures, do not occur, the contused muscle tissue having been removed at the operation and the blood evacuated by filiform drainage. Furthermore, infection did not penetrate to these fracture foci. Under such conditions, no large mass of callus nor exostoses are ever met with. The callus forms a cement uniting the two fractured bone extremities with minimum deformity.

EPIDEMIC CENTRAL OR BASILAR ENCEPHALITIS.*

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Epidemic encephalitis deserves more than a passing notice at the hands of neurologists. Its clinical manifestations have lent fascination to what might otherwise have been considered merely a strange and horrible visitation. The continued study of the disease has led incidentally to reflections on the lesions of paralysis agitans, myasthenia and various katatonic disorders. During the past autumn and winter, while observing these peculiar forms of infectious encephalitis at the hospital, we have been compelled to differentiate them from such old time acquaintances as tumor of the brain and lues cerebri. So closely did they simulate these conditions that the differentiation has not been easy. The danger always exists at a time of an epidemic of labelling everything as belonging to the prevailing type of disease. Thus in one instance we were in doubt for a short period of time as to the existence of a metastatic growth in a young woman who had previously had a sarcoma of the leg, because her cranial nerve palsies were associated with lethargy and with a variability of symptoms such as characterized some of the typical epidemic cases. The rapid deterioration of the symptoms, of course, led us in this instance to discard the diagnosis of epidemic encephalitis.¹

The clinical symptoms of epidemic encephalitis are striking enough. Broadly speaking, after a brief period of drowsiness, headache, and vertigo, with moderate fever, the patient passes into a state of lethargy or apparent stupor, associated with symptoms pointing to involvement of the cranial nerves. The entire absence or very moderate development of meningeal symptoms, such as rigidity of the neck, the Kernig sign, the *tâches cérébrales*, suggests at once encephalitis rather than meningitis. The ptosis, the ophthalmoplegia externa of the nuclear type, abducens paralyses, facial palsies, often double, cerebellar attitude of the head, difficulties of phonation and of deglutition, the fibrillary tremors of the tongue, and the double spastic paraplegias, suggest an encephalitis that may involve the brain stem from the larger ganglia to the pons and medulla oblongata. Add to these symptoms forced attitudes, katatonic states, occasional impulsive laughter, masklike expression of countenance, even atrophies of the interossei muscles, and it is natural to infer that the anatomical processes may involve the thalamus at one end and the cervical ganglionic cells at the other. It seems proper, therefore, to speak of the disease as central or basilar encephalitis because the clinical symptoms would make it easy to differentiate the epidemic cases into two main groups, the one pointing to involvement of the central ganglia, and the other to involvement of the basilar structures, particularly the pons and medulla oblongata.

To what extent the cortex may be involved can-

not be determined clinically. May I not suggest that pathologically there is a marked resemblance to the acute hemorrhagic encephalitis of childhood which Strümpell years ago thought an infectious disease and which was chiefly a convexity affair? At present, however, the chief interest attaches not to the morbid lesion and its anatomical distribution but to the nature of the toxic agent. On this point I am in hopes that the experimental work of I. Strauss will lead to definite results. In a preliminary report, recently published (1) is the following statement: "A filterable virus obtained from the mucous membrane of the nasopharynx in a fatal case of epidemic encephalitis produced hemorrhagic encephalitis in a monkey. This virus has been carried through a second generation. Further research is necessary to determine the incidence and nature of the virus and any possible relation it may bear to influenza." While awaiting definite proof of the nature of the virus, we may lay stress upon the fact that in many of the cases—and in the majority of those I have seen in consultation practice—there was a distinct history of influenza preceding the onset of the lethargic disorder by several weeks. If this sequence is not a mere coincidence, this epidemic encephalitis bears a resemblance to the post-diphtheritic palsies in its occurrence weeks after the initial infection. If this is a postinfluenza infection, it is curious that previous epidemics of influenza have not been followed more frequently by similar disorders. I remember distinctly having seen cases of basilar meningitis with recovery after our first influenza epidemic of 1890. At that time we did not distinguish as readily as we do today between basilar meningitis and basilar encephalitis. I am very certain that the condition of lethargy was not present in those cases. On the other hand, it is a matter of record that just such cases as we have seen this winter were recorded by Müller and Leichtenstern (2) and others after the earlier epidemics of influenza in 1890 and subsequent years.

A sufficient number of necropsies have been performed (on my service there have been two) to prove that the morbid lesion consists chiefly of minute hemorrhages in the brain axis from the larger ganglia to the pons and medulla oblongata. Microscopically there is a distinct perivascular infiltration with a vast accumulation of mononuclear cells and very slight, if any, destruction of tissue. Punctate hemorrhages in the pons have been found in the experimental disease produced in monkeys.

The cortex may be the seat of similar lesions, but the disease process there is undoubtedly less intense and less widespread. Being only slightly destructive, the frequent and complete recovery is easily explained, unless the vital centres are directly and seriously involved at an early period of the disease. The symptomatology and the diagnostic problems associated therewith will be appreciated most readily if we discuss them in connection with a few typical cases, remembering that we may have every degree of severity represented. At the one pole of this series is the case of a patient whom I saw in consultation with Doctor W. A few weeks after an attack of influenza she had a feeling of heaviness associated with slight weakness of the left rectus

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¹The term lethargic "encephalitis" should be discarded. As Basoe intimated, the patient, not the encephalitis, is "lethargic."

externus and a moderate left ptosis. All other symptoms were negative. She was able to get about daily but complained of persistent diplopia and drowsiness. There is every reason to expect complete recovery. At the other extreme of the series is a patient fifty-two years of age, seen in consultation with Doctor O., who a few weeks after an attack of influenza began feeling drowsy and became inactive. She was lethargic, but could be aroused; had no ocular palsies, but could not phonate and had great difficulty in deglutition; the bulbar symptoms became more pronounced, and the patient died about three weeks after the onset. Of the same severe character was the attack which was experienced by a patient of Doctor S. She was supposed to be hysterical, lying in bed with her eyes closed, but evidently appreciating all the actions going on around her. Bulbar symptoms developed with difficulty in swallowing; the patient died five days after the consultation from pulmonary edema. I could parallel this last case by several others seen in consultation and in the hospital. I have had a distinct impression that our hospital cases did better than those seen in consultation, largely because of the constant careful nursing and feeding in the ward. Of the fourteen cases which I have seen in consultation five proved fatal. All of these were bulbar cases. Fortunately some of the patients with bulbar symptoms are on the way to recovery. Here is an example of a serious form of this disease that promises full recovery:

CASE I.—B. G., aged twenty-seven (Figs. 1 and 2), was admitted to the hospital March 6, 1919, with the history that he had been subject to drowsiness and headaches for five days. He had influenza three months before followed by an abscess in the left ear, total duration of that illness covering a period of a little more than three months. In addition to the drowsiness and headaches, which were largely frontal, he vomited several times and it was noted that the drowsiness was steadily increasing. He had marked photophobia from the start. For two days before admission he made no effort to talk and there was distinct difficulty both in talking and swallowing. There was no vesicorectal disturbance.

On examination at the hospital he was found lying in bed with his eyes closed, his face immobile and expressionless, apparently paying no heed to his surroundings, but responding promptly by nodding to all questions asked. There was bilateral ptosis, the left greater than the right. There was complete ophthalmoplegia externa of both eyes, a little more marked possibly on the left than the right with inability to converge, but the pupils reacted promptly to light. There was moderate conjunctivitis. The tongue was tremulous; could be protruded slightly. There was distinct weakness of the right palatal muscles. There was no rigidity of the neck and all the deep reflexes were lively except those in the left lower extremity. There was distinct resistance to passive movement with cogwheel action. There was double facial paralysis, the left being slightly greater than the right; slight neuroretinitis.

On March 7th the white blood count was 9,200, polynuclears seventy-five per cent., lymphocytes twenty-two per cent.

On March 8th, first lumbar puncture was done. The fluid was found under normal pressure, but it contained eighty cells per mm., all lymphocytes. The second puncture, which was done ten days later, contained only fifteen cells. With the exception of such changes as are here indicated, the condition remained practically the same; the waxlike appearance of the face, the entire lack of expression, the cataleptic tendencies, the slow, cogwheel movement, difficulty in swallowing, a true trismus, continued practically unchanged for many weeks.

On March 19th, the patient appeared to be more stuporous, breathed very shallowly, had the typical Parkinson syndrome, and altogether the condition was so critical that we despaired for a number of days of the patient's life. In view of the pressure upon our nursing system, we permitted some one of the patient's family to be at his bedside continually.



and for many days he was most carefully fed and watched over.

About April 9th, while the patient appeared to be lying immobile, and while he still exhibited all the other symptoms of his condition and was markedly catatonic, we were surprised one morning to find him sitting up in bed and reading the newspaper. It was nearly a week later that we obtained the first smile when I stated in his hearing that a smile would be worth \$500 to him. A few days later we were informed by some of the relatives that there were bursts of laughter at jokes that were related to him and at various happenings. At present there are outbursts of impulsive laughter not unlike those occurring in multiple sclerosis. In this case there has been steady improvement and I have no doubt that full recovery will ensue. Every symptom of lethargy has disappeared, and it is evident that the patient is recovering from a very widespread central and basilar encephalitis.

It may be worth noting that the ocular palsies were of the distinctly nuclear type, ophthalmoplegia

externa, without any paralysis of the internal muscles. In this case, too, it may be noted that the lethargy was followed by a placid, masklike expression, the former passing into the latter. From the very start the lethargy did not seem akin to stupor. In no other state have I known a patient apparently stuporous respond at once by nodding the head to questions put in the ordinary tone of voice. A patient in ordinary deep sleep would be aroused with far greater difficulty than were these patients. The mechanism of keeping awake, above all the unconscious innervation of the ocular muscles, was the function chiefly interfered with. I am not as easily satisfied as are Kennedy (3) and others that the "interruption to afferent impression to the thalamus" produces the sleep. That does not seem to me to solve the entire problem. In this patient just presented, the entire lack of mimicry, the forced attitudes, the recent impulsive laughter, the tremors,



FIG. 2.—Stage of recovery

may all be ascribed to lesions in the vicinity of the thalamus.

Let me allude briefly to another and very distressing case:

CASE II.—Esther L., twenty-six years of age, a chemist and a worker in wood alcohol, was admitted to my service March 24, 1919, with a history, that two weeks previously there had been drooping of the left eyelid. A day later the right eyelid drooped. There were drowsy spells at brief intervals. Three days after the onset she was weak in the legs and slept continuously. Temperature was 103° F. and this fever continued for a number of days. There was transitory diplopia, but there was no vomiting and no headache, and she was mentally clear when questioned. Four days before admission, she found it hard to open her mouth and there was also difficulty in swallowing solid food. Examination showed the patient lying in a dreamy state with arms folded across the chest; she could be aroused; the pupils were unequal and sluggish, but there was no nystagmus. There was weakness of the right rectus externus and internus; there was also slight difficulty in con-

vergence and weakness of the left internal rectus. We were struck by the complete immobility of the face, the weakness being a little more marked on the right than on the left. There was a very slight rigidity of the neck, fine tremor of the hands with distinct cogwheel movement; some wasting of the interossei muscles. The knee jerks and ankle jerks were increased. There was no Babinski, no Kernig; slight contractures. Lumbar puncture was done shortly after admission. There was markedly decreased pressure, but there were 100 cells counted per mm. Another lumbar puncture done two weeks later showed only fifteen cells. The ophthalmologist reported that the nasal borders of both discs were not sharply outlined, but otherwise were normal. The ears were normal. During a period of at least two weeks, the symptoms remained practically unchanged, with a lack of facial expression, marked tremor of the hands with evident accoucheur's position, spasticity of the upper extremities, tremors of the toes, and a very marked spastic paralysis of the right lower extremity. The lethargy disappeared completely.

On April 1st, I noticed that there was distinct deterioration; there was some rigidity of the neck, the patient was breathing rapidly and shallowly, and was beginning to exhibit marked bulbar respiration. The speech was nasal. The tongue could not be protruded. There was distinct adiadochokinesis of the right hand and distinct wasting of the interossei muscles of the right hand.

On April 10th, nine days after this turn for the worse, we noted that there was distinct improvement. The breathing was not bulbar and the speech was more distinct, and three days later it was noted that the bulbar breathing had entirely disappeared. On the fourth day after this another bulbar attack set in. In this unfavorable condition the patient continued for almost a week, the breathing became more labored and irregular, all accessory muscles being brought into play. The patient during this time, however, remained mentally clear and her anxiety about her condition became very distressing to all of us. She knew that she was not going to recover. There developed a more distinct rigidity of the neck, the right lower extremity developed a position of talipes equinovarus; there was sprawling of the toes, and in spite of careful nursing and all the care that we could give the patient, she succumbed to the disease. No autopsy.

It may be noted that in this case, as in others, there were two distinct periods when the disease was at its height. At such times acetone and diacetic acid were found. The spinal fluid obtained by lumbar puncture was examined carefully, with negative results. Repeated Wassermann tests were also negative. The points of special interest about this case were the slow development of the initial symptoms, the marked retrogression and exacerbation twice during the course of the disease, the development at one stage of distinct cerebellar symptoms, the onset with drowsiness and the early disappearance of this symptom.

I need not stop to detail the symptoms of the disease in two other of our fatal cases, both of them being pregnant women. In one case there was

distinct history of influenza three months before the onset of the attack. Both of these cases presented all the ocular symptoms, the lethargy and the ataxic and cerebellar symptoms. In one case the lumbar puncture fluid revealed only twenty cells. Both these cases appeared extremely toxic, and in many respects the stupor, the picking at the bed clothes, reminded one of a patient suffering from some form of toxic delirium. In one of these cases in addition to the symptoms of polioencephalitis superior, there was also marked wasting of the muscles of the upper extremity, and tremor of the hands. The question of inducing abortion was considered, but Dr. Brettauer advised against it. It is very questionable whether anything would have been gained by it. In both cases the total duration of the disease was about four weeks. Acetone and diacetic acid were found in both cases.

In spite of these few fatal cases we were extremely hopeful at the hospital regarding the ultimate outcome of the epidemic. Now let me relate briefly a few of the cases upon which this optimism was based.

CASE III.—Molly G., thirteen years of age, was admitted January 16th to the surgical service, evidently with the idea that she was suffering from some operable condition, possibly a tumor. Six weeks before her admission, the parents noticed that the girl was gradually becoming stuporous. They also stated that for three months before admission, she had complained of frequent headaches, and for half of this period the left leg and the left arm appeared to be growing weaker. They also noticed that she had a staring look. On her transfer to our service, we noted that there was ataxia of right upper extremity, there being almost complete paralysis of the left upper, and that there was a distinct tendency of the head to be drawn to the left. In fact, the child always seemed to bury her head to the left in the pillow. We declared the condition to be nonoperative and probably due to an infectious encephalitis. This suspicion was strengthened by the presence of weakness of the superior oblique of both recti externi, while the pupils were equal and reacted to light. There was also some difficulty in swallowing, but no deviation of tongue when protruded. The lumbar puncture fluid was clear, under slightly increased pressure, but there were only twelve cells. There was slight angulation of the right hand, distinct paresis and hypointing to the right. The oculist reported a slight blurring at the upper pole of each optic disc. The retinal arteries were small. During observation at the hospital, the child's speech became bulbar and nasal. There was increased paresis of the right upper extremity, beginning contracture of the right hand and a marked ataxic tremor of this hand and difficulties in swallowing and of articulation became more and more marked. There was distinct double facial palsy, and the paralytic symptoms increased to such an extent that there was practically a spastic paraplegia of all extremities.

The second lumbar puncture done one month after admission revealed no cells. After a period of exactly seven weeks, we noted for the first time that there was marked improvement in the use of

the upper and lower extremities, but that the external recti were still weak. Two months after admission we found that the power of the right hand was returning in spite of slight atrophies of the interossei muscles. When the child was first able to sit up in bed, it was distinctly noticed that the head drooped forward. During the greater part of her stay in the hospital, her mentality was clear. She was bright and a general favorite. In this instance the special symptoms of note, in addition to the lethargy of short duration, were the pronounced cerebellar attitude of the head, the slight papillitis, the coarse tremor, the accoucheur's hand, and the symptoms of bulbar involvement.

In spite of our protests she left the hospital on April 8th, very nearly three months after admission. We have not heard from her since, but there was every reason to believe that improvement would continue.

In addition to these cases I would like to refer briefly to two patients in one of whom the symptoms closely resembled tumor of the brain, and in the other the question of lues was very troublesome.

CASE IV.—Mary L., eleven years of age, who was admitted to my hospital service on March 11, 1919. The important facts are that the illness began suddenly six days before admission when the child complained of severe headache, especially in the left frontal region. Two days later she was unable to raise the left upper eyelid, was unable to pick up objects with her right hand, and complained of pain in the right ear. There was no vomiting nor drowsiness. For two days she had been dragging the right foot. There had been no bladder or rectal disturbance.

The first examination at the hospital showed complete left ptosis, slight right ptosis, complete left ophthalmoplegia, externa and interna, also partial right ophthalmoplegia externa but the right pupil was normal. There was furthermore a paralysis of the right superior rectus. There was nystagmus on looking to the left. The tongue was tremulous, protruding to the right. There was double facial palsy, the right less marked than the left. There was no rigidity. There was almost complete right hemiplegia with distinct drooping of both hands when attempt was made to extend them. There was no wasting of the muscles. The knee jerks could be obtained only on strong reinforcement but ankle clonus was present, on the right side, and on the same side we obtained the Babinski, Oppenheim and Gordon reflexes. Kernig's sign and all symptoms pointing to any involvement of the eighth to twelfth cranial nerves were wanting. There was no adiadochokinesis, speech was normal, and as to the mental state, the child was perfectly alert and intelligent. On the second day after admission lumbar puncture was done and only twelve cells were found. The fundi were normal and the ears negative.

Three days after admission the child became stuporous but still obeyed commands. The bilateral ptosis was more marked. A note was made on the record to the effect that the symptoms pointed to a lesion chiefly in the region of the left crus with the

development of general choreiform movements except in the parts most paralyzed.

Six days after admission it was noted that there was bulbar involvement; the tongue could not be protruded, respiration was labored, there was cardiac arrhythmia, and the child had become more stuporous. There was a marked Babinski on the right side with absent knee jerks.

At this time we accepted the diagnosis of encephalitis, but felt that the possibility of neoplasm could not be wholly disregarded. The fundi remained normal, however, and the spinal fluid was under distinctly decreased pressure; no cells were found. The child remained in a critical condition for some days. There was no important rise of temperature at any time. After the lapse of a few days, and in spite of an aphonia which had developed, a great improvement set in so that on March 23d, twelve days after admission, we noted that she seemed much brighter, and after another lapse of ten days the left ptosis became slightly less and the right hemiplegia showed distinct improvement. On April 11, one month after admission, our records contain the statement that there was complete restoration of power in the right arm, speech was normal, and the facial weakness was less. On April 22d she was able to be out of bed, walked about well, exhibited only partial left ptosis and a slight right facial weakness. The left pupil reacted to light. On May 1st there was nothing left but a slight right hemiparesis, with a possible indication of the former left ptosis, but otherwise the child was so well and so entirely normal mentally that we consented to her returning to her home practically well.²

The following case of this series afforded still greater difficulty in the interpretation of the symptoms:

CASE V.—MISS X., twenty-four years of age was seen several times in consultation with Dr. H. to whom I am indebted for the greater part of the following notes. In November, 1917, the patient had sore throat, headache, and swelling of the glands of the neck. She also had a distinct roseola. Physical examination at that time revealed bilateral ulcerated sore throat, a typical maculopapular rash universally distributed, and enlargement of the inferior maxillary glands. In January, 1918, the Wassermann was four plus. From December, 1917, to May, 1918, she was given hypodermic injections of calomel, injections of mercury salicylate, and eight intravenous injections of salvarsan. In May, 1918, the Wassermann was two plus. The patient felt well and the examination was negative until November, 1918 (the time of my first examination). A short time previously there had been sudden onset of internal strabismus of the left eye, coarse tremor, and pains radiating down both lower extremities. There developed a masklike expression of face and marked rigidity of neck. Her attitude and her gait at this time suggested an acute paralysis agitans. She was given two further injections of salvarsan and the injections of mercury were also continued. Shortly after this, in Decem-

ber, 1918, marked salivation occurred and difficulty in swallowing. At this period she became melancholy and apathetic. There was marked spasticity of the left arm and left leg so that she was unable to walk, and the left hand had assumed the appearance of *main en griffe*. Later on contracture became associated with this spastic condition of the left upper and lower extremities. Inability to protrude the tongue developed. The fundi were negative, according to examination made at about this period at the Neurological Institute, where the patient was treated with six injections of salvarsan without improvement. At the institute she was comatose for about ten days. She remained in practically an unconscious condition for a period of nearly six weeks in January and February of this year. In March and April she had received about twenty inunctions of mercury, and during this period distinct improvement was manifested; the facial expression is more nearly normal, there is no difficulty in swallowing, the strabismus has disappeared and the spastic paralysis is less marked. Her mentality is entirely normal, and she is able to get about with assistance.

It may be asked, why not adhere to the diagnosis of lues cerebri? The answer is, because the lethargy, the symptoms of an acute paralysis agitans, the typical tremor, and the masklike expression, are symptoms which I have never seen occur in any uncomplicated case of brain syphilis. The only proper interpretation of this very unusual case is that a patient with constitutional lues, and possibly some cerebral or cerebrospinal lues, had become the victim of an epidemic encephalitis, and there is no reason why the two may not be combined.

The prognosis of epidemic encephalitis is determined largely by the site of the lesion. All the fatal cases I have seen have been bulbar forms. Patients have not succumbed to the general toxicity of the disease, but because the cardiac and respiratory centres have been the site of predilection. Many authors have been inclined to note a resemblance between the poliomyelitis virus and the virus of epidemic encephalitis. I infer from the recent article by Mills and Wilson (4) that they are inclined to accept the close relationship between these two groups of epidemic diseases. I am, however, impressed by the extreme toxicity and rapid development in the fatal cases of poliomyelitis, while the fatal cases of epidemic encephalitis have run a course lasting from one to seven and eight weeks. Clinically the poliomyelitis and encephalitis forms appear to be most distinct; yet the laboratory and experimental investigation will some day have to furnish conclusive evidence on this point.

We do not flatter ourselves that we have influenced the course of the disease by treatment. No specific remedy being at hand, the treatment has been purely symptomatic and eliminative. At a very early period of the epidemic we had reason to discard lumbar puncture as a therapeutic factor in marked contradistinction to our practice in cases of meningitis.

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²Some of these cases will be reported in greater detail in a report of Doctor Abrahamson, associate in the Neurological Service, to be published in the NEW YORK MEDICAL JOURNAL.

2. MÜLLER and LEICHENSTERN: Quoted *Medical Record*, March 22, 1919.
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BONE TRANSPLANTATION THE IDEAL METHOD FOR THE CORRECTION OF SADDLE BACK NOSE.*

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This communication is inspired chiefly by the writings of those who still cling to the idea that a semirigid splint composed of some foreign substance introduced into the tissues of the nose can be made to fill in the deficiency and to support the tissues of a depressed nasal bridge in a position of normal elevation and to maintain that elevation indefinitely.

We know that almost any foreign substance chemically neutral to the surrounding tissues can be made to heal in, if introduced aseptically into the body. We know also that this foreign body, if so placed that it is passive, i. e., has no resistance to overcome, no work to do, will become encapsulated and remain approximately in position, provided that the bodily health of the individual is maintained in a state of perfect preservation, which, in the very nature of the human organization is an incredible proposition. Nature abhors the presence in the living tissues of a foreign body, whether that body be artificially introduced or whether it be some part of the body, bone or flesh, that has ceased to live. Vitality is the *sine qua non* of bodily acceptance. The living, growing and subsequently declining processes ever active in the human body are incompatible with the tolerance of an inert foreign body and sooner or later it must be expelled. This is shown by the fact that all operations have fallen into disuse that were designed to repair mechanical defects in the body by the use of foreign material which was intended to be retained permanently in the tissues. The Lane plate which was originally intended to permanently hold together the fractured ends of bones which were difficult to keep in apposition or which for some reason had not united, is no longer expected to remain in the tissues, but is removed as soon as union between the fragments has been secured. Should this appliance remain in for even a few weeks, there is absorption around the screws and the plate becomes loose, mechanically useless and a menace as a foreign body. My own personal experience in dealing with cases where foreign substances had been introduced by men who hoped to correct nasal deformities by this means, has convinced me that it is impossible to get a permanently satisfactory result. I am also convinced that

foreign substances of any kind in the living tissues of the human body are a menace until they are removed.

Assume that a piece of foreign material such as celluloid, vulcanite or silver is introduced aseptically into the soft tissues of a healthy individual; that it lies passively in the muscular planes, that it does not interfere with the action of the muscles and that it has no resistance to overcome. Such a body will become encysted, will be surrounded by a layer of fibrous tissue, and may, under ideal conditions, remain indefinitely; but if the part is subjected to traumatism, if the general health of the individual falls below par, and especially if he is attacked by one of the acute infectious diseases, infection from the blood stream is almost certain to occur, an abscess forms and the foreign body is expelled. This applies merely to the experimental introduction of



FIG. 1. Traumatic deformity corrected by the transplantation of compound bone and cartilage.

a foreign body into the tissues and where it is expected to serve no useful purpose.

Now suppose that this foreign body is introduced for some useful purpose, this term implying that work is to be accomplished, that resistance must be overcome. Suppose that we attempt to raise a sunken nasal bridge by introducing a strip of celluloid or vulcanite or silver, which is to act as a lever in lifting up the depressed tissues. What happens? If strict asepsis has been maintained, the foreign body heals in and there is only slight reaction. If the material introduced is properly cut and carefully moulded to suit the deformity, the primary result is excellent, and if we photograph the patient at the time or shortly afterward, a perfect cosmetic result will be shown, and if we cross no bridges, if we do not think of the patient's tomorrow, we are pleased, the patient is delighted and everybody applauds. The rude awakening occurs when nature proceeds to show that there is a difference

*Read before the Laryngological Section, New York Academy of Medicine, February 26, 1919.

between mechanical results physiologically secured, and those secured by means which ignore the laws governing the vital processes in the tissues; this difference, of course, does not become manifest until the primary results of the operation have been



FIG. 2.—Traumatic deformity corrected by the transplantation of compound bone and cartilage.

subjected to the influence of these vital factors for a time sufficiently long to produce gross results.

For example, we have a case of depressed nasal bridge, due to the destruction of the bony framework, resulting either from disease or trauma. These are the cases that cannot be satisfactorily corrected without the introduction and the permanent retention in the tissues of some rigid material which will support the skin covering and the soft tissues of the nose at their normal elevation and also fill in the deficiency caused by the loss of bone and cartilage. The burden which the material used must bear continuously consists in the actual tissue weight to be supported, plus the constant pressure due to the elasticity of the skin tending to reestablish the old deformity. To this must be added, within a few days following the operation and increasing for several months, the tremendous strain due to the contraction of the scar tissue resulting from the operative procedure and from the trauma of the original injury. The importance and the magnitude of the strain on the transplant resulting from these several factors can scarcely be appreciated by those who are unfamiliar with nasal deformity work. This strain must be met by living tissue which will offer vital resistance and which will be capable of increasing in size and strength to meet, as in other parts of the body, the functional demands of the part. I may say here that the autogenous bone and cartilage transplant is the only material capable of fulfilling these conditions, and it alone should be considered by the thoughtful, scientific surgeon who not only considers the pres-

ent welfare of the patient but the permanency of the results secured.

No foreign substance, even though it be introduced aseptically, meets these requirements. If it corrects the deformity it must necessarily overcome resistance and in doing so there is a constant pressure at the point where the tissues come in contact with the foreign body; this deprives a thin layer of tissue of its blood supply, and a progressive necrosis results, the final outcome of which is ulceration through the skin and expulsion of the foreign material. Assuming, however, that the material remains in the tissues for a considerable period of time (which I have stated it will not do if it is subjected to pressure), and the patient's general health become impaired, especially if he is attacked by one of the acute infectious diseases, the tissues around the implanted foreign substance are almost certain to become infected by way of the blood stream. Should the patient escape these accidents there still remains the certainty of a disproportion arising between the living tissues and the foreign body which will become more and more evident with advancing age, as the living tissues normally atrophy, the foreign body, in the mean time, retaining its original proportions. This last objection, while we know that it is valid, cannot be demonstrated, for, so far as I know, no foreign substance has ever remained in the tissues of the nose long enough to show this condition, though the effort to correct nasal deformities by the introduction of foreign material, celluloid, vulcanite, silver, and other substances, has been tried time and again by men of large experience and possessing the



FIG. 3.—The patient after operation.

highest degree of technical skill. On the other hand the autogenous bone transplant meets perfectly the conditions necessary for the permanent correction of depressed nasal deformities due to loss of bony framework. The bone continues to live in its new

position, establishes vital connections with the surrounding tissues, and when properly introduced forms a firm bony union with the frontal bone.

There is almost no reaction when perfect asepsis is maintained. In other words, in a physiological manner we have restored the normal structure of the nasal arch by replacing the parts destroyed with tissue from the patient's own body. When union has occurred the transplant receives its nourishment from the surrounding tissues, it lives and grows, its growth being regulated by the functional demands of the part. I will say, therefore, that in the light of our present knowledge, a knowledge gained by abundant clinical experience, the use of foreign material of any kind introduced into the tissues for the purpose of correcting nasal deformities is unwarranted and that there is, so far as I know, no material suited for this purpose save that of the autogenous bone transplant. Personally I prefer the rib for transplantation purposes for the following reasons: It is quickly, easily, and safely removed; recovery is prompt, there is no loss of function resulting from its removal and the small gap between the ends of the rib is quickly filled in with bone, ossification proceeding from the cut ends of the rib along the periosteum, the inner layer of which is left when the rib is shelled out. The rib is conveniently shaped and can be easily adapted to the deformity. It is abundantly supplied with nutrient foramina, and in proportion to its bulk is probably richer in osteoblasts than any other bone in the body.

In transplanting bone we should supply the largest possible number of living osteoblasts. As I have stated in previous communications on this subject, I usually take a section from the ninth rib, preserving the periosteum on the outer surface. If the case requires that the transplant should reach nearly to the tip, I take the section at the junction of the rib and the costal cartilage; my transplant is then composed of about two thirds bone and one third cartilage. By employing such a combination the normal conditions are reestablished, the bony arch being reinforced with bone and the cartilaginous arch with cartilage. It must be remembered that the preservation of the flexibility of the tip is extremely important, a fact which is overlooked by those who use grafts taken from the tibia. I split the section of the rib removed, using only the outer half which is covered by periosteum. The cancellous tissue is scraped away and the bone and cartilage shaped to suit the deformity. The transplant is introduced from within the nose after a proper elevation of the tissues has been effected by the use of instruments especially designed for this purpose, its upper end being placed in close contact with the frontal bone. No external scar results. To prevent the slight depression which sometimes occurs on either side of the strip of bone, I recently used the cancellous tissue and bone shavings to fill in these irregularities and round off the dorsum of the nose. Healing was just as prompt as in any of my other cases, the patient leaving the hospital in six days. In my opinion this little modification in my usual technic contributed largely to the excellent result secured in this case.

The success of the operation depends chiefly upon three factors; strict asepsis, an abundant supply of nourishment to the implanted bone and immobilization of the part. A transplant, prepared as I have suggested, presents the greatest possible surface to the surrounding lymph, and its thinness, together with the numerous nutrient foramina found in this bone, favors the early and complete vascularization of the body of the transplant.

I have had an opportunity to examine both bone and cartilage some time after transplantation. In one case I found, six months after operation, that the bone transplant was too long and the end was about to ulcerate through the tip of the nose. I removed about a quarter of an inch. It was firmly adherent to the surrounding tissues. The bare surface of the bone was pitted and rough like sandpaper; showing that there were minute areas of absorption. The periosteum covered surface was as



FIG. 1. The patient after operation.

smooth as when it was introduced. No microscopical examination was made. I removed a piece of costal cartilage which had been introduced into the nose of a woman two years before she died from nephritis. The cartilage was strongly united to the surrounding tissues and was of the same size and consistency as when introduced. The specimen, much to my regret, was lost and no microscopical report was made.

There is not the slightest doubt in my mind that the vitality of those portions of the transplant which come in contact with the circulation is preserved. No doubt many of the osteoblasts die, undergo coagulation necrosis and are absorbed, but a sufficient number remain on the surface of the bone and in the Haversian canals to insure the proper growth of the transplant. These cells are first nourished by the surrounding lymph and later by the newly formed blood vessels which penetrate the bone through the numerous nutrient foramina.

In regard to the fate of the transplant, a sufficient time has elapsed in a large number of my cases to show definitely what occurs, as some of these are of over ten years' standing. For obvious reasons we must rely upon physical examinations and radiographic observations made at frequent intervals. These show that the outer layers of the transplant which come in intimate contact with the circulation remain alive and grow, the growth being regulated by the functional demands of the part; while in the centre of the bone, which is relatively remote from the circulation, there is, owing to a lack of nutrition, a certain amount of absorption which appears in the radiogram as a thin line running along the centre of the transplant and gives the impression of being a small medullary canal. These phenomena are present in every case and have been closely studied by me in a selected case in which I operated about ten years ago. I believe that this case shows exactly what occurs when a physiological transplant is introduced into the tissues of the nose in vital contact with the frontal bone. By physiological transplant I mean an autogenous, recently removed, periosteum covered segment of bone. It is in vital contact with the frontal bone only when this has been cut into or chiseled into and the end of the transplant contacted at that point. Osteogenesis proceeds directly from the frontal bone itself, there is no osteogenetic layer in the so-called periosteum of the bones of the skull.

The value of the periosteum in bone transplantation is a question that has been ardently discussed and there is still a wide difference of opinion. In my earlier work I used bare bone exclusively; my results were good, and at least in those cases where the graft was properly contacted with the frontal bone it remained alive, I know, however, of three of my cases in which proper contact with the live bone was not effected, where this bare transplant was absorbed after about six years had elapsed. I will say, however, that fibrous tissue was deposited in its place and that the deformity did not recur. Bare bone certainly does not exhibit the vitality one would expect; it seems to remain under the tissues as a mechanical support, and apparently does not share in the vital processes to the same degree as the surrounding tissues; this caused me to preserve the periosteum on the outer surface of my transplants. There was noticeable, both clinically and radiographically, a marked difference in favor of the periosteum covered bone. It became more quickly attached to the frontal bone, it formed vital connections almost immediately with the surrounding tissues, and its growth was more satisfactory.

My experience does not negative the assertion of MacEwen, that the periosteum is merely a fibrous membrane, on the other hand it would seem to strengthen it; for we know that the surface of the bone under the periosteum is covered with osteoblasts and that many are found in the mouths of the Haversian canals. It would seem to me that the periosteum retains these in their normal positions and their function as bone producers is undisturbed by the removal of the transplant from one part of the body to another.

69 WEST FIFTIETH STREET.

THE RELATION OF URINARY ACIDITY TO SPECIFIC GRAVITY.

BY A. L. BENEDICT, A. M., M. D., F. A. C. P.,
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By urinary acidity is here meant the direct titration against decinormal alkali, with phenolphthalein as an indicator. No argument is offered for this method as opposed to more recondite ones, except to point out that, in addition to its simplicity, it applies to certain diagnostic and therapeutic problems more directly than those of greater complexity. A priori, a urine of very low specific gravity, contains little to produce an acid reaction. As the specific gravity increases, the substances in solution may have either acid or alkaline tendencies according to circumstances, so that no direct relation of specific gravity to acidity is to be expected except as one averages or actually aggregates urines from various sources. The following notes are fairly typical except that the acidity seldom exceeds 80 degrees; quite rarely 100; and the reading of 150 is very exceptional:

S. G.	Acidity.	S. G.	Acidity.
1005	8	1020	44.
1009	43	1021	55
1010	19	1021	63
1012	39	1022	37
1013	32	1022	48
1013	102	1026	53
1014	45	1027	86
1018	37	1028	100
1018	46	1032	108
1020	37	1033	150

The examinations reported are all on normal cases, in the ordinary sense, but the fluctuations of acidity do not differ widely in range in disease, from those in health, not even acidosis usually producing degrees of acidity that would not be encountered in health, while alkalinity in internal medicine, is usually quite adventitious, due to putrefaction of urine or alkaline medication.

377 ELMWOOD AVENUE.

Remarks on Chest Wounds.—J. A. Nixon (*British Medical Journal*, April 5, 1919) says that the first consideration in the treatment of wounds of the chest is to save life and the second to restore function as promptly and completely as possible. All wounds of the chest walls and contents should therefore receive the necessary surgical attention at the earliest possible moment, and especially is hemorrhage to be arrested and infection to be averted early. No fluid must be permitted to collect in the chest and early and frequent aspiration must be practised whether there has been a thoracotomy or not. All foreign bodies should be removed whenever possible, and in every instance the chest is to be closed as promptly as possible. The author discusses at length the physical signs and the symptoms encountered in cases of chest wounds and emphasizes the fact that the former are frequently quite confusing and untrustworthy. Every patient should be examined clinically as well as radiographically and fluoroscopically, both for diagnosis and to follow the course of the case.

Lectures and Addresses

EXPERIENCE OF A UROLOGIST WITH THE FIGHTING FORCES IN FRANCE.*

BY EDWIN BEER, M. D.,
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It is a pleasure for those of us who have been fortunate enough to have served with the forces in France to tell you some of our experiences. When I was asked to read a paper at this meeting I responded that I would be very glad to tell of some of my experiences abroad, but drew the line at presenting a surgical paper. None of those in the forward zone knew what happened to their patients when they were sent back, and I think it is a mistake to attempt to correlate results and publish unreliable statistics. Fortunately, every once in a while we meet some of our patients who have reached this side and find that they are in perfect health.

When your chairman asked me for the title of my address I told him I would speak about experiences in France, but when I received the program and saw that I was expected to tell you about experiences of a urologist with the fighting forces I felt that I had made a poor pretense at being a urologist, because, while I was on the other side, I had the opportunity to operate in quite a number of bladder and kidney cases and saw many more, I never used a cystoscope, and a urologist without a cystoscope is an anomaly.

I am very glad and flattered to be on the program with the other speakers, for I appreciate that the work done by Colonel Young and Colonel Keyes in keeping the army clean is one of the most important measures that American medicine accomplished. In carrying out these prophylactic measures, they have added new fame to American medicine. I have spoken with many of our Allied physicians, French and English, and there is every reason to believe that these prophylactic measures which were so effectively employed in our army will be shortly used in other armies that fought alongside of us. Imagine what it meant to the British Army to have five divisions laid up by venereal disease. Now, by having a few regulations efficiently enforced, division after division of men were saved for our fighting forces. By the saving of men in that way for use in the line, undoubtedly the end of the war was hastened. But don't believe that the urologists were the only men that did good work on the other side.

One of the most important measures introduced into our medical corps was the formation of what were called surgical teams. That was a measure which the French had been forced to adopt years before we came into the war. These operative teams were made up of seven persons: an operating surgeon, an assistant, an anesthetist, two nurses, and two orderlies, and, being equipped with their own instruments, they were always mobile and could be shifted from one front to another as required, so

that there was no reason under the sun for overworking any one of the surgeons at the front if enough teams were available. Unfortunately the complete organization of surgeons was not effected until late in the summer and fall.

One thing has always impressed me, and I don't understand the reason for it. I am not saying this in any spirit of criticism, although you may hear criticism along these lines, but I never could understand why men who were fitted to do surgical work were sent to camp here and drilled in military technic for months instead of being sent over in 1917 to cooperate at once with the British and French and learn the military surgical game. For the first three months I was in the service I did not do anything but study the manuals, court martial, and other paper work which I never used when I began to work with the American military forces.

Another excellent thing which was done was the organization of the military surgical training school at Toul in Evacuation Hospital No. 1, in the St. Mihiel sector. This service was run by excellent surgeons such as Polle, McWilliams, Vaughan, and Heuer. They all showed us everything they knew, and taught us all they had learned either before we entered the war or afterward. Military surgery is very different from general civilian surgery, and when the men first go to the front they do not understand it, but you can learn something in two weeks; if you see men who have had big experience, you can learn how to tackle the situation—which patients should be operated upon and how, and which should not be touched. The first impulse of every one who came to France was to operate on every patient with methods learned in civil life; no discrimination was used. This was pardonable for men who had had no opportunity to learn except from past experience in civil life and reading.

Military surgery is peculiar, especially in France, in that the object set before the surgeon is the complete excision of all traumatized tissue, the aim being to remove all contamination from the wounds, all metal foreign bodies, etc. Experience has taught the Allied surgeons that wounds which are not properly cleansed, with all injured tissue cut out to the healthy parts, almost regularly undergo gas gangrene, owing to the fact that gas gangrene germs are very common in France, the soil there having been overcultivated.

Working at the front as I did for almost six months we were called upon to treat all types of injuries. At first, while the lines were stationary, we worked in towns. As the armies became mobile, we worked in tents, the patients being operated upon on the stretchers, ten being placed alongside of each other, and each surgeon ran two side tables. In the ordinary run of battle casualties a certain number of injuries of the urinary tract do occur, but in my experience they have been limited, as Doctor Stevens said. I saw cases where the kidneys had to be resected or removed, but that was a minor part of the injury. For instance, one patient had two holes in the descending colon, a fracture of the rib and a tear of the diaphragm, so that the kidney part of the injury was only a fraction of the totality.

From all this, you can see, therefore, that unless

*Address delivered at a meeting of the Section in Genitourinary Diseases of the Academy of Medicine. Published simultaneously with the *International Journal of Surgery*.

one has some definite data upon which to base his opinions as to what the end results were, it would be almost foolhardy to attempt to draw together one's results. My immediate mortality was four per cent. One member of this audience told me recently that he had seen a man upon whom I did an intestinal resection on the other side. I had no idea what had become of him; I saw him for a week and he was doing satisfactorily, but did not know that he was cured until accidentally this friend told me he saw the man as he was passing through a hospital in New York. That is particularly gratifying, as at the last section meeting you heard that during the first eighteen months the French had saved no case of intestinal resection.

I am not going to take up much time tonight, for I am interested in hearing what Doctor Young and Doctor Keyes have to say, as, except from reading and hearsay, I did not have much chance to learn how these surgeons organized their service.

You must not go away with the idea, however, that all our time was spent in hard work. The experience abroad was a very interesting adventure from many viewpoints. While we worked we were very busy. After a big push there is enough to keep a man very busy for a short time; but after ten to fourteen days of active work there is a let up, and during the interval between pushes you make the most of your opportunities and go sightseeing. There is much to see at the front and at the bases. At the front I had an interesting trip to St. Mihiel after it was evacuated by the Germans, and a very interesting visit to Verdun. I worked at our base until May, when I was detached, and at the bases we had wonderful opportunities to go sightseeing, for though the war was raging at the front, apparently they had no use for us there. There were twenty-four officers lying around in southern France doing nothing but bicycling. Southern France is an ideal region, and I felt like a tourist, almost, for I had such a wonderful time there in Dordogne seeing things which no ordinary tourist sees. I had been in France before, but had never seen the interesting places that I visited while there this time. Apparently the French lack the efficiency which the Germans have always shown in advertising their country, but it is well worth your while to see France. Very near our base hospital in Perigord there is an old Roman town, where the structures left by the Romans still stand, and one can spend many pleasant hours going through the city, which contains old Roman buildings as well as those of the Middle Ages and those of the modern French city. There are old prehistoric caves nearby that were inhabited 25,000 to 75,000 years ago by our ancestors, and the walls are covered with the most remarkable inscriptions, engraved figures of animals. Crawling through these caves you can see the work of those artists of many thousands of years ago. As you see, we did not work all the time.

Before closing I want to impress upon you my belief that this war was brought to its close because our doughboys introduced a new spirit, a new morale, into the Allied armies. They had no fear of rifles or machine guns; they advanced against anything and everything, and by that very fact they

were able to check the German advance last May and June. They were able to push the Germans back at Cantigny and Château-Thierry; they instilled a new spirit into France, and it is to our doughboys that we owe the successful ending of the war in 1918.

11 EAST FORTY-EIGHTH STREET.

THE ADMINISTRATION OF THE UROLOGICAL DEPARTMENT, A. E. F.*

By E. L. KEYES, JR., M. D.,
New York,

Colonel, Medical Corps, U. S. Army.

I thank you very much for your reception on my return among you. I am just out of the army, and feel correspondingly depressed, as those who have been in the army will appreciate. If it were not for the courage I gain from facing life anew today, I should be inclined to make you a speech of two words: "Good night," because Colonel Young has taken practically all the wind out of my sails.

Perhaps the most striking impression one gets from this meeting this evening is that indeed all of us have suffered a great change in going into the army, and perhaps still more so in going overseas. The proper study of mankind is man, and the study of physicians is all too often only women. It is said that just as a Belgian farmhouse is a building surrounding a rectangular smell, so a physician is a man completely surrounded by women. One of the changes that should be noted among the medical profession as a result of the war is an awakening to the kind of life that other men—the despised business man, for instance—lead. We have been in contact with our fellowmen more vigorously, constantly, and acutely than ever before, and we have been broadened thereby. Some years ago it would have been impossible for the president of the New York Academy of Medicine to call upon distinguished urologists and genitourinary surgeons to deliver addresses upon the subject of venereal diseases. But when those of us who were put upon this job got to work at it, it proved to be extremely interesting. How interesting it proved you can judge by what Colonel Young has told you of his experiences on the other side. That he put venereal diseases on the map for the American Expeditionary Forces no one can doubt. He was behind all the organization which he has described to you. Every item of it was developed by him, and as far as possible every feature of the system was originated by him, and the effect of it on the army was extraordinary.

I am second to no man in my misgivings as to the accuracy of statistics. I do not know any more striking example of the vagueness of figures than those which were mentioned by Major Beer, who wavered between 25,000 and 75,000 years, as though he were betting beans in a poker game. The statistics for venereal disease in the army are not comparable with those published by any other army.

*Address delivered at a meeting of the Section in Genitourinary Diseases of the Academy of Medicine. Published simultaneously with the *Journal of International Surgery*.

The peculiar methods of prevarication employed by every nation have their individual characteristics. Nevertheless, our statistics are comparable among themselves. It is to be presumed that the people of the United States are the same brand of liars in 1918 as in 1914; and it is interesting to compare our statistics of these years at home and in France with those that had been published before. I make this crude statement of the subject for the purpose of warning you against making comparisons between different armies, for no such comparison is possible. The figures that Colonel Young has shown you are as accurate as we know how to make them. The men in command in the United States Army are unquestionably not endeavoring to prevaricate. They are the best our authorities can pick out and are the best men available. My admiration for the members of the Medical Corps of the United States Army increases as they approach the two extremes. On the one hand are the P. O. L. (the Permanent Order of Lieutenants), who maintain, with some justice, they have all the brains in the army. On the other hand, the men who really ran affairs at headquarters are extremely efficient and extraordinarily intelligent. The dishonesty of our statistics lies in the difficulty of making figures mean anything and of determining what the figures mean.

Having shown you that I don't believe in statistics, let me dwell for a moment on these figures which Colonel Young has made into a chart, which represent the beginning of one of the most important demonstrations of venereal disease sanitation ever given. He has told you that as the result of his inspection trip to St. Nazaire the houses of prostitution were put out of bounds, in October, 1917; and the figures show the decrease in disease thereafter in both the whites and the negroes. Had the negro rate continued for a year as high as in October they would have begun a second time around. After the order requiring prophylaxis for every negro stevedore leaving camp went into effect in this section the rate of venereal disease among the negroes dropped even further and came down one month as low as that of the whites. The whites kept a rate of from two to three to the 1,000 per annum. The negroes ran from two to three after the order of prophylaxis for every one was put into effect.

The French have accepted as the basis for their campaign against venereal diseases in the army the belief that every man cohabits frequently when he gets the opportunity. Troops in the front line, while the fighting is going on, have no opportunities; troops in camps near the line have small opportunities; troops in camps situated in the rear have greater opportunities; and the troops on leave have every inducement from their mental reactions, etc., to enter upon the wildest type of debauch. These facts are applicable to all armies. The reaction of the French to it has been the insistence that as the men would run wild more or less in proportion to their opportunities the best thing to do was to establish these houses of prostitution where the medical cleanliness of the inmates could be assured. The American reaction is that the problem

is a sanitary one, and that the more we fight to put the opportunities out of the way the more success we shall have in preventing venereal disease. This example at St. Nazaire is an excellent one, and only the first of a number that followed, which showed that the American system works better than the French; that the system of repression of prostitution works better than the system of licensing prostitutes, even in the army, where the incitement to intercourse is greater than under civil conditions.

We had a number of conferences with the French on this subject, and so far as I know they never officially conceded the correctness of our point of view. Their whole system is worked out on the opposite theory, and it will doubtless take them a great while to understand clearly our point of view.

During the past two years the United States Army has lived up to an ideal of continence which was entirely new in the history of civilization, and Colonel Young may flatter himself that he has been in the forefront of our men's march toward a better civilization in establishing and placing for the observation of the nations of the world this attitude of the American people in reference to morality.

100 EAST THIRTY-FOURTH STREET.

Syphilis of the Bones and Joints.—James O. Wallace (*Journal of Orthopedic Surgery*, May, 1919) has arrived at the following conclusions in making a classification of the differential diagnosis of syphilis of the bones and joints. 1, In the past the condition has been largely overlooked, especially in the period before the use of the x ray and Wassermann test. At present it is excluded either as a primary or complicating factor, in all cases of bone and joint disease; 2, syphilis may be present frequently as a complicating factor or may be coincidental in cases where the bone or joint disease has some other etiological factor as tuberculosis, osteomyelitis, or rachinitis, so the history of syphilis, the presence of other manifestations of the disease, or a positive Wassermann do not prove the bone or joint disease under consideration to be syphilitic. Syphilis and tuberculosis may coexist in the same individual; 3, a history of syphilis or manifestations of the disease is of value in suggesting syphilis, but cannot be taken as an absolute diagnosis as other bone diseases cannot be excluded; 4, the study of the symptoms and physical signs alone is not sufficient for a differentiation of syphilis of the joints from those due to other etiological factors; 5, the Wassermann reaction is valuable but not positive evidence; 6, the luetin test may be positive in the presence of a negative Wassermann; 7, a negative Von Pirquet in doubtful cases is valuable; 8, the röntgenogram is considered the most valuable factor in the diagnosis of syphilis of the bones and joints and in differentiating it from other conditions. In the study of röntgenograms it was impossible to differentiate between acquired or congenital syphilis with the possible exception of congenital osteochondritis; 9, the therapeutic test was also of some value in the diagnosis of obscure conditions where a positive diagnosis could not be made from laboratory or clinical findings.

A TRIBUTE TO THE MEMORY OF EDITH CAVELL.

The name of Edith Cavell will live long in the minds and the hearts of men, symbolizing many of the highest ideals to which the human race, in its upheavals and struggles has attained. The tragic circumstances of her heroic death have tended to obscure the importance of her life work devoted to the service of humanity. For many years she labored at the tireless task of caring for the sick. Then the war called her to nurse the wounded of the war. For eight years, she was directress of a school for nurses in Brussels, the *Ecole Belge d'Infirmes Diplomees*. In the letter which this brave woman wrote to her nurses on the eve of her execution we see revealed the overshadowing interest which she took in her occupation, in the welfare of her coworkers and of the patients entrusted to their care:

Prison of St. Giles, Brussels.

My dear nurses:

I am writing to you in this sad hour to bid you farewell. You will remember that September 17th brought to an end the eight years of my direction of the school. I was so happy to be called to help in the organization of the work that our committee had just founded. On October 1, 1907, there were but a few pupils. Now you are already quite numerous—fifty or sixty, I think.

I have told you on different occasions the story of those early days and the difficulties that we encountered, even to the choice of words for your "hours on duty" and "off duty." In Belgium, all was new in the profession. Little by little one service after another was established, graduate nurses for private nursing, pupil nurses, the Hospital of St. Giles. We supplied the institute of Doctor Depage, the sanatorium of Buysinghen, the clinic of Doctor Mayer. And how many are called upon—as you may be, perhaps, later—to nurse the brave wounded of the war. If this last year our work has decreased it is due to the sad days through which we are passing. In happier days our work will renew its growth and its power for good.

I speak to you of the past because it is wise occasionally to stop and look behind over the road that we have traveled and to note our errors and our progress. In your beautiful building you will have more patients and all that is needed for their comfort and yours. To my regret, I was not always able to speak to you individually—you know I had much to occupy my time—but I hope you will not forget our evening talks. I told you that devotion to duty would bring you true happiness, and that the thought you had done your duty earnestly

and cheerfully before God and your own conscience, would be your greatest support in the trying moments of life and in the face of death.

Two or three of you will remember the little talks we had. Do not forget them. Having already traveled so far through life, I could perhaps see more clearly than you and show you the straight path.

One word more—beware of uncharitable speech. In these eight years I have seen so much unhappiness which would have been avoided or lessened if a few words had not been whispered here and there, perhaps without evil intention, but which ruined the reputation, the happiness, the life, even, of some one. My nurses should all reflect on that, and should cultivate among themselves loyalty and *esprit de corps*.

If any one of you has a grievance against me, I pray you to forgive me. I may sometimes have been too severe, but I was never willingly unjust, and I have loved you all, far more than you realize.

My good wishes for the happiness of all my young girls, both those who have graduated and those who are still in the school, and I thank you for the courteous consideration you have always shown me.

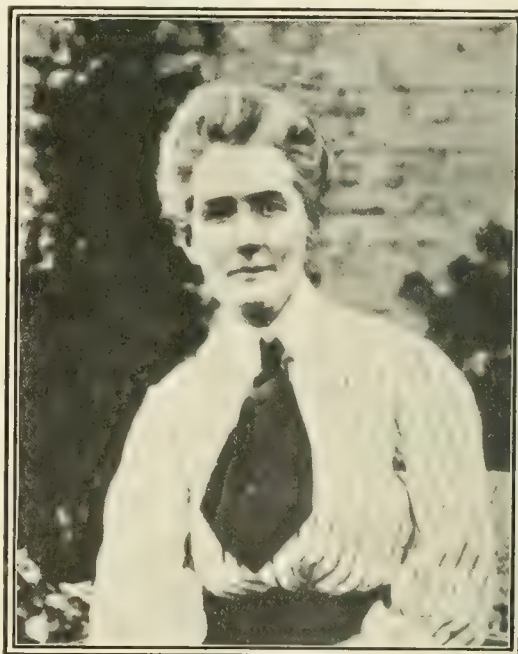
Your devoted directress,
EDITH CAVELL.

October 12, 1915.

A little more than a week ago the body of Edith Cavell, accompanied by prominent British and Belgian officials, was taken from Brussels to her native town of Norwich, England, for final interment. Halt was made in London for an impressive memorial service

in Westminster Abbey, where England honors her great, and tribute worthy of a triumphant warrior was paid "that brave woman," as the Bishop of London described her. It was a public funeral, and as much of London as could find standing room crowded the streets for hours to await the passing of the modest cortege. The congregation at the Abbey included high officials of the government, representatives of foreign countries, and men prominent in many walks of life.

The most lasting monument which we can erect to Edith Cavell, is an appreciation of the individual services of the work done by her in her labors for humanity during her life and during the war; an appreciation of the work done by the nurses throughout the war and the sacrifices they cheerfully made. These gallant women took their places, even as Edith Cavell, alongside the men who were struggling for liberty and a higher life. The task which they accomplished for the service of humanity calls for the highest praise which we can give them.



EDITH CAVELL.

Editorial Notes and Comments

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THE RESPONSIBILITY OF THE STATE.

When the governments of the world issued the call to all able bodied men, bidding them bear arms and battle for their country, the State assumed the responsibility for the welfare of these individuals. Now that the battle flags are furled and demobilization is sending the men back to the workshops and firesides, these responsibilities have not lessened. The debt to those who cheerfully gave their last gift will be paid by the conduct of the country under whose flag they fell. We must not neglect those who were dependent upon them. There is another urgent obligation which must be met. We must care for those who were disabled in the conflict. Just what is meant by disabled and the measure of this disability is often a difficult matter to decide. Many volumes have been written and a great deal of work has been done in an effort to establish an equitable basis for adjustments, but no satisfactory plans have been presented. In many of the European countries, the problem is more far reaching and affects practically every family.

Some writers have attempted to classify a compensation based upon physical disabilities, others have made their schedules in consideration of the former earning capacities of the injured men. The conclusions of these men are not completely satisfactory. A man may lose a limb and not have his earning capacity diminished. There are

instances where men have lost their vision and are earning more money than they did before they became blind. In Paris, on one of the side streets, a man may be seen making cigars. Both of his legs have been amputated above the knees. His earnings are greater than they were before the war. In an adjoining shop, a jeweler's, an old comrade of his, discharged from the army on account of age, who has no physical signs of injury, attempted to resume his occupation as a watchmaker and at the end of two days he was obliged to resign. He was sent to the country for a rest, but had not improved at the end of two months. He was unfitted for any other occupation. The things he had seen during the war had affected his nervous mechanism to the degree of incapacitating him.

Another example of this type is shown in an apparently healthy young man who joined his family after he had been discharged from the service. In his army experience he had not reached the front. He had not been near the fighting. Attempting to raise a cup of tea, it would be spilled by his trembling hands. The slightest noise would startle him. He was unfit for any occupation which required skill or concentration. Scoffing at this person and dismissing the case as though the man were an inferior being will not solve the question. The mental shocks which these men have received are just as real as though they were due to physical trauma. These examples portray the shortcomings of a general classification. The psychical condition of these patients must be considered. In some instances, a change of occupation can be successfully accomplished. However these difficulties are met and overcome, the obligation of the State remains, and society should protect and support the men it took away from the workshops and whom they were unable to send back in an able condition.

THE ENDOCRINE GLANDS AND BONE DYSTROPHIES.

In the majority of bone dystrophies, if not in all, the skeleton is not the only structure which suffers. Unquestionably, its lesions are particularly striking, but other tissues, especially those which compose the locomotor apparatus, are likewise involved. The lymphoid and fibrous tissues, the ligaments, synovia, muscles, and tendons are more or less affected. Of the connective tissue,

all the elements derived from the mesoderm show a solidarity and react under the same influences. Consequently, when bone changes, instead of being the result of a local accidental irritation, are due to general disturbances of metabolism, they rarely remain the only lesions. Their etiology often appears to be simple. For example, the process may be due to a nutritive perturbation, a badly chosen diet being often incriminated or a defective assimilation, infections, or chronic intoxications are frequently invoked.

It cannot be maintained that these causes alone are at work, and it is important in certain cases to take into consideration the changes or functional disturbances of the endocrine glands. The action of these glands on osteogenesis makes itself evident in many circumstances, and although it cannot be substituted for other morbid causes, the influence of which has long been known, it in no way lessens their importance or frequency, but often it enlightens us as to their mechanism and completes our knowledge of the subject. Whether the subject presents hereditary syphilis, an infection or chronic intoxication, nervous stigmata, circulatory disturbances resulting from improper feeding, one will invariably find indices of a general or local perturbation of the nutrition, and frequently this is due to changes or functional disturbances arising in some set of endocrine glands which are, *par excellence*, the regulators of metabolic changes. In the majority of cases the osseous dystrophies are due, not to a single given endocrine gland, but to several, so that they belong to a true pluriglandular syndrome.

The bone marrow possesses two functions, namely, it manufactures bone and blood. Indirectly by these processes it assures the solidity of the skeleton, its oxygenation, and phagocytic defense. This hematopoietic gland, comprised in the alveolæ, does not appear, it is true, to act on the nutrition by hormones. Its influence on growth, the development of the viscera, and the circulation, although less apparent than in the case of the thyroid, suprarenal, or hypophysis nevertheless exists. It is sensitive and reacts to excitations of a toxic or infectious nature, and from its double function causes changes in the skeleton. It is well known that in the anemias myelocytes and nucleated red blood corpuscles are found. But these reactions are all the more accentuated the more marked the lesions or functional disturbances of the endocrine glands. It is not as yet known whether the bone marrow inversely exercises a similar action, but this

would seem rather unlikely, although it is certain that the latter suffers when the endocrine glands are involved. The influence of endocrine glands on ossification is unquestionable. In the first place should be mentioned the thyroid and hypophysis, but the testicle, ovary, suprarenals, thymus, and pancreas have equally an undoubted, although, perhaps, a more limited action. On the other hand, the combined action of several of these glands may cause various disturbances too numerous to be mentioned.

MEDICAL ASPECTS OF THE FOOD PROBLEM.

Because peace is now assured it by no means necessarily follows that the millennium is in sight. So far as the question of food is concerned, the world is in no better condition now than when war was in active progress, indeed, in some respects at least, it appears to be in a worse position. In Germany, Austria, Rumania, Poland, and even in Belgium, a condition of semistarvation exists. Moreover, Russia, which has been one of the great granaries of the world, owing to her internal turmoil, is unable to feed adequately her own population. In fact, the whole of Europe is looking to North America and South America and Australia to feed her population. It must be also borne in mind that means of transportation by sea are woefully inadequate for the occasion. Therefore, we must possess our souls in patience and anticipate a considerable period of lean days yet. The problem of the food supply itself has not been solved, nor, it may be said, has the solution been found of the medical aspects of the food problem.

It has been asserted with some vehemence that the scarcity of food in Europe has had a good effect upon the general health. Up to a certain point this statement is true, or partially true. Many persons, in the piping days of peace, were in the habit of eating too much, and especially of meat, and of taking too little exercise. These individuals were benefited, to some extent by this compulsory abstinence. But, on the other hand, lack of food or the ingestion of comparatively nonnutritious food, obviously can do no one good.

The war has afforded splendid opportunities for gauging what constitutes the minimum amount of food on which a man or woman may live and do hard work. The physiological requirements of the human animal, under varying conditions, have been ascertained with some degree of accuracy, although it may be stated definitely that the last word on the subject has not been said. It has been learned, however,

that some long cherished ideas as to the value of this or that article of diet, must undergo a good deal of revision. For example, the fetish of highly milled white flour has received a setback from which it will probably never recover. Other food stuffs which in the old prosperous days were looked at askance, mainly because they were cheap, have been shown to be very nutritious.

In a discussion on war food which took place under the auspices of the West London Medico-chirurgical Society, on April 5, 1918, reported in the *West London Medical Journal*, October, 1918, Dr. Leonard Williams made some remarks which will doubtless meet with the approbation of some of our readers. He deprecated a hard and fast acceptance of all the tenets comprised in the present day theory of scientific feeding. He pointed out that the principle of proteins, carbohydrates, and fats did not explain everything. He further confessed to having no belief whatever in the theory of calories, which he said was clearly based on the assumption that the human gastrointestinal tract was a test tube. He was of the opinion that in our present estimate of dietetics there was a tertian quid, and he went on to say that he had no doubt that the tertian quid was supplied by the consideration of the vitamins, substances which had been described chiefly by American writers. He expressed his belief that the application of the principle of present dietetics was this, that if people would eat food which contained vitamins in large quantities they were able not only to sustain, but to enjoy life on an amount of proteins, carbohydrates, and fats, which, in the absence of vitamins, would be ludicrously inadequate.

Williams, no doubt, is somewhat too iconoclastic as regards scientific feeding, but it is manifestly true that too great regard may be paid to rationing an individual from the point of view of his physiological requirements alone. Appetite inciting food is essential to some, such as meat essences, beef tea, and so on. Custom also plays an important rôle in feeding. Conditions of life must be always considered and the question of climate must not be overlooked. Also the personal equation is not altogether a matter of indifference. Reviewing the food problem from the medical standpoint broadly, it may be said that the exigencies of war have brought into prominence two outstanding features, that animal food does not occupy the high place in the estimation of scientific investigators and of practical men that it formerly held, and that the vitamins play a predominant, although as yet not thoroughly understood, part, in the maintenance of nutrition.

DIAGNOSIS OF TRAUMATIC LESIONS OF THE SCIATIC NERVE.

In traumatic changes, whether or not they involve the trunk of the sciatic or the internal popliteal nerve, regardless of the decrease or absence of the tendon Achilles reflex which is usually found and is one of the best diagnostic signs of an organic lesion of the nerve, there exists, according to the extent of the lesion, a reflex syndrome composed of an exaggeration of the patellar reflex, an exaggeration of the neuromuscular contractility of the gastrocnemius and flexion of the great toe when percussion is carried out over the internal border of the tendon Achilles. These three signs may be combined or dissociated and coexist without any change of this reflex or with its absence or decrease, according to the degree of the neuritis. Exaggeration of the patellar reflex appears to be due to hypotonus of the muscles of the posterior aspect of the thigh and when encountered is most important in cases where the hypotonus is difficult to appreciate and where the atrophy itself is overshadowed by a pseudohypertrophy. This sign exists when the lesions of the nerve are trifling as well as when very serious.

The association of the sign of the great toe and an increase of the patellar reflex is of much diagnostic value inasmuch as they are signs that cannot simulate a psychoneurosis assuming the form of a painful syndrome of the lower limb. The search for these signs and their detection is important in cases where electrodiagnosis is impossible, without taking into consideration the many causes of mistakes to which this diagnostic means may give rise. Unilateral flexion of the great toe from percussion over the internal border of the tendon Achilles is closely united to the exaggeration of neuromuscular contractility of the flexor longus pollicis and this sign is all the more valuable because it seldom exists under normal conditions.

The exaggeration of the neuromuscular contractility and the presence of flexion of the great toe is a sign of an incomplete lesion of the sciatic nerve. Coexisting with symptoms of neuritis, this sign should indicate that the lesion is receding. The recent study of traumatic lesions of the sciatic nerve or of its branches has revealed the unquestionable diagnostic value of these three signs, while their pathogenesis appears to have been clearly understood. These signs are equally important in a non-traumatic lesion of the sciatic, and although up to the present time a distinction has been made between sciatic neuralgia and sciatic neuritis, it may now be admitted that there exists an intermediary form which from the point of view of pathology is a very mild neuritis and composed symptomatically

by the three signs already referred to. These cases cannot be placed in the class of pure sciatic neuralgia, but they have been frequent during the war. They have been called psychoneuroses, reflex paralysis, syndrome of immobilization, inertia, and passiveness, and this diversity of terms merely goes to show the obscurity of the pathogenesis and the exact nature of this clinical type now reigning in the minds of the profession. Therefore, there is all the more reason for detecting as far as is possible all the details of its clinical physiognomy.

OPENING THE DOOR TOO WIDE.

The question has often been brought up in France of trying to attract as many foreign students as possible other than German, because there was a leaning among the learned men toward German teaching, as many of them had studied in that country. To increase the foreign clientèle would mean a more active French propaganda outside, but, as the war went on, the incursion of students and doctors increased beyond desire, and now local practitioners and country doctors are suffering, for the strangers were given the medical degree *honoris causa* with *une insouciance déplorable*, though it was not expected they would eventually settle down to practise. The French doctors are not xenophobic; they are too sensible for that, but they are justified in demanding a Government return of the number and position of foreign doctors in France.

THE NURSING SITUATION.

A shortage of trained nurses has been caused by the great number required by the army, and the situation was rendered acute by the influenza epidemic. This crisis has called our attention to the increased mortality rate in regions where the paucity of nurses was most marked, and the problem has recently been taken up seriously by the Public Health Committee of the State Reconstruction Committee. There are many diseases such as typhoid, pneumonia, and influenza in which proper nursing of the patient is of primary importance and medical treatment plays a subordinate rôle. Many solutions have been propounded for increasing the number of intelligent trained nurses. Intensive courses for short time periods have been advocated. It is suggested that the greater part of the time be devoted to bedside care of the sick. Others have proposed that the menial work which is required in the early part of a nurse's training be abolished and the course shortened in this way. However, those who insist that the beginner go through the routine of scrubbing floors and other menial work in the kitchen state that it promotes discipline and causes a better appreciation of cleanliness and thoroughness.

It has been demonstrated that a surgeon's efficiency is not diminished nor his asepsis lessened by his not having mopped up operating rooms or sterilized his own instruments. In these days of divisional labor it seems as though the menial and manual labor could be done by some one else and

the nurse devote her time more to the direct care of the patient. The number of student nurses could be markedly increased without any lowering of standards if the courses were made more attractive by the abolition of the uninteresting routine and by putting them on a higher basis where medical nursing would receive more scientific attention. The responsibility could be increased, but the drudgery should be lessened. In this way, we should solve the problem of shortage of nurses.

News Items.

Red Cross Commission to Siberia.—Dr. J. Rudis-Jicinsky, of Chicago, is on his way to Vladivostok, Siberia, as a member of the Siberian Commission of the American Red Cross. He is accompanied by Dr. V. Anyz and Dr. Jan Jaroslav Cepelka.

Southern Minnesota Medical Association Changes Date of Meeting.—Announcement is made by the chairman of the program committee that the date of the summer meeting of the association has been changed from June 30th and July 1st to June 23d and 24th.

New Department in the University of Cincinnati.—A department of industrial medicine and public health has been established in the College of Medicine of the University of Cincinnati. The course in the new department will be started in October and will be open to graduates in medicine.

Masons to Establish a Memorial Hospital.—At a recent meeting of the Grand Lodge of New York State it was announced that a Masonic Memorial Hospital for soldiers and sailors is to be erected at Utica, N. Y. Free medical care will be provided at this institution for all service men who are Masons.

Army Hospitals to Be Closed.—Surgeon General Merritte W. Ireland, U. S. Army, has issued orders that Debarkation Hospital No. 5 at the Grand Central Palace, and the army hospitals at the Rockefeller Institute, and at the Hotel Nassau, Long Beach, are to be abandoned by June 1st. The Emergency Hospital at the Polyclinic is also to be given up as a clearing house for men forwarded from base hospitals.

Medical Library Association.—The twenty-first annual meeting of this association will be held at the Marlborough-Blenheim Hotel, Atlantic City, N. J., Monday, June 9th, under the presidency of Dr. William Browning, of Brooklyn. All who are interested in the work of the association are invited to attend. Dr. John Ruhrah, of Baltimore, is secretary and treasurer, and will furnish full information regarding the meeting.

Medical Women's National Association.—The fourth annual meeting of this association will be held at the Marlborough-Blenheim Hotel, Atlantic City, N. J., June 10th and 11th, under the presidency of Dr. Angenette Parry, of New York. The annual dinner given by the American Medical Association to the visiting women physicians will take place this year on Wednesday, June 11th. Dr. Clara K. Bartlett, 4301 Atlantic Avenue, Atlantic City, is chairman of the local committee.

Clinical Society of the Hospital and Dispensary for Deformities and Joint Diseases.—A stated meeting of this society will be held Tuesday evening, May 27th, at the dispensary building, 41 East 123d Street. Dr. William H. Stewart will discuss Röntgenographic Diagnosis of Bone Tumors by Analysis, Dr. Harlow Brooks will speak on Cardiac Syphilis, and Dr. Charles Weissberger on Focal Infection and Endocarditis.

Memorial Hospitals for Queens Soldiers.—Memorial hospital buildings in honor of soldiers of the Borough of Queens who lost their lives in France will be added to the Jamaica and St. Mary's Hospitals, according to plans announced by the Citizens' Committee. The memorial buildings, which are to cost \$500,000, will be equipped with 100 beds each and will have laboratories, clinics ambulances, and other modern hospital facilities.

Personal.—Dr. William J. Mayo, formerly Colonel in the Medical Corps, U. S. Army, has been decorated by Secretary Daniels with the Congressional Medal of Honor.

Miss Jane A. Delano, of the American Red Cross, who died last month in France, was awarded posthumously the Congressional Medal of Honor.

Dr. Charles Halpin Nammack has returned from France and resumed practice at 379 Park Avenue, New York.

American Proctological Society.—The twentieth annual meeting of this society will be held June 7th-9th, at the Chalfont Hotel, Atlantic City, under the presidency of Dr. Jerome M. Lynch, of New York. Doctor Lynch will deliver the annual address, and there will be a number of interesting papers, with lantern slides and motion pictures. Copies of the program may be had upon application to the secretary-treasurer, Dr. Collier F. Martin, 601 Professional Building, Philadelphia, Pa.

New Magazine Deals with Child Labor.—The *American Child*, a quarterly devoted to child welfare, will be published by the National Child Labor Committee as successor to the *Child Labor Bulletin*. The first issue is to appear this month. Owen R. Lovejoy is the editor and his staff includes Raymond G. Fuller, E. N. Clopper, Ruth McIntire, Wiley H. Swift, and Josephine Eschenbrenner. Among the contributors to the first number are Julia C. Lathrop, chief of the Children's Bureau, and John B. Andrews, secretary of the American Association for Labor Legislation.

Japanese Physician Discusses Beriberi.—Beriberi was the subject of a lecture given by Doctor Shimasono at the Imperial University of Kyoto before 2,000 Japanese physicians. Although the theory that pure rice ever causes blood poisoning is disputed, Doctor Shimasono said there was less danger of beriberi if rice was taken into the body along with other foods. Among the factory hands of the Kejiho Iron Foundry of the Mitsubishi Company, 450 of 2,000 Japanese suffered from beriberi because they ate pure rice, while only nine of 3,000 Koreans were affected, presumably because the latter ate millet and beans. Doctor Shimasono advised the eating of wheat with rice in the ratio of six parts of rice to four parts of wheat.

A New Hospital in Borough Park.—Ground was broken Sunday, May 18th, for the new hospital to be erected on Tenth Avenue, between Forty-eighth and Forty-ninth Streets, in the Borough Park section of Brooklyn.

The Senate and Vivisection.—A bill restricting the practice of vivisection in the District of Columbia will be introduced in Congress if Senator Myers of Montana carries out his intention. Senator Myers considers that unregulated vivisection means its extensive practice merely to satisfy "wanton and idle curiosity."

American Women Physicians to Establish Hospitals in the Near East.—Fully equipped hospital units are being sent to Palestine and Serbia by the American Women's Hospitals. Each unit will have a mobile hospital with fifty beds, sixteen motor ambulances, with drivers, in addition to the requisite number of doctors and nurses.

Good Will of Physician Nontaxable.—The good will which a physician leaves in his will to another is not taxable. Surrogate Fowler has so held in the estate of Dr. Eugene Wilson Caldwell, noted x ray authority, who bequeathed his instruments and good will to Dr. Henry M. Imboden, his collaborator. Surrogate Fowler said it was not likely that physicians would send patients to Doctor Imboden because of the skill of his dead associate.

Meetings of Local Medical Societies.—The following medical societies will meet in New York during the coming week:

TUESDAY, May 27th.—New York Academy of Medicine (Section in Obstetrics and Gynecology); New York Dermatological Society; New York Medical Union; Metropolitan Medical Society of New York; New York Otolological Society; New York Psychoanalytic Society; New York City Riverside Practitioners' Society; Valentine Mott Society; Washington Heights Medical Society.

WEDNESDAY, May 28th.—New York Academy of Medicine (Section in Laryngology and Rhinology); New York Society of Internal Medicine; Brooklyn Pediatric Society.

National Society for the Study and Correction of Speech Disorders.—The forty-third meeting of this society will be held Friday evening, May 30th, in Cleveland, Ohio, under the presidency of Dr. Walter B. Swift, of Boston and Cleveland. Cleveland's First Year in Speech Correction will be the general topic. This organization will also meet with the National Educational Association on the afternoon of July 4th, at Milwaukee, at which time papers will be read by Dr. Elmer L. Kenyon, of Chicago; Miss Jennie Hedrick, of Washington, D. C., and Mrs. Sara P. Weyer, of Cleveland.

American Therapeutic Society.—The twentieth annual meeting of this society will be held in Atlantic City, N. J., June 6th and 7th, under the presidency of Dr. Douglas Vander Hoef, of Richmond, Va. The sessions will all be held in the Marlborough-Blenheim Hotel. The following topics have been selected for discussion: Physiological Researches in Their Relation to Therapy, Glandular Diseases and Glandular Therapy, Epidemic Influenza, Thoracic Affections and Their Management, Drugs and Their Uses. Dr. Lewis H. Taylor, of Washington, D. C., is secretary of the society and will be glad to furnish programs to all who are interested in the meeting.

The Horrors of Peace.—Sir Arthur Newsholme, noted English physician and Red Cross worker, stated in an address made during his visit to this country that the chief after the war activities of the International Red Cross would be along public health lines. The devastation produced by disease in times of peace is greater than the loss of life in war, and much of this is preventable. Sir Arthur, who has just come from the Red Cross conference at Cannes, France, considers that there will always be ample scope for an organization such as the Red Cross in the experimentation in new and promising work which it is so difficult to initiate in official circles and in the undertaking of necessary work by volunteers when public opinion and officialdom refuse to undertake it. It is not intended that the Red Cross shall compete with work already being carried out by existing agencies, but rather that it shall stimulate official public health work.

Industrial Efficiency and National Health.—*Modern Medicine*, a new periodical whose appeal is directed especially to that part of the profession interested in industrial hygiene, public health, and current problems in social medicine, makes its initial appearance with the May issue. The editors are Dr. Alexander Lambert, Dr. S. S. Goldwater, Dr. Otto P. Geier, Dr. C. E. A. Winslow, Dr. Walter W. Hamburger, and Dr. John A. Lapp. Departments are devoted to medicine and industry, the nation's health, current problems in social medicine, and other topics. Among contributors to the May issue are Dr. Ellsworth Huntington, Dr. Rupert Blue, Surgeon General, United States Public Health Service; Dr. W. C. Braisted, Surgeon General, United States Navy; Dr. George M. Price, Director, Joint Board of Sanitary Control, New York; Dr. E. H. Lewinski-Corwin, Major Louis M. Warfield, U. S. M. C., Major Amand Ravold, U. S. M. C., Dr. R. Tait McKenzie, and others.

League of Red Cross Societies Formed.—A League of Red Cross Societies, formed recently in Paris, is the outgrowth of the conference of Red Cross leaders and medical experts which has been in session at Paris and Cannes over a period of five months. Red Cross societies of the United States, Great Britain, France, Italy, and Japan are founder members of the league, and the Red Cross societies of other nations are to be invited to join. The control of the league will be by a general council composed of representatives of all Red Cross societies, and this council will elect a governing board of fifteen members to direct the affairs of the league in the intervals between meetings of the council. Henry P. Davison, of New York, formerly chairman of the war council of the American Red Cross and since January chairman of the committee of Red Cross societies which formulated the league's program, is chairman of the first board of governors. Other members of the board chosen thus far are Sir Arthur Stanley, of the British Red Cross, Comte Kergorlay, of the French Red Cross, Count Frascara, of the Italian Red Cross, and Professor Ninagawa, of the Japanese Red Cross. The headquarters of the league will be at Geneva.

Drug Addiction in the United States.—The special narcotic committee appointed by former Secretary of the Treasury McAdoo to investigate the drug traffic in this country has presented a report which shows the United States as the largest consumer of drugs in the world, with 1,000,000 addicts and more than \$61,000,000 spent annually by drug users. The committee's table for the per capita consumption of opium in the United States and foreign countries is as follows:

Country	Population	Total annual consumption pounds	Consumption per capita grains
United States....	100,000,000	470,000	33
Holland	6,000,000	3,000	3.5
France	40,000,000	17,000	3
Portugal	5,500,000	2,000	2.5
Germany	60,000,000	17,000	2
Italy	33,000,000	6,000	1.25
Austria	46,000,000	3,000-4,000	1.5-.6

Native born Americans lead in the consumption of the drug, according to this report, and the majority of immigrants listed as addicts did not reach their unfortunate state until they had been in the United States some time. Ninety per cent. of the drugs consumed in this country are used for other than medicinal purposes. Moreover, the traffic is increasing by leaps and bounds. Practically all of the larger cities, among them New York, report increases, and one estimate of the nation's number of addicts included in the report is 4,000,000. Of the committee's figure of 1,000,000 drug users, 250,000 are unemployed. An underground "dope trust" of peddlers who carry on a traffic in smuggled drugs estimated to be equal in magnitude to that carried on through legitimate channels is also shown in the report. Police officials reported 1,800 "dope" peddlers and listed their occupations as gamblers, taxicab drivers, domestics, solicitors, messengers, pool-room employees, porters, etc.

The first questionnaire sent out by the committee was addressed to all physicians registered under the Harrison Anti-narcotic Act. The replies show the following number of addicts receiving medical attention and the number of narcotic prescriptions dispensed during the past year in various states:

State	Number of addicts	Narcotic prescriptions filled
California	3,338	270,334
Connecticut	11,740	207,455
Illinois	8,218	1,679,711
Indiana	8,438	250,837
Iowa	2,496	153,721
Massachusetts	14,770	492,246
Michigan	5,757	373,688
New Jersey	5,900	565,584
New York	37,095	2,673,292
Pennsylvania	10,202	2,365,007

The Commissioner of Health of the city of New York reported 103,000 addicts.

The committee in its conclusions and recommendations asked for the rigid enforcement of the anti-narcotic laws, stringent State and municipal legislation, and the enactment of federal legislation to provide treatment for addicts so they can be cured. The State Department is asked to take immediate steps to prevent the traffic that comes into this country from Mexico and Canada.

Miscellany from Home and Foreign Journals

Pneumonia and Empyema.—Horace Gray (*Boston Medical and Surgical Journal*, April 24, 1919) concludes in this number an elaborate study of 485 cases of pneumonia, infection with pneumococcus, streptococcus, or both, during a period of thirty-five weeks at Camp Devens. Forty-five per cent. of the total noneffective rate was due to pneumonia, and the pneumonia mortality was thirteen per cent. The empyema incidence was sixteen per cent., and the empyema mortality forty-four per cent. In empyema patients who were operated upon the mortality was twenty-one per cent. Measles was the cause of only eight per cent. of the 485 cases of pneumonia; but when this was the case the pneumonia was nearly three times as fatal as when primary. Negroes had a vastly higher case rate than the whites, but their mortality was only a little higher; the lobar variety was present in ninety-four per cent. of negroes, against seventy-four per cent. among the whites. Eighty-eight per cent. of the cases of pneumonia were primary, eight per cent. postmeasles, four per cent. postether; seventy-nine per cent. were lobar, and twenty-one per cent. bronchial. The onset was distinctly abrupt in only one third of the cases. The diagnosis of pneumonia was not made on the average till the fourth day of the disease. The following suggestions are made with a view to an earlier diagnosis.

Watch all cases of common cold, measles, and postether conditions for a rise in respirations; if these should reach 24 the patient should be classed as a pneumonia suspect; if they reach 25, the average admission rate among 241 pneumonia patients, as a probable pneumonia. For any suspect we should inquire daily for unilateral chest pain; auscult the chest daily, front and back, especially at the angle of each scapula, listening particularly for râles after the stifled cough, and for bronchovesicular breathing, if bronchitis is present, and in the absence of that sign listening for whispered pectoriloquy on one side or the other; have an x ray photograph made, and secure sputum early. Now that the simpler Krumwiede method is available, typing should be attempted even before consolidation is detected. We should bear in mind the importance of temperature and respiration taken in all men complaining of pain in the chest or belly, perhaps even if there is no associated cough; the low mortality (eight per cent.) of pneumonia when typed and treated; the high mortality of pneumonia when ambulant; the desirability of referring men to the hospital for observation for pneumonia on slight suspicion. Bacteriology has taught us that even more fatal than the pneumococcus is its mixture with the hemolytic streptococcus, and most fatal is the streptococcus alone. The latter alone caused fifty-three per cent. of the empyema cases. The main complication, aside from the empyema, was renal, which was present in more than half the pneumonia cases. A renal test on discharge should be a routine procedure. We could diagnose effusion earlier by suspecting every pneumonia guilty until proved innocent, and that too even on the second

day of the disease. We should listen daily for muffling of breath sounds, but even if they remain clear we should feel uneasy if they become rasping, if unilateral dullness extends, or if prostration is present. Any of these three reasons is considered adequate for sticking in a needle on a syringe perhaps every third day. Any drop of fluid obtained should be sent to the laboratory for smear and culture, and, if there is enough fluid, for a white count. Graded military exercises over a considerable period should be an essential part of the attempt to shorten convalescence and return the man to duty.

Neuritis and Multiple Neuritis of Malarial Origin.—Laurent Moreau (*Paris médical*, February 22, 1919) encountered nine cases of malarial neuritis among French troops sent to the Balkan states. In but one instance did the paralysis follow a comatose form of the disease, one or more paroxysms of average severity having sufficed to bring it on in the eight others. Often the condition is a gradually oncoming, toxic neuritis similar to that met with in the infectious diseases. In cases of sudden paralysis, however, circulatory disturbance due to local vascular lesions appears to be the main factor. Different from alcoholic or lead paralysis, malarial paralysis has no definite, special distribution. Among the author's cases were instances of involvement of the external popliteal, facial, and radial nerves. In one case a paraplegia was accompanied by paralysis of one side of the face. In some instances sensory disturbances were prominent, being manifested in sharp pains along the affected nerves and even, at times, eruptions of herpes zoster, reappearing with each febrile paroxysm. Multiple neuritis involved especially the lower extremities, the upper limbs being less frequently affected. Tingling sensations, numbness, and sometimes edema occurred as prodromes to the paralysis. Sensory disturbances were also manifested in hypesthesia and, at times, complete anesthesia of the parts. Palpation of muscle masses, however, along the course of the nerves, caused sharp pain which, during rest, sometimes persisted in the form of cramps or dull aches. The reflexes were variously affected, and electrical examination revealed all grades of nerve impairment. Marked trophic and vasomotor disturbances gradually appeared in limbs stricken with multiple neuritis. Psychic disorders and amblyopia were also observed in some instances. The prognosis in malarial neuritis is always grave. As soon as signs of multiple neuritis appear in a malarial patient an electrical examination should be made and electrical treatment, preferably with different forms of galvanic current, instituted. Massage, muscle reeducation, quinine, arsenic, and life at an altitude may be of marked assistance. Quinine, while not a specific for malarial multiple neuritis, is at least capable, through prevention of febrile paroxysms, of obviating the aggravation of the neuritis which generally follows each successive acute attack.

Treatment of Gonorrhea by Pus Vaccines.—E. G. D. Pineo and D. M. Baillie (*Lancet*, March 29, 1919) have tried out and now strongly recommend the use of pus vaccines in the treatment of gonorrhea, except in the stage of acute urethritis, in which vaccines are not indicated. The pus vaccines have the following advantages: Ease and simplicity of manufacture; high degree of polyvalency; and high degree of virulence of the organisms owing to the absence of artificial culture. The vaccines are most simply prepared by the collection of about one mil of pus from the urethra of each patient in as many cases as are obtainable; the mixture of this pooled pus with normal saline containing a half of one per cent. of phenol; transference of the whole to a large flask; addition of glacial acetic acid to make a half of one per cent. solution; and then the mixture is well shaken for one hour. It is next diluted with an equal part of normal saline containing a half of one per cent. of phenol and set aside for four days to permit of the killing of all of the organisms. The emulsion is then counted against blood cells and tested for sterility. After counting the contained organisms it is diluted with the phenolized saline so that each mil will contain about twenty-four million organisms. The doses begin with six million and at intervals of three days twelve, eighteen, twenty-four, thirty-six, sixty, seventy-two, ninety, 120, and 150 million doses are given. If any dose produces a rise of temperature or an increase of the urethral discharge that dose is repeated or the next lower dose is given the next time. In most cases doses above sixty to seventy-two millions are never required. All of the injections are given intramuscularly and they are without pain or other local reaction.

Clinical Studies in Cutaneous Tuberculosis.—John H. Stokes (*American Journal of the Medical Sciences*, April, 1919) deals in this study with a group of twenty cases of various types of papulonecrotic tuberculide and erythema induratum in which arsphenamine was used with good effect in combination with a systemic régime and röntgen therapy. Over half the patients thus treated had demonstrable tuberculosis, usually in the form of a lymphadenitis. Surgical treatment of the lymphadenitis in nine cases had not demonstrably affected the tuberculide. It would seem from the series presented that the appearance or the persistence of a cutaneous tuberculide following reasonably complete surgery is an indication for a discontinuance of surgical treatment of the tuberculous focus and the adoption of a medical means of fortifying the patient against the progress or recurrence of his tuberculous infection. The intravenous administration of arsphenamine would seem to afford such a medical means of fortifying the patient's resistance to tuberculosis when combined with an antituberculous hygiene and röntgen ray. Arsphenamine offers an excellent means of treating selected cases of obscure tuberculosis as evidenced by the presence of a tuberculide in the absence of a demonstrable focus. Its use in febrile, acute, or rapidly progressive cases is not advised. Arsphenamine alone is apparently able to produce a striking effect

on cutaneous tuberculides. Fifty-three per cent. of seventeen cases were completely cleared of lesions and only twelve per cent. failed to secure a definite improvement. Arsphenamine is also apparently instrumental in producing a marked constitutional improvement in these cases, evidenced especially by a gain in weight and the disappearance of the rheumatic symptoms complained of. The effect upon tuberculous adenitis is indeterminate, but probably not striking. Röntgentherapy assists in the reduction of the glands, but does not compare with arsphenamine in its influence on the general condition or on the cutaneous tuberculide. An outdoor life, forced diet, correction of vascular abnormalities and stasis by elastic support, and careful extirpation of secondary foci of pyogenic infection in tonsils and teeth, are subsidiary but important elements in a successful treatment.

Treatment of Dilatation of the Stomach.—Georges Hayem (*Bulletin de l'Académie de médecine*, February 18, 1919) points out that under abnormal conditions the period of evacuation of the stomach varies enormously, ranging, in fact, from nil to infinity. In many cases evacuation occurs in from ten minutes to an hour. Oftener, however, evacuation is considerably delayed, and in a majority of these cases gastric secretion continues after the evacuation. The commonest cause of gastric dilatation is an evacuation so slow that food enters the stomach before the preceding meal has completely passed out. Alkaline saline treatment and gastric lavage with pure water are effectual in these cases, but the latter is often either abhorrent to patients or abused by them, and in the last ten years the author has dispensed with it in favor of the following procedure: Only two meals a day are allowed, viz., at ten a. m. and seven p. m. or at eleven a. m. and eight p. m. The nine hour interval between these meals nearly always permits of evacuation of the stomach before the second meal. Furthermore, the patient rests on a bed or lounge, with the buttocks slightly elevated with a pillow, for an hour before each meal. This is preferable to resting after meals, as the pylorus is almost closed after meals, while before meals the stomach with a tendency to prolapse will rise during recumbency and be in a better position for subsequent evacuation. Light massage over the stomach during the rest hour is useful where the gastric muscle is weak. Hunger sensations resulting from the long interval pass off after a few days, and with them the continuous hunger experienced, even during repletion of the stomach, in many dilatation cases. Digestive disturbances improve, dilatation diminishes or disappears, and the patient soon begins to gain in weight. The duration of treatment varies according to the extent of dilatation and the length of time the disorder has been present. The final step in the treatment consists of making a chemical gastric analysis and instituting whatever form of alkaline saline medication is indicated. This analysis is postponed until after the application of the two meal treatment because the latter, while removing the tendency to postdigestive secretion and overlapping of the digestive periods, also alters chemical conditions in the stomach.

Reactivation of Erythema Nodosum by Tuberculin.—A. Chauffard and L. Girard (*Bulletin de l'Académie de médecine*, February 18, 1919) refer to the discovery by Dor of a typical tubercle in an erythema nodosum lesion; to the positive serum reaction in this disease noted by Arloing and Paul Courmont; to the finding of a tubercle bacillus in a node by Landouzy, and to the experimental reproduction of typical nodes by Chauffard and Troisier upon intradermal injection of a minute amount of tuberculin. They now report the case of a woman aged thirty-one, formerly afflicted with Pott's disease, and later with tuberculous osteitis of the femur, erythema nodosum, hemoptysis, and right apical tuberculosis with emphysema, in which, in applying the intradermal skin reaction, a solution of tuberculin ten times stronger than had been intended was used. As a result there appeared, not only a local erythema nodule but a recurrence of the entire morbid process, with fever, multiple arthralgia, and the advent of a new crop of nodes disseminated over the face and lower extremities. This case is held to show that not only the erythema nodes, but also the joint pains or inflammation in erythema nodosum are actually caused by the infectious intoxication of tuberculosis. In a previous case with secondary syphilis and typical erythema nodosum, three intravenous injections of 0.6 gram of novarsenobenzol had each likewise been followed by an attack of fever, joint pains, and erythema nodosum. The positive tuberculin skin reaction, the negative Wassermann at the time of the third attack, and the x ray signs of a former tuberculous process, had, however, led to the conclusion that the attacks of erythema nodosum in this case were really due to tuberculosis. In brief, erythema nodosum may be said to be actually a tuberculinoma, and the associated manifestations constitute a tox-infectious pseudorheumatism directly related to tuberculosis.

Tuberculin in the Diagnosis and Treatment of Eye Diseases.—Ervin Török (*Archives of Ophthalmology*, May, 1919) considers an eye condition tuberculous only when a positive focal reaction has been observed. When a positive focal reaction cannot be obtained, but the patient shows a positive general and local reaction, and every other possible cause for the eye condition has been excluded with reasonable certainty, he considers it of probable tuberculous origin. For diagnostic and therapeutic purposes tuberculin should always be used in fresh solution, not over two weeks old. The subcutaneous injection alone is of value for diagnosis in eye conditions; it can be used in both children and adults with practically no danger. Tuberculin is a valuable remedy in ophthalmic therapeutics, provided it is used in very small doses when the eye affections are positively tuberculous, i. e., in eye affections in which a positive focal reaction has been obtained; under these conditions there is no danger involved. The treatment should be started with a very small dose, 1/10,000 of a milligram, increasing slowly to the maximum dose that the patient can tolerate, in no case exceeding one milligram. During treatment all reactions should be avoided. The treatment should be long in duration,

as relapses are frequent in those cases in which treatment has been discontinued after an apparent cure following treatment of less than eight months. The best results have been obtained in those cases in which treatment has been continued for several years, and in which an injection of the maximum dose had been given once every three or four months after an apparent cure had been obtained. Tuberculin is of least value in cases of chronic uveitis, with the exception of heterochromic cyclitis; while in cases of scleritis and periphlebitis retinæ treatment with it is most satisfactory. Scleritis, deep and interstitial keratitis, and iridocyclitis are closely related to each other and have not a separate entity, but may change from one condition to the other, a clinical fact borne out by pathological findings. Cases of exudative choroiditis are seldom of tuberculous origin, the source of infection often being the teeth.

The Recent Epidemic of Influenza and Bronchopneumonia at the Easton, Pa., Hospital.—A. L. Klotz (*Journal of Laboratory and Clinical Medicine*, April, 1919) describes the bacteriological findings in material from the lungs of thirty influenza and bronchopneumonia patients. The usual organisms, pneumococci, streptococci, influenza bacilli, etc., were isolated, and in addition to these in twenty-four instances a short, thick, gram negative bacillus was recovered. It had rounded ends, occurred singly, in pairs, or in short chains, was slightly motile, and in some specimens encapsulated. Involution forms occurred. It stained with the ordinary aniline dyes, and was polar staining. Its appearance in culture is described fully. It is highly pathogenic for white mice. The author believes it to be closely related to the bacillus pestis, from the fact that it is morphologically identical with this bacillus, responds to the crucial test of Albrecht and Ghon, and has a high virulence for laboratory animals. Its appearance so frequently in cases of influenza and bronchopneumonia is interesting.

Comments on the Pathology and Bacteriology of Fatal Influenza Cases, as Observed at Camp Devens.—S. Burt Wolbach (*Bulletin of the Johns Hopkins Hospital*, April, 1919) described two types of lungs which are characteristic autopsy findings in influenza. In brief, the first, which is seen when death has occurred early in the disease, is partially collapsed, dark red, lax, and meaty in consistency, often with a thin layer of dusky red fibrinous exudate on the pleural surface, and on section is dark red and dripping wet, with the surfaces thickly covered with air vesicles. The other type of lung occurring in patients who have lived longer after the onset of the disease shows traces of resemblance to the lung described above, but there is an extensive bronchitis, with bronchopneumonia, discrete or confluent, and peribronchitis. The lungs are more voluminous and nodular, and on section show great injection of the bronchi with a fibrinopurulent exudate. The condition of acute alveolar emphysema with a deposit of a hyaline fibrinous material on the alveolar walls, and a serous and hemorrhagic exudate Wolbach considers the distinctive feature of the pathology of influenza pneumonias. Eight of the cases studied showed a waxy degeneration of

the rectus muscle, and a number of cases showed rupture and extensive hemorrhage of this muscle. Other muscles showed the same lesion. The testis in some instances showed minute petechiæ, and microscopically there was cessation of activity in the seminiferous tubules and degenerative changes were noted, with beginning fibrous tissue replacement of the degenerated tubules. The head was opened in twenty cases; thirteen of these showed middle ear infections. Infection of the frontal sinuses occurred in seven, and of the ethmoidal cells in eight. There were punctate hemorrhages in the cerebral cortex in three instances.

Epidemic Cerebrospinal Meningitis at Camp Cody.—Frederick H. Lamb (*Journal of Laboratory and Clinical Medicine*, April, 1919) states that a determined effort should be made to carry out a bacteriological survey wherever large numbers of troops are brought together, for under such circumstances epidemic meningitis is very likely to occur. Such a survey was made at Camp Cody, so that it was possible to isolate the carriers in this cantonment, and their isolation is regarded as the measure of paramount importance in preventing the spread of the disease. The percentage of carriers in the total of 20,208 cultures examined was 1.28. On detection, carriers were sent to the isolation camp where the strictest attention was given to camp and personal hygiene. The carriers received a nasopharyngeal spray of two per cent. dichloramine-T four times a day, and they reported to the laboratory for culturing every fourth day. They were not discharged until three consecutive negative cultures were obtained. There were two cases of epidemic meningitis in December, 1917, and three in January, 1918, and during February seventeen cases were tentatively so diagnosed.

Surgical Lessons from the War.—J. W. Dowden (*International Journal of Surgery*, April, 1919) in summing up his deductions after four years of war surgery comes to the following conclusions:

1. It is rarely advisable to fix fragments of fractured bones by means of screws or plates while the wound is infected.

2. If this procedure is found necessary, screws should not be inserted near the broken extremities, but as far from the fracture as possible.

3. It is advisable to postpone operative measures until the wounds have healed for some time and until the tissues are in all probability free from organisms.

4. If a septic focus is observed during an operation, a culture and vaccine should be obtained and employed if symptoms of infection from the wound develop.

5. If there is any definite suspicion of latent sepsis, irrigation by the Carrel method should be adopted, or the wound completely closed at the time of operation.

6. Every effort should be made to prevent or to minimize shortening of the limb.

7. Apposition of the entire areas of the broken ends is not necessary, as the interval will become filled. Fragments of bone or callus should be saved and employed to fill any interval between the pieces of the shaft.

8. Heavier steel is required in this type of fractures than in those of civil life. The muscles and joints which are in relation with the fractured bone should be moved by the patient as soon as possible after operation, in order to avoid stiffness and limitation of movement. This is most vital in fractures of the knee, ankle, and foot. In order to do this the plates should be firmly fixed.

9. The sooner the patient who has been operated upon for fracture of the long bones of the leg is up and about, the more rapid the repair.

10. If the interval between fragments is so great as to prevent union, the fragments should be secured in perfect alignment by a plate fixed vertically behind the centre of the shaft, and the space filled in with a graft.

11. The success of a graft depends upon the absolute immobilization of the fragments of the shaft.

12. A rarefying osteitis should not occur except in cases of faulty technic, where wire screws and plates have been used in simple fracture.

13. The proper treatment of fractures during war required a higher degree of asepsis, mechanical skill resource, and judgment than required for other operations for war conditions.

14. Beside sepsis introduced from without or from a latent infection hemorrhage is the chief risk. Hemostatic forceps should be used and left in the wound as long as possible during operation. Ligatures are rarely required. The wound should be left as dry as possible.

Direct Hepaticoduodenostomy in Biliary Fistula.—Salva Mercadé (*Bulletin de l'Académie de médecine*, February 25, 1919) reports a case in which cholecystectomy and hepatic drainage were, in the first place, employed for suppurative calculous cholecystitis. A permanent biliary fistula became established, and after three months the patient urgently demanded a curative operation. At the operation the stomach, colon, and duodenum, all adherent to the liver, had first to be dissected free. Bile was seen to issue from the centre of a fibrous mass underlying these organs, and a grooved director, pushed into the orifice, enabled the operator to separate the hepatic duct from the inferior surface of the liver into which it had become retracted. But one centimetre of the duct being free, the duodenum had to be brought up and fixed to the under aspect of the liver at two separate points. The posterior aspect of the hepatic duct was then fixed to the serous and muscular layers of the duodenum, the latter viscus opened, and the duct anastomosed with it by interrupted sutures of fine silk. The outer line of fixation was then carried around the duct and duodenum from the posterior to the anterior aspect, and the point of union further reinforced by suture of omentum over it. Two drains were left in to dry out the oozing surfaces and the abdominal wall closed in three layers. Successful results followed. The drains were removed on the second day. Bile continued to pass into the dressings for a few days, but this ceased on the eighth day and the stools regained their normal color. The patient rose from bed on the eighteenth day, and subsequent observation showed that a cure had been obtained.

Calculus of the Prostate.—G. Frank Lydston (*American Journal of Surgery*, November, 1918) reports a series of cases of prostatic calculi and presents the following conclusions: Prostatic concretions or calculi occur in four forms: 1. A variety which is due to inspissation of the secretion of the prostatic follicles, in combination with the deposit of earthy salts—pseudocalculi. 2. Small calculi of urinary formation, which have formed in the kidneys or bladder and have become lodged in the prostatic urethra. 3. Calculi due to deposits of urinary salts and mucopus in some pathological crypt or behind some obstruction of pathological formation in the prostatic or bulbomembranous urethra. 4. Phleboliths. Concretions of the first variety are found in the prostate postmortem though there may have been no symptoms referable to the organ during life. Minute concretions of this type are occasionally found in the urine. Under the microscope they appear as small, ovoid bodies of a light yellow tint and pearly lustre. In the larger concretions the color becomes a deep orange. When first formed they are soft, but later become calcified and hard. They are sometimes similar to the concretions that form in the follicles of the tonsil and occasionally are coughed up by patients with chronic faucial disease. They may resemble small gallstones. In elderly patients they may be larger and more abundant. The earthy material is deposited very slowly in concentric laminæ, as is the case with phosphatic vesical calculi. When they become larger and the opening of the cavity containing them communicates freely with the prostatic urethra, the salts of the urine are deposited around them, and they become genuine prostatic calculi.

Phenol Gangrene Complicated by Delirium of Septic Origin.—René Le Clerc (*Bulletin de l'Académie de médecine*, February 25, 1919) reports the case of a woman aged fifty years, suffering from a whitlow, for which a physician had prescribed a solution of equal parts of water and glycerine containing five per cent. of phenol. One teaspoonful of this solution was to be placed, for external use, in a tumblerful of warm water. The patient disregarded both oral and written instructions, however, and applied the solution in pure form for twenty-four hours on a dressing moistened repeatedly. Upon removal of the dressing, she found the finger white and dead in appearance. Next day pain was experienced, but the patient continued working. The finger became shriveled and hardened and after six days the distal phalanx began to blacken. Two days later severe pain along the finger and hand appeared, together with an erythema on the dorsum, to which no phenol had been applied. On the eleventh day mental disturbances were noted. The author, upon being called on the twentieth day, found the patient in delirium, with visual and auditory hallucinations and complete mental confusion. There was absolute incoherence of sensation, memory, and ideation. The patient was restless and sought to leave her bed, but there was no fever and the pulse was strong and regular. The tongue was coated and moist and retention of urine, followed by incontinence, supervened. The

left parotid region now underwent some degree of swelling. The whole distal phalanx and part of the second became gangrenous, and a deep groove of demarcation was formed. Immersion in hydrogen peroxide solution and injections of saline solution and oil-camphor solution were ordered. Next day, delirium almost completely subsided, but the temperature rose to 38.3° C, and the pulse rate to 140. On the following day the patient went into collapse and died the succeeding night. Attention is especially called to the precise gangrene demarcation and relatively restricted local disturbance, contrasting with the severity of the septic manifestations.

The Ductless Glands in Chronic Tuberculosis.—Georges Bobeau (*Presse médicale*, February 24, 1919), having found, in guineapigs succumbing to slowly progressive tuberculosis, marked impairment of all the ductless glands, was led to look upon polyglandular opotherapy as an advantageous auxiliary to any of the usual methods of tuberculosis treatment. Patients actually treated with ductless gland products were markedly improved. Attention is called to the fact that the ductless glands do not function separately, but in mutual harmony. This is especially true of calcium metabolism, the endocrine secretions constituting one of the mordants indispensable for the fixation and utilization of calcium by the organism. Polyglandular opotherapy is thus to be considered an adjuvant measure in the remineralization cure of tuberculosis. Disappearance of dental pain, which in the author's cases always took place when uranalysis showed that demineralization had been arrested, is an excellent clinical sign of improvement. It may even prove feasible, with the aid of the x rays, to formulate a convenient scale for better appreciation by the physician of the process of remineralization in tuberculous cases.

Proliferation of Fat Tissue in the Knee Joint.—J. Dubs (*Korrespondenz-Blatt fuer Schweizer Aerzte*, March 8, 1919) says there are two forms of this disease, one in which the hyperplastic proliferation is localized wholly in the subpatellar fat, the other in which there is a certain amount of involvement of the rest of the synovial lining of the joint. The former, he claims to be Hoffa's disease proper. The etiology is always traumatic. The histopathological changes consist of an inflammatory hyperplasia of the fat in the plicæ alares and in the subpatellar ligamentum mucosum, with penetration and in places substitution of this by a dense, fibrous connective tissue. Only in a comparatively small number of cases are the clinical symptoms sufficiently well marked to enable the diagnosis to be differentiated. In well marked cases the following objective symptoms are demonstrable: A marked atrophy of the quadriceps; a doughy swelling as thick as a thumb just beneath and to each side of the patella, tender to the touch. Passive movement and ordinary walking are unimpaired, in many cases a fine crepitus can be felt by the hand laid on the joint. The x ray shows a slight shadow between the patella and the bones of the joint. The only successful treatment is the extirpation of the proliferated fatty tissues. The prognosis is good.

The Role of Tuberculosis in Dementia Præcox.

—H. I. Gosline (*Journal of Laboratory and Clinical Medicine*, April, 1919) gives in full detail the mental and physical symptoms in tuberculosis and summarizes seventeen cases in which the mental and the physical disease were so close that certain authors have considered one was due to the other. The cases may be divided into three main groups: the agitated depressed, the apathetic stupor, and the hysteriform. The author states that the question is again opened as to the possibility of dividing the dementia præcox groups into two main divisions on the physical side, those of toxic infectious nature, often tuberculous, and the true degenerative psychosis. Such a classification has nothing to do with the mental groupings. It is also suggested that with the modern conception of infection, local and general resistance, and immunity, the prospect for extensive psychiatric investigation in tuberculosis should be as alluring as the studies in paresis.

Bronchial Gland Enlargement in Children.

—J. P. Garrahan and O. S. Dastugue (*Revista de la Asociacion Medica Argentina*, December, 1918) sum up their investigations as follows: Of 115 children examined by x ray, only fourteen showed no perceptible gland shadow. Some of these children were ill but not afflicted with any apparent clinical manifestation of tuberculosis. In sixty-eight per cent. of these cases there was a positive tuberculin reaction; in those from eleven to thirteen years old there was a positive reaction in ninety-five per cent. Those children showing radiographic evidence of enlarged glands gave eighty-five per cent. of positive reactions; those with negative x ray findings gave only thirty-nine per cent. positive reactions. Physical signs are fallacious in the determination of the presence of enlarged bronchial glands; percussion reveals only large masses. Fifteen per cent. of cases with well defined x ray findings gave a negative tuberculin reaction, thus showing that not all cases are tuberculous in nature. No pathological significance should be attached to the finding of a shadow in perfectly healthy children without a positive tuberculin test.

Postinfluenzal Alopecia.

—Samuel Ayres, Jr. (*Boston Medical and Surgical Journal*, April 24, 1919) says that alopecia is a not infrequent sequela of influenza, occurring commonly about two or three months after the onset of the influenza, but occasionally during convalescence. Usually it is of the diffuse type, although sometimes the lesions are patchy and, without a history of influenza, might be diagnosed as alopecia areata. Twenty-five cases have come under his observation, all the patients under thirty-six years of age, and twenty-one of them females. The ultimate aim in treatment is to promote a healthy circulation in the scalp. This is attained most easily by massage with the head lowered; by avoidance of obstruction to the main vessels of supply to the scalp by padding the hat band at appropriate points; by stimulating lotions; by keeping the scalp clean. Complete regrowth usually takes place gradually after most febrile disorders, but more or less alopecia may remain permanently. This may be due to impaired general circulation, or to impaired local circulation from a snugly fitting hat in a scalp weakened by disease.

Fulminating Hyperimmunity.

—Arthur Vernes (*Presse médicale*, February 20, 1919) states that when one injects every four days into the ear vein of a rabbit a suspension of sheep erythrocytes diluted one half with 0.9 per cent. sodium chloride solution, five mls being given as the first dose, 3.5 mls as the second and three mls as the third, with subsequent regular decrease, the serum of the rabbit, at first but slightly hemolytic to the sheep cells, becomes strongly hemolytic after five or six injections. After a time the intravenous cell injections are attended with great danger to the rabbit, and to obviate its death, the dose of erythrocytes given must be reduced. Where too large a dose is given, the rabbit is seized with paralysis within the few minutes following the injection the sphincters relax and the animal breathes with difficulty, and he may succumb. If he survives there occurs, after alarming symptoms for three or four minutes, a sudden, almost instantaneous return to the normal. Evidently the immunity created by the injections of erythrocytes has, in such experiments, overshot the mark, and the animal kills himself, as it were, where too many erythrocytes have been injected, owing to the capacity he has acquired for destroying too rapidly the foreign red cells. Such a condition may be termed, fulminating hyperimmunity.

Lateral Spinal Radiography.

—Harold C. Gage (*Archives of Radiology and Electrotherapy*, January, 1919) describes an apparatus which simplifies anteroposterior examination and stereoscopic photography in suspected lesions of the vertebræ. These have proved the most difficult cases to handle and examine, for they were usually associated with wounds of the back. If the patient was laid flat upon the table in the ordinary way considerable pain is inflicted, especially if an attempt was made to turn him upon his side for a lateral examination. Lateral plates are usually necessary in doubtful cases of this kind before a positive decision can be reached. Usually this type of case was first radiographed anteroposteriorly at the front hospitals and the lateral examination left for the base hospital. A special form of stretcher has been devised which would obviate the necessity for this double procedure. The frame work consists of two poles, held apart by metal rods with rings, kept in position by pins, and a canvas is tightly stretched across the poles. The stretcher can be placed under the patient by removing one of the rods and inserting the canvas in the same way as a draw sheet. The width of the stretcher should be seventy-five cm. A wooden frame is made to support the stretcher by the handles at either end. The handles should project over for some distance in order to prevent their slipping off. These supports are placed at either end of the x ray table to receive the patient upon the stretcher when he arrives for radiography. The pins are then withdrawn and the iron bars removed, which allows the side bars to slowly come together. The patient is suspended in a stout canvas hammock which will shape itself to the curvature of the spine, and the plate can be placed under the patient in the desired position, and changed with ease. The lateral plates can be secured in the same way, by the tube being placed at one side of the patient and the plate on the other.

Double Resection of Bowel.—Gordon Taylor (*Lancet*, March 22, 1919) emphasizes the rarity of successful results following double resection of the bowel for war wounds and takes occasion to report the details of four such cases which resulted successfully, and to mention four others by other surgeons and one successful case of triple resection. In his first case the resections included a foot of the upper jejunum and three feet of the ileum in its upper portion. The second included three feet of jejunum, part of the transverse and all of the descending colon. In the third case eighteen inches of ileum and a part of the sigmoid were removed. In the fourth four feet of badly damaged and perforated jejunum were resected along with two and a half feet of the ileum, while in this case the bladder was also so damaged as to require suture, and part of the gut had escaped from the abdomen and become coated with grease and dirt. Nevertheless the patient made an excellent recovery. In most of the cases there were several intestinal sutures beside the resections. The author believes that the very high mortality which has been reported in cases of double resection is due to the serious injuries necessitating the operation, rather than to the operation itself.

So Called Sluggish Wounds.—G. Milian (*Paris médical*, February 15, 1919) warns that syphilis as a cause of failure to heal in wounds should not be overlooked any more than should the same disease as a cause of nonunion in fractures. Chancroid, recently often extragenital, and causing extreme local pain and tenderness, has led to the same sort of mistakes. Many wounds, especially of the minor type, have failed to heal promptly because of pyogenic infection insufficiently treated. Again, wounds may be kept from healing by the patient himself or by the surgeon through inappropriate treatment. The malingerer keeps wounds open by rubbing, by applying tartar from the teeth or croton oil. The surgeon sometimes prevents healing by abuse of antiseptics. The Mencièrè embalming procedure, while doubtless effectual in the early treatment to obviate infection, arrests wound repair when applied too frequently over wounds already nearly aseptic. In a case of superficial injury of the tip of the thumb treated by Mencièrè's procedure, and which progressed up to a certain point but later was found presenting an identical appearance after two weeks of continuous care, the use of a boric wet dressing for one day, followed by zinc ointment for five or six days, resulted in immediate healing. Artificial dermatitis surrounding a wound and due to antiseptics is far from uncommon. A wet boric acid dressing followed by zinc ointment likewise rapidly cures this condition. Syphilitic ulcerations complicating wounds yield to specific treatment, and chancroidal infections to iodoform and frequent immersion therapy. For the detection of malingerers the best procedure is to trace parallel lines with ink over the bandage forming the outer layer of the dressing. A few reverse or double turns of bandage should be made and the wound covered thickly with cotton so that it cannot be reached by merely separating the bandage turns. The dressing should likewise be large, to prevent tampering with the wound upon lifting off one of its extremities from the skin.

Technic of Cæsarean Section.—Samuel W. Bandler (*International Journal of Surgery*, March, 1919) gives the following technic for Cæsarean section, which he considers in certain ways superior to the methods generally employed, as more attention is given to securing proper contraction of the uterine walls and to the after care of the patient:

1. A hypodermic injection of morphine and atropine given one hour before operation.
 2. Gas and oxygen anesthesia with a minimum of ether, often only gas oxygen.
 3. A vaginal douche of iodine solution is now given if the membranes are not ruptured.
 4. A vertical incision in the skin above the umbilicus, turning to the right side as it approaches the umbilicus, encircling the umbilicus for a distance of an inch and a half.
 5. A hypodermic injection of pituitrin is given as the peritoneum is reached, if the membranes have not ruptured. After incising the peritoneum the uterus is left *in situ* and four abdominal pads are introduced, one above the fundus, one on either side of the uterus and one at the lower end of the incision toward the bladder.
 6. A long incision is rapidly made through the convex surface of the uterus. The hand is inserted between the placenta and the endometrium and moved along toward the lateral borders until the membranes are reached; these are then punctured by the hand.
 7. The fetus is extracted. The uterus may contract forcibly due to the pituitrin and it may be necessary to perform a Smellie-Veit extraction of the head.
 8. The baby is placed on the mother's thighs; the cord is clamped and cut and the baby handed to the assistant.
 9. The assistant has grasped the fundus with the right hand holding the thumb over the upper end of the uterine incision with the four fingers back of the uterus. The uterus out of the abdominal cavity a large laparotomy sponge is placed behind it in the cul de sac.
 10. The placenta and membranes are peeled from the uterus. As the membranes converge toward the lower end of the uterus they are grasped by a pair of artery forceps and loosened from the lower end of the uterine segment.
 11. A volsellum is attached to the endometrium at the lower end of the incision and another to the upper end.
 12. A hypodermic injection of ernutin or ergot is given.
 13. A long continuous No. 2 catgut suture is placed in the uterus an inch from the lower incision and a double knot tied and is passed through the extreme lower end of the incision in the mucosa.
- Steps 14, 15, 16, 17, 18, and 19 describe the various sutures to the abdominal wall.
20. The patient is given an injection of five minims of aseptic ergot every three hours for a week after injection to keep the uterus as small as possible.
 21. Twenty-four hours after operation the patient is given two alophen pills followed by an enema of milk and molasses in twelve hours.

Proceedings of National and Local Societies

NEW YORK NEUROLOGICAL SOCIETY.
The Three Hundred and Seventieth Regular Meeting, Held at the Academy of Medicine, February 4, 1919.

The President, Dr. FREDERICK TILNEY, in the Chair.
(Concluded from page 879.)

ADDRESS OF THE RETIRING PRESIDENT.

The Opportunity of American Neurology.—Dr. FREDERICK TILNEY delivered this address in which he ignored the academic, for in the light of the great changes that had occurred throughout the world in the past two years the opportunity of American neurology was practical, broad in its scope, compelling in its demand, and entering with insistence into the life of every neurologist in this city. Recent and present events made the future for them alluring to contemplate. Among the changes that the war had brought about was the prominence given to learning and the pursuit of knowledge, probably because it had been shown that education was one of the main supports of civilization. Renewed interest had been aroused in the psychological and sociological studies of man and his conventions. The destruction of war had placed Europe at a disadvantage in its intellectual pursuits. This fact should be recognized at once in America as an opportunity for service, the purity of motive being enhanced by the lack of aggrandizing competition. America, having at last taken her place beside the valiant, hard pressed champions of right and turned the scales to victory, had come to know her usefulness. The entire country seemed everywhere to recognize this; everywhere was a new spirit, a new alertness and comprehension. What was true in all other lines of activity, commercial, intellectual, educational, was also true of the medical profession. The opportunities for work in the growing fields of human service were the chief topics of conversation in medical circles and among medical men. The phase that interested neurologists most intimately was the development and advance of neurology in this country, and it was to the opportunity presented by combined and well organized effort that American neurologists must address themselves. Assuming that this fact was recognized in a general way, practical consideration made it necessary to consider the problem from the standpoint of locality, and the question arose, how could each contribute most and proceed most efficiently in the general forward movement in the interests of neurology. Other cities throughout the country would have their problems to solve, but those here in New York were particularly difficult and demanded not merely vision and patience, but a large and generous consideration of the whole situation. There was no place today where it could be said that the disease of the nervous system received adequate postgraduate attention. New York city contained in its many scattered institutions a wealth of neurological material probably unsurpassed anywhere in the world. Here also was a

distinguished group of workers in neurology and psychiatry whose distinction and services could be enhanced by coordination in their efforts. With such an obvious opportunity and need, together with the material and the workers, New York could readily be made a leading centre in neurology and psychiatry. The fundamental requirement to achieve this end was coordination, and if this could be brought about it would serve to do away with many of the difficulties which stood in the way of neurological progress, and would mobilize the wealth of clinical, pathological, and morphological material to mutual advantage as well as for advanced teaching and research in neurology and psychiatry. The success of such an undertaking would depend almost entirely upon the individual enthusiasm and real devotion for the best interests of this particular subject.

In retiring from the office of president of this society, Doctor Tilney expressed his sincere appreciation for the loyal support that had been accorded him in his attempts to serve the best interests of the society during the past two years. It gave him great pleasure to welcome Doctor Timme to the chair.

ADDRESS OF THE PRESIDENT ELECT.

A Constructive Plan for Advancement in Neurological Therapeutics.—Dr. WALTER TIMME deplored the fact that neurology had made only moderate advance in recent years, the real advances in this special field having been made by other than neurologists; as, for instance, the spirochete in paresis, demonstrated by a bacteriologist, and salvarsan introduced by a biochemist. Neurologists should be far ahead on the highway of modern advance, and recognition of their failure to be in the vanguard would, it was earnestly hoped, bring about constructive changes and plans for the immediate future. A glance at recent transactions of neurological societies would show the fairness of this criticism, which was intended to be constructive, not destructive, and which referred not to any one or any group, but to all as a collective unit. These transactions were clouded in a maze of qualifying phrases, limiting applications and newly coined terms which prevented in many cases any approach at understanding. Another disconcerting feature to be found in them was the reduction of individual experiences to statistical tables. When a man reduced his observations, say of disseminated sclerosis, to figures, apportioning a certain proportion to respective types, grouping them under certain symptoms, etc., it would appear that he felt that this was the end of the subject for him, and this represented his attitude toward his patient. Once let the diagnosis of disseminated sclerosis be made and all further interest in the patient was lost. This might be cited about almost any other organic neurological condition. It was this method of closing a subject that had led organic neurology into a box cañon from which there was no escape ahead but all egress must be made by retreat.

Such a condition of affairs was not found in

other fields of medicine; witness the introduction of serum therapy, of protective vaccines, the discovery of the hemolytic reactions, the invention of the electrocardiograph and other epoch making advances. Against these advances in other fields of medicine neurology could show nothing in the cure of conditions that should be considered within its particular domain. As for the neuroses all that was done for them was to classify and reclassify them, and the psychoses were regarded in terms of terminology and statistics. The paths for emergence toward the light were occupied by other than neurologists; the endocrinologists were concerned with the dystrophies, the myopathies and the asthenias, and the subject of visceral neurology belonged almost exclusively to them. Poliomyelitis had become the concern of the pediatricists and orthopedists. The genitourinary specialist included neurosyphilis in his domain. The dentist cured the spondylites, the neuralgias and reached out for the insanities, the psychanalyst made heroic attacks on every single condition coming under the category of neurology and psychiatry, and frequently with success. It was time for the neurologists to join the order of the day and become revolutionists. It should not be difficult to get together in a spirit of harmony and cooperation and formulate a plan whereby methods of stagnation should be abandoned for active endeavor and accomplishment.

Doctor Timme suggested the following as a constructive plan of action: Why could not an authoritative body representing American neurology choose from among its members a number to whom would be assigned a specific neurological disease or syndrome for treatment? Each member of such a group might take a subdivision of the subject chosen and bring it up to date. A year might be allowed for the work. At the end of that time, there would be accessible in compact form all that had been written upon that disease throughout the world to date. Two such groups a year would soon give to neurology a series of archives which would be invaluable as starting off places for investigation. This concrete method of obtaining the best results in a short time might very well be initiated by the New York Neurological Society in collaboration with neurological units elsewhere throughout the country. The publication of such exhaustive reviews might then be properly within the scope of the American Neurological Association. A second recommendation, a corollary to the former, might be of value in fostering a spirit of research and investigation. This would embody the reward of a prize for the greatest yearly advance made in some neurological subject, or for the winner in a prize essay competition.

By these two means, an immediate direct stimulus would be applied to American neurology which would give to it a dynamic character and which would be cumulative as it progressed. There was a broadening scope for American neurology and a great desire for unification of neurological interests, particularly in this city, which would make it the centre of neurological thought and advance. The immense economic factor that problems in neurology and psychiatry had become in modern organi-

zations had been made plain through the great war and a tremendous awakening in all branches of these sciences was already manifest. The position, the power and the ability to encompass this great end were only awaiting the will to utilize them.

The Lesions Encountered in Operations for Old Injuries of the Spinal Cord.—Dr. CHARLES A. ELSBERG read this paper. Among 200 spinal operations performed at the New York Neurological Institute and at Mount Sinai Hospital, a number of old traumatic lesions had been encountered, which could be divided into those which involved the membranes and those of the cord and roots. Combinations of these types were often observed in a single patient. Many injuries to the vertebral column and spinal cord produced an irremediable cord lesion, but in a small number it was not severe, so that improvement was possible and some of these required operative interference. Changes in the dura frequently resulted from trauma to the spine. The dura might be much changed and so greatly thickened that it exerted pressure on the cord, in which case excision of the thickened part might be followed by improvement of the symptoms. The appearance of the dura might be so altered as to be mistaken for an extradural neoplasm; great care in excising it should be taken in order to avoid injury to the cord beneath. The cord might be adherent to the dura and the arachnoid sac obliterated, or the arachnoid sac found to be shut off above and below the lesion. Calcareous deposits on the inner surface of the dura might cause some root pains or marked cord symptoms. They should be removed, but great care should be exercised for they were often firmly attached to the surface of the cord. Sometimes symptoms very like those of extramedullary neoplasm were caused by a mass of scar tissue formed from adhesions between the pia of the cord and the dura. Part of this cicatricial tissue might be so firmly adherent to the cord that the only course to pursue was to make parallel incisions through the scar tissue. Cicatrices in the dura, especially around the cauda equina, might cause severe root pains; excision of the scar tissue would usually relieve the symptoms, but it might sometimes be necessary to divide or excise the affected roots.

The changes observed in the arachnoid varied widely. Sometimes it was slightly thickened and cloudy; at other times a localized area on one or the other side of the cord was thickened, cloudy and adherent to the inner surface of the dura. More often, the arachnoid was not only thickened and not adherent to the dura, but had also formed adhesions to the spinal cord so that cavities filled with fluid might result. New bloodvessels were apt to be formed if these arachnoid changes occurred in the neighborhood of the posterior nerve roots. In those patients where the arachnoid was destroyed and the arachnoid sac obliterated in the traumatic area, the subarachnoid space was found to be shut off above and below and filled by pent up cerebrospinal fluid. The appearance of the cord months or years after injury also varied widely. Extremely small gross changes might produce very severe symptoms and very marked loss of function. The

cord, however, often appeared larger than normal and its consistency less firm. Signs of an abnormal amount of fluid were observed where there was a cavity in the cord. The largest cavities were usually seen in the lower dorsal lumbar and sacral regions. In some of these patients drainage of the fluid into the subdural space might result in great benefit to the patient. Very marked cord symptoms might be caused by distortion or narrowing of the spinal canal by new formed or dislocated bone. The cord might be stretched over a projecting mass of bone and be also subjected to pressure in which case marked cord symptoms might result. Great improvement had often followed the removal of the projected piece of bone, and the marked angulation described might be overcome by wide decompressive laminectomy. There was no well supported evidence that the tissues of the cord could regenerate; therefore, operations for complete division of the spinal cord should never be attempted.

Indications for operative interference in lesions following old injuries of the cord could be summed up as follows: 1, Surgical relief was impossible if symptoms of complete transverse lesion had existed from the time of the trauma; 2, there was no hope of benefitting a patient with symptoms and signs of incomplete cord lesion who had large bed sores and was much emaciated; 3, individuals who had improved but still had paraplegia should be operated upon unless there was dissociated disturbance of superficial sensation; 4, if there was considerable return of power, but locomotion was still interfered with by the spasticity which had become stationary, operation was followed by satisfactory results; and 5, severe root pains, if they could not be otherwise relieved, might demand operative interference. Among the last 200 laminectomies performed by Doctor Elsberg, twenty operations were done for spinal lesions due to old trauma to the vertebral column. Of these, eight were completely relieved of symptoms and six were greatly improved. In six there was little or no improvement.

Dr. WALTER F. SCHALLER, of San Francisco, complimented Doctor Elsberg on his excellent and timely presentation of a subject of interest to all neurologists. He considered it quite possible that in postwar surgery there would be an increasing number of these old spinal injuries as compared with former times. In recently reviewing the war injuries of the spinal cord he had been impressed by observations of certain conditions with which he had had no personal experience and he wished to ask if Doctor Elsberg had ever noted such cases. For instance, the presence of meningeal adhesions had been noted developing soon after gunshot injuries both above and below the wound and this explained the rarity of serious complicating meningitis in these cases. Furthermore, the presence of circumscribed serous meningitis was often referred to in traumatic spinal cord conditions, and the speaker wished to know if Doctor Elsberg had encountered this condition frequently.

Doctor Elsberg assured Doctor Schaller that he had been on the lookout for so called circumscribed serous meningitis. He had seen it in patients with injuries affecting the dura, but the process usually

involved the arachnoid membrane and not the pia mater. Whenever he had seen an inflammatory process of the pia inside the arachnoid, he had considered the process as a meningomyelitis. He had seen collections of fluid in the arachnoid sac, and felt it was due to an inflammatory process and adhesions of the arachnoid and not of the pia. After old severe injuries one might meet with adhesions between all the membranes and the cord, and he had long ago learned that in cases of that kind operative interference did no good.

Dr. HYMAN CLIMENKO said that some three or four years ago, together with Doctor Newhoff he made a study of a group of cases of old injury to the spinal cord, and obtained some results that might be of both medical and legal value. One patient, a painter forty years of age, had fallen from a scaffold and suffered from a complete paraplegia. He was confined to bed for about eight months, when he began to improve gradually and steadily, until at the end of about one year he was able to return to his work. Four years after the injury the symptoms of paraplegia returned and the patient was sent to the Central and Neurological Hospital. Here he presented a typical picture of spastic paraplegia with distinct level symptoms. An operation was performed by Doctor Newhoff, who found a thickened dura with numerous adhesions. A piece of dura was excised and the adhesions freed. The cord did not appear to be badly damaged. The patient made an uneventful recovery from the operation, his paraplegic symptoms rapidly improving and within less than two months he was able to leave the hospital and return to his work. Within a year he returned, again paraplegic. The symptoms now had become accentuated. This case illustrates the fact that one must be careful about giving a good prognosis in court proceedings in so called cured traumatic paraplegias. This case was also in accord with the observation quoted by Doctor Schaller regarding adhesions above and below the level of the traumatic lesion. Another remarkable case that of a negro who suffered from a syphilitic paraplegia. Specific treatment had no effect and operation was decided upon. Here, too, adhesions were found and freed and the patient improved for a while. The symptoms, however, soon returned.

*Three Hundred and Seventy-first Regular Meeting,
Held at the Academy of Medicine, Tuesday,
March 4, 1919.*

The President, Dr. WALTER TIMME, in the Chair.

Bilateral Frontal Hemorrhage.—Dr. FREDERICK J. FARNELL, of Providence, R. I., presented the report of this case, a woman forty-nine years of age, whose makeup, as far as could be ascertained, had always been considered normal. With a clear history of no previous attacks or upsets there developed a mental state not unlike the manic form of manic depressive insanity, which settled, after several months, into a hypomanic condition. Physically there was hypertension; blood pressure 210 systolic, and albumin in the urine. Approximately twelve months after the onset of the so-called functional psychosis, she had a cerebral hemorrhage

with clinical signs suggesting the intraventricular type. This was followed by a complete change in the mental picture. From a functional psychosis with thought (thinking) disorder, she settled into an organic psychosis with an obstructive disorder, or an intellectual loss. The physical state then improved and she was soon up and about but there was no change whatever mentally. In five or six weeks signs of cerebral compression developed and ultimately contributed toward her death.

The interesting features might be grouped as (a) mental, (b) physical, in an individual in whom two psychoses developed. Her first aberration was characterized by emotional elevation, acuity of emotional response and quick recognition of logical judgment and even, at times, critical judgment. Following the hemorrhage this emotional state changed entirely into an actual loss with those accompanying behavior traits which so characterize the personality of organic brain disease; deterioration in feeling, instinct, conduct, etc. Then, too, such organic functions as intelligence, judgment, insight, etc., which in her primary psychosis were only interfered with to the extent of thought disorder, too many thoughts coming at once, were practically completely destroyed in her second psychosis. The initial physical disorder was limited to hypertension and albumin in the urine, which later cleared up. The second physical disorder was considered as a symptom complex related to the ventricles. The third physical complex was a syndrome indicating cerebral compression. Pathologically the brain (which was exhibited) showed bilateral midfrontal hemorrhage with organization, secondary necrosis, and softening of the brain tissue itself. These facts were offered for consideration, especially to those whose interest lay in the field of psychopathology with special reference to personality and psychosis, and in addition, to the histopathologist to whom interest would be manifest in the fact that the lesion was bilateral and the vascular sclerosis localized in the cerebral vessel system.

Dr. SMITH ELY JELLIFFE, of New York, asked if Doctor Farnell had something to say about hypertension states with increased blood pressure and the relationship of their emotional causes to cerebral hemorrhage. In one of the discussions on psychoanalysis held before the Neurological Society recently, the speaker presented the report of a case of autonomic responses to unconscious emotional stimuli, and spoke of the tendency in these cases to a development of these cerebral hemorrhages. He said that the psychotherapeutic mode of approach could be very successfully pushed with the hope of reducing the hypertensive state by getting at the emotional causes for it. He had taken occasion at that time to discuss rather briefly what some of the problems were and related the partial history of a patient who had a blood pressure of 235 systolic, with almost *petit mal* lapses, who was correctly diagnosed by an internist as a nephritic and given six months to live. What it was that lay behind the clinical picture was not discovered nor even sought for by the internist who made this diagnosis, the dynamic reasons for the hypertension nephritis. When the dreams were investigated the

cause for the distress of the patient was quite apparent; the unconscious was engaged in a sadistic attempt to destroy everything about her and the result was that she was destroying herself. If it had kept up, she might have died, if not of nephritis, of a cerebral hemorrhage as had Doctor Farnell's patient. The psychoanalytic mode of approach offered a dynamic pathology which was not in the usual ken of the internist and proved its value in these nephritides with their disturbed emotional undercurrent as the real dynamics of the situation.

Dr. I. ABRAHAMSON, of New York, said he would like to know more about the behavior of the reflexes. That all reflexes were absent after the bilateral hemorrhage in both ventricles he knew, but it was not clear to him whether they returned after the condition cleared up and, if so, the order of their return.

Dr. CLARENCE O. CHENEY, of New York, questioned whether the hemorrhage was of the intraventricular type, for the specimen did not seem to show evidence of a breaking of the ventricular wall: it looked rather as if the ventricles had been compressed by the hemorrhage. The absence of blood in the ventricles would have accounted for the absence of blood in the spinal fluid. He recalled an autopsy in a case several years ago which showed intraventricular hemorrhage causing sudden death and believed that if a hemorrhage of the size demonstrated in Doctor Farnell's specimen had entered the ventricles immediate death would have resulted. The distribution of the hemorrhage suggested that it had originated from one of the anterior cerebral arteries.

Doctor FARNELL, in answering the discussion, replied to Doctor Jelliffe's question regarding the hypertension that although the patient had a blood pressure of 210 systolic with albumin in the urine on admission to the hospital, the albumin soon disappeared. The hypertension continued until after the hemorrhage, and from that time until death the blood pressure was below 160 most of the time. With reference to the emotional factor and its responsibility for hypertension and nephritis, it was impossible to analyze the patient, for even when she settled into the hypomanic condition she was beyond reach of questions and psychic control. Answering Doctor Abrahamson's question as to the reflexes, they returned and became exaggerated, that is, all deep reflexes became exaggerated. The superficial reflexes returned and even when she was up and about she had an exaggeration of her reflexes, double ankle clonus and double dorsal extension of the great toes. Ten days before death she again lost all reflexes. She was in a deep stupor with signs of cerebral pressure. Muscular flaccidity with abolition of reflexes was again marked, and the condition then and at the time of the hemorrhage was noted by all the men who examined her. The physiology could not be explained beyond its being a question of, first, hemorrhage and pressure and second, organization and pressure. The clinical diagnosis made at the time she had the hemorrhage was bilateral ventricular hemorrhage, at least, the symptom complex suggested that, though there was no blood in the cerebrospinal

fluid. That might seem impossible, but for two years the speaker had been examining the spinal fluid in cases of cerebrospinal meningitis and it was not uncommon for this syndrome to give intraventricular symptoms from accumulation in the ventricles of fluid or obstruction to the flow, and several cases at autopsy had shown that pressure in the ventricles had points of gravity downward.

(To be concluded.)

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

A Stereoscopic Atlas of Plastic Surgery of the Face, Head, and Neck. With Case Reports. By JOSEPH C. BECK, M.D., F.A.C.S., and IRA FRAN, M.D., F.A.C.S.. Chicago, Illinois. Illustrated. St. Louis: C. V. Mosby Company, 1919. Pp. 132.

In this series of stereoscopic photographs a distinct service is rendered to those who are interested in plastic and head surgery. They are particularly useful in demonstrating the various steps required in successful plastic surgery. One is able by means of the depth and relationships revealed by these pictures to visualize the various details far better than by the ordinary photograph and to grasp the meaning of the authors more advantageously than by reading a textbook on the same subject. The various adjuncts, such as the moving picture and manikin demonstrations, are being used more frequently in the teaching of the various branches of surgery. The stereoscopic method, however, stands alone and cannot be replaced by any of the other methods in vogue. In addition to over ninety plates in this collection, a convenient explanatory textbook with case reports and a general résumé of plastic surgery is included in the set. Physicians interested in plastic surgery of the head or neck will find that an examination of this series of plates and a study of the text will be time well spent.

Operative Treatment of Chronic Intestinal Stasis. By SIR W. ARBUTHNOT LANE, Bart., C. B.; Consulting Surgeon to Guy's Hospital, and to the Hospital for Sick Children, London. Illustrated. London: Henry Frowde and Hodder & Stoughton (Oxford University Press), 1918. Pp. x-328.

This volume is composed largely of more or less independent articles by several authors, placed as chapters, but not necessarily so written as to aid in making the whole work a sequential and clear discussion of the subject of chronic intestinal stasis. In fact the net result is to make of the volume a rambling series of rather isolated discussions of certain phases of the subject. The title, *The Operative Treatment of Chronic Intestinal Stasis*, properly applies only to a small portion of the first chapter, which, together with two other rather unrelated chapters, are the only contributions to the book by Lane. Of course his well known decidedly radical views are expressed by the author, but little if any new material is added to what has already become familiar to all who have followed the extensive literature of the years recently passed, dur-

ing which Lane's ideas rose and fell with the characteristic speed of most that is quite radical in medicine. We were frankly disappointed when we opened this rather pretentious work and did not find the anticipated coherent and logical discussion of the bases of his radical contentions.

The Pathology of the Pneumonia in the United States Army Camps During the Winter of 1917-18. By WILLIAM G. MACCALLUM, M. D., Contract Surgeon, U. S. Army. From the Pathological Department of Johns Hopkins University, Baltimore. Illustrated. Monograph No. 10 of the Rockefeller Institute for Medical Research. New York: Rockefeller Institute for Medical Research, 1919. Pp. 147.

These studies have grown out of the work of two commissions sent out by the Surgeon General of the United States Army for the investigation of epidemics of pneumonia among the troops. Doctor MacCallum does not attempt to outline the extent of the diseases in various camps, trace the course of the epidemics, or give statistics of deaths, but he analyzes the character of the respiratory diseases from the viewpoint of a student of their etiology and pathological anatomy. Observations were made at Fort Sam Houston, Tex., during February and March and at Camp Dodge, Ia., in May. There was an epidemic of measles in army camps in the winter and spring of 1917-18, especially prevalent in southern camps, and associated with this epidemic was a great epidemic of a peculiar form of pneumonia caused by a hemolytic streptococcus. Doctor MacCallum concludes from his studies that measles brings about a most effective predisposition to infection with the hemolytic streptococcus. The monograph consists chiefly of detailed reports of a number of cases, with over fifty illustrations.

Births, Marriages, and Deaths.

Died.

- ALDRICH.—In Black Earth, Wis., on Sunday, May 4th, Dr. Linus Ira Aldrich, aged fifty-one years.
BALCH.—In Richmond, Mass., on Tuesday, April 6th, Dr. Galusha B. Balch, aged eighty-one years.
BRENNAN.—In New York, N. Y., on Friday, May 16th, Dr. John G. Brennan, aged thirty-three years.
BRYAN.—In Chatham, N. Y., on Friday, May 2d, Dr. Daniel R. Bryan, aged thirty-eight years.
EDEN.—At Great Neck, Long Island, on Monday, May 19th, Dr. John H. Eden, Jr., aged thirty years.
HAKE.—In Grand Rapids, Mich., on Saturday, April 26th, Dr. William F. Hake, aged fifty-seven years.
KEIRLE.—In Baltimore, Md., on Friday, May 2d, Dr. Nathaniel Garland Keirle, aged eighty-five years.
LOWE.—In Kewanee, Ill., on Sunday, April 27th, Dr. Francis Oliver Lowe, aged fifty-eight years.
McCANN.—In Glens Falls, N. Y., on Friday, May 2d, Dr. Arthur H. McCann, aged fifty-two years.
SNOWBALL.—In Atlantic City, N. J., on Wednesday, May 14th, Dr. James W. Snowball, aged fifty-five years.
SPERRY.—In San Francisco, Cal., on Thursday, May 8th, Dr. Mary B. Sperry, aged fifty-five years.
TOY.—In Cambridge, Mass., on Monday, May 12th, Dr. Crawford H. Toy, aged eighty-four years.
VOGHT.—In Ann Arbor, Mich., on Monday, April 28th, Dr. Willy C. R. Voght, aged thirty-seven years.
WARNER.—In San Francisco, Cal., on Friday, May 2d, Dr. Alexander Warner, aged seventy years.
WEISBROD.—In Philadelphia, Pa., on Friday, May 9th, Dr. Frederick Weisbrod, of Brooklyn, N. Y., aged fifty-five years.

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Original Communications

WHAT CONSTITUTES AN INTOXICATING BEVERAGE.*

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In reviewing the literature on alcohol, one encounters thousands of pages of material, most of it decidedly unscientific and equally worthless. One may safely say there is no subject in science or medicine which has received so much attention and undergone so little scientific experimentation. In order to draw any sort of conclusion regarding intoxicating beverages, it is first necessary to determine what is meant by the word beverage, and, secondly, to establish at least a tentative definition for the term intoxicating or intoxication.

In the *Encyclopædia Americana*, we find "Beverages are those drinks to which mankind resorts in order that he may relieve the pangs of thirst or supply some other demands of the system"—while the primary object of all beverages is to relieve thirst, nearly all of them also possess other properties which exercise more or less effect upon the body.

In the *Corpus Juris*, the legal definition is as follows: "The primary meaning of the term beverage is 'Liquor to be drunk or liquor for drinking,' " and again the word beverage is used to distinguish the act of drinking liquor for the mere pleasure of drinking to differentiate it from its use in medicine. The mere fact that a liquid can be and is swallowed does not make it a beverage, the question being whether it was meant to be used as a beverage.

The terms beverage, liquid mixture and decoction are used interchangeably in the laws of the State of Kentucky, while in most other States the term beverage is usually applied to drinks artificially prepared and of an agreeable flavor. The term intoxicating beverage, drink, or liquor, in the absence of a statutory definition, is understood to include any liquor intended for use as a beverage, or capable of being so used, which contains such a proportion of alcohol that it will produce intoxication when imbibed in such quantities as it is practically possible for a man to drink. New York holds that the term intoxicating liquor does not apply to a beverage containing so small a percentage of alcohol that the human stomach cannot contain sufficient of the liquor to produce that effect.

Most legal, medical, and scientific works fail to give us a definition of intoxication. The *International Encyclopædia* offers the following definition: "Intoxication—In medicine poisoning by any agent; colloquially a condition of impaired will and undermined control resulting from drinking alcoholic beverages; the term is just as correctly used with the use of opium, chloral, belladonna, cannabis indica, or soluble lead compounds." The *Universal Encyclopædia* says: "Intoxication—the injurious effect of poison on the animal economy." The term is used to designate the condition of a person who has been brought so far under the influence of alcohol by successive imbibitions during a short space of time as to be unable to control his actions intelligently and sensibly but it should not be confined exclusively to alcohol.

The absence of any authoritative work on the effects of alcohol is perhaps partly accounted for by the fact that many of the essential data are not known even to science. A large amount of work has been directed to certain aspects of the action of alcohol; but the choice of the question for investigation has been determined by the ease with which it could be put to the test or by its bearing on either some theoretical or legal controversy rather than by its intrinsic and practical importance.

It is, of course, impossible to lay down a hard and fast rule as to what will cause intoxication, as there are too many variable things to be taken into consideration. What intoxicates a man today may not intoxicate him tomorrow if taken in the same amounts and apparently under similar conditions. What produces one of the cardinal symptoms of intoxication in one way will produce no like response in another when the same beverage is ingested in twice the amount. Whether this be physiological, psychological, chemical, or just idiosyncrasy, cannot yet be determined and likely never will be, but there are several conditions, both of a physiological and chemical nature which must be taken into consideration before even the small amount of available data may be intelligently interpreted.

In what way and to what extent, if at all, do solutions of ethyl alcohol or grain alcohol in water, as commonly used in laboratory experiments, differ in their action on the nervous system from ordinary alcoholic beverages of corresponding strength, such as beer, wines, or spirituous liquors? In beer, the amount of alcohol varies between two and five per

*Read before the New York Academy of Medicine, May 15, 1919

cent.: in light wines from six to ten per cent.; in heavy wines from ten to eighteen per cent. and in spirituous liquors from thirty to seventy per cent. In beer, we find few substances other than alcohol which tend to produce intoxication in any form. In wines, however, there are other substances, for instance, perhaps the so-called volatile bouquet consisting, no doubt, of esters of ethyl and higher alcohols which must be more toxic than alcohol itself. In spirituous liquors there are many factors besides alcohol which tend to produce intoxication to even a greater extent than the alcohol itself. Among these are aldehydes, particularly furfural, ethers and higher alcohols. Analysis of cognac showed it to contain 0.16 per cent. aldehydes, 0.4 per cent. ethers, and 0.8 per cent. higher alcohols, while Jamaica rum contained 0.15 per cent. aldehyde, 0.21 per cent. furfural, 0.5 per cent. ethers and 0.65 per cent. higher alcohols. The so-called fusel oil is made up of higher alcohols and particularly amyl alcohol has long been known to be many times as toxic as a corresponding volume of ethyl alcohol.

In certain grades of whiskey, traces of allyl alcohol have also been identified and so far as known this is perhaps the most toxic of the alcohol series. As little is known concerning the rate of absorption and the process of elimination of these latter named substances no definite conclusions may be drawn from experimental work where alcoholic solutions alone are employed. Are there any differences in inebriating action, and if so, what differences between the several sorts of alcoholic liquors when taken in doses of equivalent alcoholic strengths? Does the drunkenness caused by beer or wine differ in character from that caused by spirits? While no definite data have been secured along this line, researches carried on at the University of London tend to show that there is a decided difference in the action of these different alcoholic beverages on the gastrointestinal tract, probably due to some content other than alcohol. There is also a more marked intoxication following the ingestion of a diluted spirituous liquor than when an equal volume of beer of the same strength is employed. This again may be explained by the presence of aldehydes and higher alcohols present in spirituous liquors and absent in beer.

Is the effect on the nervous system of a given dose of alcohol modified when it is administered in a combination of alcoholic liquors? In other words, does mixing drinks tend to increase the degree of their intoxicating influence? From a popular point of view this would be answered in the affirmative. From a scientific viewpoint there is nothing to support this view.

Does the greater or less degree of dilution in which it is administered modify the immediate action of a given dose of alcohol on the nervous system? Insufficient data can be found to determine this point, but the consensus of opinion seems to be that in greater dilutions there is a decreased rate of absorption hindering a rapid concentration of the alcohol in the blood stream and subsequently reducing the degree of intoxication.

In what respect, if at all, is the action of alcohol affected by its administration with food? And to what extent does its action vary with the particular foods taken, as fats, proteins, and carbohydrates? Vogt has found by experimenting on his own person that as small a quantity as fifteen c. c. of whiskey on an empty stomach seemed to effect a distinct lowering of the power to memorize to about the same degree as twenty-five c. c. of whiskey taken with food. The amount and kind of food is, however, not specified. There is no doubt that alcohol is much more toxic when taken on an empty stomach than when ingested with food or after meals. It has been claimed by some that perhaps the fats tend to inhibit the rapid absorption of the alcohol.

Atwater, Billings, Chittenden, and Welch draw the following conclusions from experiments performed by them: "Alcohol in moderate quantities, say one pint of wine containing ten per cent. of alcohol, has no direct action on the heart itself, either in the way of stimulating or depressing it, at least as based on experiments covering a short period of time. It has also no action on the peripheral or central nerves which control the rate or force of the heart. In moderate quantities it has no appreciable effect on the arterial blood pressure. When a change does occur, however, it is in the direction of a fall and not a rise. Alcohol in small amounts, as one pint of light wine, is a respiratory stimulant of moderate power for human beings but much greater when corresponding amounts are fed to animals, particularly rabbits. During a period of an hour or more after its administration, it causes an increase in the volume of air passing through the lungs and an additional absorption of oxygen in amounts equal to about three or three and one half per cent. The stimulation of alcohol and alcoholic beverages is greater in fatigued persons than in those who are in no wise exhausted. Increased heat dissipation always accompanies alcoholic ingestion. The compensatory increase in heat production, necessarily following, requires increased oxidation and subsequently an increased demand for oxygen due to increased oxidation.

Fifteen, thirty, and forty-five grams of alcohol were ingested in the form of five per cent. solutions. These so-called moderate quantities of alcohol were found to shorten simple reaction time. Larger quantities of wine, such as a pint of wine of ten per cent. alcoholic strength (about fifty grams), were found to lengthen the time in all simple operations, such as adding up columns of figures, reading accurately scientific data, or taking fine scientific measurements.

Larger quantities of wine, such as two pints of a ten per cent. alcoholic strength (or about 100 grams of alcohol), caused in most subjects undergoing the experiment a lack of control of the emotions, noticeably affecting the power of attention, of clear judgment and reason, and decidedly lowered the acuteness of the several senses. In some cases such quantities developed so marked an anesthetic action that all the phenomena of intoxica-

tion were seen to follow each other in due sequence, finally to end in a sleep of drunkenness.

Aschaffenberg, working under Kraepelin's direction, fed four experienced typesetters 200 grams of wine containing eighteen per cent. alcohol or about thirty-six grams of alcohol. These men received the alcohol on alternating days just before beginning their work, while on every second day they received no alcohol. Aschaffenberg draws the following conclusion: The alcohol administered caused no change in the quality of the work as compared to those days when the subjects received no alcohol. The alcohol taken in amounts of thirty-six to forty grams a day did cause a decrease in the amount of work done. After a number of trials there was only one case in which the amount of work was up to the standard of the days when no alcohol was given.

The following are the opinions of several men in regard to the toxicity of alcoholic beverages:

Professor H. Kronecker, of Berne, wrote: "Heidelberg beer which contains about two per cent. alcohol certainly cannot produce intoxication and could be harmful only in regard to the large amount of fluid ingested."

Professor Richet, of Paris, says: "In speaking of intoxicating beverages, the least harmful ingredient is alcohol. Whiskey, gin, rum, brandy, bitters, and vermouth might be taken in much greater quantities without producing intoxication if they were free from other ingredients."

Professor Tiegerstedt states in his *Physiology*: "The amount of alcohol which a man unaccustomed to alcoholic drinks can take without producing symptoms of intoxication is very small, that is about sixteen to twenty-five grams."

Helmholz is quoted as saying that even the smallest quantity of alcohol drove from his mind every possible creative idea.

In answer to this question, "What constitutes an intoxicating beverage?" a number of American scientists responded in various ways. Some believed that the answer to the question rested largely upon the interpretation of the word intoxicating and that it is impossible to express any opinion until a tentative definition has been framed. Still others think it absolutely impossible to make even an approximate statement regarding the matter.

Only three of these men gave what might be termed definite answers. The first reads: "In answer to your question regarding the toxicity of alcohol, I do not think any one would call a two and a half per cent. beer intoxicating. By this, I mean, two and a half per cent. by weight or 3.1 per cent. by volume." The second writes: "I have just signed a statement in conjunction with several other medical men on which we place the lower limit of an intoxicating beverage above 2.75 per cent. by weight or 3.3 per cent. by volume." The third scientist makes the following statement: "I hold that no one can set a limit of alcohol which may not be intoxicating to some persons. My contention is that the individual varies in sensibility and what may intoxicate one may not intoxicate another. I draw from this the conclusion that any alcoholic beverage which intoxicates the most sensitive is an intoxicating beverage."

A committee appointed by the British Government to investigate the liquor problem in the United Kingdom has summarized its report in a small booklet, *Alcohol, Its Action on the Human Organism*. One paragraph is of especial interest in connection with the present question and reads as follows:

"Thus in experiments on dogs and horses, it was ascertained that the animals began to be slightly affected when the proportion of alcohol in the blood reached the level of 0.12 per cent.; that with higher proportions the symptoms became more marked; and that profound stupor frequently ending in death ensued when the alcohol content rose to 0.72 per cent. Similarly in cases of drunkenness in man the blood has been found to contain, in one observation, 0.15 per cent. of alcohol and in another instance, when the intoxication was more pronounced, 0.23 per cent.; and it is generally accepted that with a blood content of over 0.6 per cent. there is a considerable likelihood of death. Alcohol passes rapidly from the stomach and bowel into the circulation and, owing to the slowness with which it is burned or excreted, the amount in the blood soon reaches a maximum level bearing a pretty constant ratio to the amount originally drunk. So that knowing the amount of absolute alcohol originally drunk and the body weight of the drinker, we can at once give an approximate estimate of the maximum proportion of the drug which will be found in the circulation; and conversely, we can say what amount of alcohol must be administered to give any particular proportion in the blood. Thus taking the figures which we have quoted, the proportion of 0.15 per cent., which was found in the blood in less pronounced cases of intoxication, would correspond to an original dose of 1.5 cubic centimetre of absolute alcohol for each kilogram of body weight, and this amount expressed in English measures would be roughly equivalent, in the case of a man weighing ten stone (140 pounds) to a total dose of three and a half ounces of absolute alcohol, that is to say, nearly a gill and a half of whiskey at proof, or rather more than four pints of beer of four per cent. strength."

If we must draw conclusions regarding the toxicity of alcoholic beverages, we must first confine ourselves to actual experimental data and secondly to ethyl or grain alcohol, excluding other toxic substances found in certain wines and so-called spirituous liquors, as the degree of toxicity caused by the latter has never been determined. According to the few experiments cited, it would seem that forty grams of alcohol is about the maximum dose which may be ingested by the normal person without producing any symptoms of what is commonly known as intoxication, although even this amount seems to decrease the amount of work performed by skilled workmen.

If now we dilute forty grams of absolute alcohol with sufficient water to fill the normal stomach, this would amount to approximately forty grams of alcohol in one and a half litres of the solution, which again amounts to a 2.66 per cent. solution by weight or a 3.35 per cent. by volume. Fifty to fifty-five grams of alcohol were found to produce very slight toxic symptoms in normal individuals.

This quantity of alcohol if diluted with sufficient quantity of water to fill the average stomach would constitute a 3.33 to 3.66 per cent solution by weight or 4.18 to 4.58 per cent. by volume.

Again with the ingestion of 100 grams of alcohol properly diluted as mentioned above we should have a 6.66 per cent. solution by weight or 8.39 per cent. by volume. This, however, was shown to be decidedly intoxicating for persons not accustomed to the use of alcoholic beverages and only slightly less intoxicating to experimental subjects somewhat accustomed to the use of alcohol.

ALCOHOL AND THE INDIVIDUAL.*

By A. A. BRILL, M. D.,
New York.

In the beginning everything must have been very simple; primitive man craved no wine, no salt, no spices, no pretty combinations of colors, and no pleasing combination of sounds. If we have a right to compare phylogeny to ontogeny, or the development of the race to the development of the individual, we may then state that just as in the case of the child, the cravings of primitive man were of the crudest kind. They just served to sustain the simplest form of life. With the advancement of civilization things gradually changed, things became more and more complicated, culminating in the vast civilization of today. Nor can one imagine that the height has been reached; on the contrary progressive changes are constantly observed and it is safe to assume that they will continue forever.

As the individual is dominated by hunger and love we can best observe these changes in the spheres of self preservation and the preservation of the species. The civilization of the individual, like that of the race, is therefore judged best by his attitude to the impulses of hunger and love; the most advanced races are those who have exercised the greatest control in their behavior toward those impulses. Our civilization is held together by the powerful fabric of self renunciation. The individual is taught from the beginning to give up or control his natural tendencies and, depending on his capacity to adjust he either becomes a so-called social being, or he remains extrasocial or even contrasocial. Studies made of the highest types of individuals show that natural impulses can only be controlled, never annihilated; that there is always a constant struggle between them and the forces of civilization; and that society must often assist the individual if he is not to succumb to this struggle.

The child's demands are very simple; it subsists entirely on its mother's milk and wants nothing else. Weaning has always been a tragedy for the child as well as the parents. The child resists every new article of food and has to be more or less forced to partake of it. As he grows older his taste becomes correspondingly broader and he gradually shows a versatile attitude toward nourishment which is more or less determined by his

environment. A cosmopolitan can eat clams and lobsters in New York and snails and frogs in Paris. Indeed, it has been said that the civilization of a nation can readily be measured by its manner of preparing food. Compare, for example, the manifold varieties of foods offered on the menu cards in any first class restaurant in Paris or New York to the food consumed by the average Russian peasant. If one goes down still further in the line of civilization the differences become even more marked. The Eskimo lives on the simplest kind of food and the South American peons, according to Miller, "subsist everlastingly on boiled corn and panella." (1) Here, as in other respects the child of nature, the savage, behaves like the real child; his consumption of food is of the simplest variety, and as he advances in civilization his tastes become correspondingly broadened.

Perhaps the greatest anomaly in the taking of nourishment is represented in some forms of alcoholic indulgence. To one who is not accustomed to them, they are distinctly distasteful and even painful. Thus vodka, so eagerly imbibed by the Russian peasant, would be rejected by the average Anglo-Saxon who craves his whiskey or brandy. In fact, every nation, whether civilized or seemingly civilized, has its own national alcoholic beverages which are not at all relished by foreigners. A peculiar manifestation is the fact that one can readily develop a taste for this foreign concoction and then actually crave it. But of course, this also holds true about all forms of nourishment. For years I have tried to ascertain from all my patients whether they indulged in alcoholic beverages, and if so at what age they began it and how they originally behaved toward it. I have collected data from hundreds of patients and with very few exceptions nobody ever at first took kindly to those alcoholic beverages that did not taste sweet. Most of them had to be forced or forced themselves to drink whiskey, brandy, or beer. Gradually, however, they not only got used to it but in most cases it became a habit, they actually craved it.

I found practically the same state of affairs in those who came to be treated for alcoholism. They, however, had reacted to it with greater vehemence and soon made a problem of it. I also tried to find out at what age it became a habit, i. e., when the individual could say: "I take a drink because I like it," and found that whereas the nonalcoholics did not experience this feeling before the age of nineteen to twenty the alcoholic manifested a strong craving for even the hard stuff at the age of fifteen, sixteen, or seventeen. With very few exceptions I can say that all of my chronic alcoholic patients were psychopaths, many were slightly subnormal, some were manic depressive types and some epileptics. In other words, years of experience with alcoholics both in hospitals and in private practice leads me to state that practically all individuals who chronically indulge excessively in alcohol are emotionally more or less diseased. I do not wish to imply that a psychiatric examination will show them all to be mentally deficient; though a great many of them are that, too, but judging by a standard of adjustment of continuous effort, in some di-

*Read before the New York Academy of Medicine, May 15, 1919.

rection, they are all deficient. I have treated them in all sorts of ways; I have given them the so-called specifics, have hypnotized and analyzed them, but the results were very disappointing.

As a rule if the patient is not extremely subnormal he can be helped to give up alcohol for awhile, but he usually returns to it. For the last eight years I have treated many cases by psychoanalysis and the results are rather interesting. I have selected from my records sixteen cases, among whom were three women. Intellectually they would be considered normal, though emotionally one would call them psychopathic. Their ages ranged from nineteen to thirty-nine years. Nine of them have returned to their former habits. Two drink moderately but are considered cured by their relatives because for over two years they have not become intoxicated in public. Of the other five one of whom is a woman of thirty years, none have indulged in alcohol since their discharge, but their behavior is such that both relatives and physician regret that they are not alcoholics. I shall briefly describe two of the cases.

CASE I.—Miss X. was burdened by heredity; both parents drank. She was a chronic alcoholic at eighteen years of age having begun at fifteen years when she was in a boarding school. She would get the liquor from home and drink it clandestinely at school. She was a seclusive person of the autoerotic type; she made few friends but showed a decided homosexual attachment for a teacher and for her roommate. She was referred to me five years ago by this teacher who takes a friendly interest in her. After about six months' treatment she was able to give up drinking and, as far as my knowledge goes, she has not indulged in it since. But here is the obverse of the picture. Her teacher friend reported to me that Miss X. had given birth to an illegitimate child, that she was addicted to heroin and daily consumed enormous amounts of bromoseltzer. She also has fits of depression, during which she talks of suicide.

CASE II.—B. is thirty-two years old and is burdened by heredity. He came to me eight years ago, was under my care for about six months and I saw him occasionally until about eighteen months ago. Before coming to me he was treated for alcoholism for many years. Although he was brought up in cultured surroundings he was often sent to the workhouse as a common drunkard. Intellectually he was somewhat precocious and emotionally he was very unstable. For over a year prior to his coming to me he was in a sanitarium where he was considered incurable. He became drunk on the day he left the sanitarium but he gradually yielded to treatment and after about six months I considered him cured of his alcoholism. About eight months later he came to me in an excited condition. To allay my apprehensions he started by saying: "Don't worry, doctor, I didn't touch anything." That was quite true, but he had forged a check and asked me to intercede with his father for otherwise he was likely to be imprisoned. A few months later he reappeared and again assured me that he hadn't "touched anything," which

was true. This time he had embezzled some money from the firm who employed him. Again his parents helped him. Very soon thereafter he was again in trouble and again implored my help; this time he had married a girl of questionable reputation and also suffered from a gonorrheal infection. In brief he continued to come to me every few months always prefacing his story with "Don't worry, doctor, I didn't touch anything," until one day I involuntarily exclaimed: "I wish you would have touched something and gone back to the sanitarium." This man committed about half a dozen crimes any one of which would have landed him in prison and all these after he was cured of his alcoholism.

The same conditions prevailed in all the other chronic alcoholics who gave up drinking. They always resorted to something vicious, something that in my opinion was worse for society than the original vice. Miss X. used to seclude herself and drink almost incessantly for a week at a time as an equivalent for masturbation. When that morbid adjustment was taken away from her she made an effort to adjust to society and made a failure of it because she was mentally and emotionally unfit. B.'s chronic indulgence served as a flight from incestuous thoughts and when that was taken away from him and an effort was made to put him on a normal basis he failed because he was emotionally unfit. It is my opinion that the alcoholic flight is in itself an adjustment to some that are mentally and emotionally below par and that taking away the alcohol only unloosens the primitive impulses which they are trying to suppress.

A curious mechanism in one of my alcoholics was that the alcoholic indulgences alternated with attacks of eating, and when the alcohol was taken away the patient had regular attacks of gorging himself with food. In this connection I wish to mention the fact that attacks of over indulgence are not only confined to alcoholism. I have seen quite a number of psychoneurotics who have regular eating attacks which serve the same mechanisms as drinking. The amount of food consumed during such an attack is incredible: here is a list of foods consumed by a frail young lady weighing ninety pounds during one of her attacks given to me by her mother: Three pieces of toast with strawberry jam, one egg, half pound almonds, two crullers, six pieces of pastry, two raw frankfurters, a plate of shrimps a la Newburg, three pieces of toast and butter, one roast beef sandwich, three cup cakes, two veal chops with tomato sauce, one dish of cucumbers, nine nut cakes, two apples, half pound pecans, six bananas, one pound box of candy. All of this was consumed within half an hour. Another young woman of twenty-five would have regular attacks during which she would consume a few pounds of roast beef and became so stimulated by it that for a time the family suspected that she indulged in alcohol. She had what the family called "roast beef jags."

When one studies a number of such cases and compares them with peculiar cravings in so-called normal and primitive people, one is convinced that chronic alcoholism is a psychoneurotic or psychotic

symptom usually found in emotionally defective persons, which in the normal is nothing but a craving or habit confined to the oral and gastric regions. It is usually induced by environment but when that particular craving is removed by treatment or force from the defective person something is bound to take its place either in the physical or in the psychic spheres. It is a well known fact that with the removal of alcohol there is a greater demand for candy and chewing gum, and in the States where prohibition exists many substitutes are already in use which have nothing of the original taste but which stimulate the taste buds. Defectives, children, and primitives readily form a habit and can easily become a slave to it.

The question is, why do people both normal and abnormal indulge in some sort of beverage besides pure water. The answer is very simple. The wish is the motive force of life. The human being begins to wish with birth and never stops wishing. That is why he constantly improves upon and changes things; that is why the world progresses. Our wishing is done through all our senses—eyes, ears, nose, mouth—and there is tendency on the part of every individual to gratify these wishes and even overindulge in them. Everything in moderation, has been preached from time immemorial and it was not addressed to defectives either. Usually, however, the average normal person learns to curb his wishes but allows himself a certain amount of indulgence which is not altogether harmful to him. No one can ever absolutely renounce any pleasure, once experienced. It is as indestructible as physical matter; its form only can be changed. Anything that is as universally craved as fermented liquors must supply a definite want in the vital economy of the individual and studies in that direction fully corroborate this. I shall not enter into a full discussion of this problem; that will undoubtedly be taken up by the other speakers. All I wish to say is that man has always found it difficult to face inexorable reality and to avoid it he has resorted to all sorts of psychic and physical means. Moderate doses of alcohol remove inhibitions and make reality less burdensome. The monotonous drudgery caused by the division of labor makes the life of the laborer very miserable. His work offers him no outlet whatever, for what pleasure can one obtain by making holes in a piece of cloth or leather, day in and day out? He becomes restless and dissatisfied and then imagines that Bolshevism will help cure him. I feel that the glass of beer or wine actually helps the laborer to feel more contented with life. It allows him to give vent to the play instinct which reality denies him, and which his organism demands. It must be borne in mind that the individual's vocation is only a sublimation of his most primitive impulses which modern society holds in constant repression and suppression, and that his pleasure principle as such has to be constantly checked. The tired laborer, like the tired business man and the tired professional man, must find some means of making life easier for themselves, and whereas the latter are helped to it by their occupations the laborer is not, for almost all of his primitive impulses are fettered

and the only emotional outlet offered him is through companionship with his family and friends. Mild alcoholic beverages are the most potent factors in the promotions of such social pleasures. I do not wish to be misunderstood. I am not at all in favor of the American bar with all that goes with it, but study of the individual shows that it is better to give him some substitutes for his primitive impulses than let him live through them. By depriving a man of all stimuli such as alcohol, smoking, and prize fights, he is pushed back to a state which is altogether incompatible with his present existence and *volens volens* he will have to resort to something more harmful to himself and society.

I am opposed to the absolute prohibition of alcoholic beverages because the average normal person will be hurt by it, the abnormal types will be made more abnormal through it, and society will undoubtedly lose by it, as it will put a premium on dishonesty and hypocrisy of which we have quite enough.

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SOME PSYCHOLOGICAL ASPECTS OF ALCOHOLISM.*

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In the excessive and habitual indulgence in alcohol we have a multitude of causes and results for study and analysis. From a review of the more recent literature and a study of my own cases of alcoholism a number of important facts may be stated at this time. As is well known, alcohol serves many functions. At one time it may paralyze the repressing forces of social custom and make ordinary social intercourse free and natural. At another time it may enable a person to rise to an intellectual and emotional height to which he feels inadequate without the stimulating support of alcohol. At other times it may make easy for an individual to express certain unconscious desires and demands which he cannot do under other circumstances.

If proper study of all the factors concerned in alcoholic indulgence is not made and pains taken to set these motives right, we may expect by mere prohibition of alcohol that we shall have a number of other neuroses and psychoses materially increased. It perhaps is of no particular moment whether the potential nervous invalid breaks into a neurosis or a psychosis or whether he displays this invalidism by alcoholic indulgence, but we should not, however, look upon the mere prohibition of alcohol as a terminal effort on our part to set matters right. To do this requires a sober analytical judgment and a willingness on the part of the people as a whole to expend more effort and pains in adjusting social and economic conditions that make alcohol at present such a seeming menace, which is in reality a result rather than a cause.

The superficial and conscious motives for alcoholic indulgence have been handled so completely

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and are so current in the minds of most individuals that it would seem hardly necessary for us to enumerate any of them at this time, but a surprising fact about the whole matter is that so little corrective results are brought about in the everyday world by merely recognizing them as such. It goes to show that the underlying factors in the unconscious are really the determining ones for such a deep rooted habit of indulgence. To this particular phase I have directed my attention for several years. My studies, however, have not been unique in this direction. There are many others in literature who bear out the same main conclusions at which I have arrived. For instance, in one of Juliusberger's cases, an uncle played a rôle in the patient's increasing desire for alcohol. After working hours the man enjoyed drinking with his uncle; he married a woman who had formerly belonged to the uncle's household. His first severe alcoholic spree followed immediately after the uncle's death, and he had feelings of anxiety and fear which drove him to drink. Doubtless the fear resulted from the repressed feeling for the uncle, and the desire to drink was additionally conditioned by memory of previous drinks with him. The fear and restlessness which introduce so-called dipsomaniac attacks are usually rooted in conflicts and repressions of the sexual desire.

If we frankly recognize that bisexuality is inherent in every one, and that certain tendencies like companionship and brotherhood of one's own sex are a real part of the normal emotional development of every adult, we then come nearer to understanding what some of the repressed forces are in the individual that require satisfaction. These, of course, are rarely shown openly to the extent of overt practices that are so revolting to the average mind; nevertheless they are tendencies which one must look at squarely though they may mask under symbols which are none the less unmistakable. Strong friendships between members of the same sex have a foundation in all social customs which provide for homosexual as well as heterosexual expression. Can it be merely chance that men so much enjoy being among themselves and drinking together, sometimes roughly, sometimes in more refined manner? There seems an invisible force that drags a man from his comfortable home and loyal family to the public house—it even drags him out of bed sometimes. What lies, what fabrications, what machinations must he employ to gain this end.

The strength of this subconscious homosexual tendency was nicely shown in a case of a delirium reported by Juliusberger. The patient (married and father of a family) lived out his unconscious desires for consummation of alcoholic comradeship in his delirium. It is known that delirium is accompanied by fear and fear hallucinations. The patient is frightened by men who make all sorts of attacks upon him. This can only be a projection. Why does the alcoholic deliriant always see certain animals which are well known as sex symbols in general, and especially, when seen by man, as showing homosexual designs? The lizards, snakes, and mice that surround him are clear enough. Only

so can we explain the regular return and characteristic type of these attacks.

Acute as well as chronic hallucinations (and this is also true for female drinkers) can be found to be a form of persecution mania arising from unconscious and denied homosexuality. They believe themselves accused of homosexual acts, or else believe they are being forced into such relationships, which they abhor. Both of these are projections.

The fear of an alcoholic is partly determined by the breaking down of an overstrained sublimation mechanism; this makes a block in the libido, a fertile well of endogenous fear. Flooding the organs with toxins also has an effect on the sublimatory process. There is, of course, some exogenous cause for this fear. Unconscious homosexuality is only one factor in the alcoholic psyche.

Doubtless to this is due the growing addiction of women to drink. The breaking down of social barriers, opening new occupations, and the desire to do as men do, are not sufficient in themselves to explain this. The formerly unjustly laughed at social tea was the sublimated expression of feminine homosexuality; but alcohol is more satisfactory, therefore formerly reserved for men. The virile component of women is stirred today and this helps to explain woman's increased turning to alcohol. The more the virile works itself out, the more these expressions and symbols will be required. This also holds true for nicotineism.

Freud has shown that homosexuality is also responsible for alcoholic jealousy. He says, "The rôle of alcohol in jealousy is comprehensible. We know that this form of enjoyment lets down barriers and negates sublimations. Disappointment in women often drives a man to alcohol. He goes to the public house, to the company of men, who give him what he misses at home among women. If they become strongly attached to these men, unconsciously they use the third form of resistance: 'I do not love this man—she loves him,' and he accuses his wife of loving all the men he has loved. The jealousy paranoia of women is analogous, and the jealous woman accuses her husband of loving all the women that please her because of her narcissism and homosexuality." The masochistic component also often shows itself in the questionable company sought out by chronic drinkers. We often find this otherwise unaccountable desire to sink socially in drinking periods. Also there is a certain feeling of quiet.

It has been found that the jealous drinker who accuses his wife of infidelity himself also wanders into liaisons, or represses his inclinations with great difficulty. There are analogous cases with women who are jealous. Through the more or less projected feeling of guilt to the partner the soul feels some relief and freedom, and this process also feeds the sadistic desire. There is another atavistic feature of jealousy. Atavistic reminiscences play a large rôle in alcoholic psychology. In man's soul still slumbers the desire to dominate and tyrannize over woman. Especially in the alcoholic we come closer to atavistic remains, and chronic intoxication on the other hand reawakens and clears the way for the ancient relics.

We shall come to understand more and more how atavism gains new life in those psychically sick. The law of biogenesis entails the law of psychogenesis. The desires of olden times have not died; they return to the discomfort of the soul. Atavism occurs both in healthy and in abnormal states. The life of primitive man fulfilled his wishes more nearly, with less interference from intellect and knowledge. There must have been excessive wishes, such as express themselves today in the desire for absolute rule in the neuroses.

The more we consider the individual psychosexual constitution, the more we shall find rooted in the sadistic masochistic complex. Those who take pleasure in tyranny can at least command their equally drunken comrades who in turn take pleasure in obeying. The pleasure of drinking one's dear friend under the table indicates the same. The close relationship between the old world university beer brotherhoods and the seemingly unconquerable desire for physical injuries (dueling) must not be lost sight of. This sadistic component not only explains dueling but is also a key to the numerous delinquencies and crimes that so notoriously accompany alcoholism. Alcohol numbs the higher functions. The psychosensory and motor protective mechanisms are enfeebled. Fortunately all drinkers do not become criminals, still alcohol permits hidden criminal desires to work out. The sexual component alone does not explain the behavior of alcoholics—the whole psychic content must be considered.

Many crimes seem to be discharges of the need of a howling drunk. This is one of the profoundest needs of human nature, similar to the need for losing the individuality under the stress of sex. The primitive rudeness of alcoholic behavior, the leaning toward all that is forbidden, all show the origin of this undifferentiated craving for ecstasy. This, like criminality, is atavistic. The desire to transcend oneself also shows itself as a desire to forget. Chronic alcoholism tends to produce all sorts of memory disturbances; powers of observation are diminished, orientation to space and time are lost, and the individual lives in a phantasmagoric world. Physiological as these results may be, there is also to be considered the complex of amnesia, the will and wish to break the chain of personal history and continuity. Here again is the desire to transcend the ego.

The other expression of this desire is suicide to which alcoholics often turn. Suicide can also be used as self punishment in those cases where the criminal tendencies come into conflict with other trends. Two souls in one body suffer conflict only resolvable in death—nirvana.

The transcendent urge for self immersion agrees well with the libido trend of autoerotism and mother fixation. This is illustrated in solitary drinking, and the cycle of good resolutions and failure common to autoerotism. The repeated urgency of alcoholic desire is also attributable to the erogenous nature of the mouth, like the desire for nicotine and sweets. For some it is no hardship to forego alcohol; these are frequently, however, nicotine or candy addicts.

Abraham (1) states that it is well known that men are more given to drinking than women. Alcohol has not worked itself into women's social life as into that of men. Society never demands that women drink, and it never lends prestige among normal women as among men. This difference may have its root in primary sex differences. Evolution shows that our bodies contain rudimentary sex organs of both sexes. One in the course of normal development atrophies or takes on other functions. The other set develops to full power. So it is with psychosexual attributes; these also originate as bisexual. As Freud has taught, children are capable of sexual excitement. Only the reproductive function lacks development and the first directions are generalized. The infantile libido has no object, is autoerotic, seeks pleasure in excitement of erogenous zones.

All sex energies in the preadolescent stages are not, however, autoerotically used, to a considerable extent they are repressed from consciousness, finding their outlet in social functions. This direction into social trends is sublimation. At adolescence both sexes attain the physical characteristics of their own sex. On the psychosexual side is the stage of object finding. The libido turns to the other sex. But women show more tendency to repression and acceptance of obstacles. Alcohol works on sex impulse by dropping barriers and increasing its activity. But sex is complicated. The normal individual is able to sublimate his homosexual component into feelings of harmony and friendship with his own sex. The healthy man has distaste for tenderness between man and man, but alcohol dissolves this repugnance. Men drink, fall on one another's necks, feel themselves united by an inner bond and weep. In a word, their behavior is womanish. Every drinking bout has a touch of homosexuality. The homosexual component which we are taught to repress comes through clearly under alcohol.

Prowess as a drinker bespeaks prowess in sex. The nondrinker is considered a weakling. Men begin to drink at puberty, at the age when they must be men. One who fails to drink is considered childish by his contemporaries. The old man who has become impotent finds a surrogate of his fading powers in alcohol. Man relies on alcohol because it gives him a feeling of manliness and flatters his manliness complex. Women who have a strong desire for liquor are likely to prove homosexual.

Chronic drinkers have a certain character; they confide easily, call every man friend, and show unmanly emotionalism. They have no shame; all the fine feelings produced by sublimation are annihilated. We know the toxic action of alcohol on the spermatozoa. Men drinkers become impotent—alcohol betrays them by a false sense of power, and steals the real. But they continue to delude themselves, using alcohol as a surrogate for what they have, unknowing, lost. This is something like certain forms of perversion. The perversion, repressed, expresses itself and satisfies itself in neurotic phantasies. The patient has a tremendous resistance to psychoanalysis and brings all sorts of

defenses into play. So it is with the alcoholic who will deny the obvious. The neurotic hugs his symptoms because they give him satisfaction, and so with the drinker. Social influences, bad upbringing, inheritance, do not suffice by themselves to account for alcoholism. The individual must be considered, and cannot be unless we understand the relation between alcohol and sexuality.

Rather than employ such a loose, all embracing mechanism of the sadistic masochistic principle, is it not easier to say that the unconscious has different depths or levels and that in different degrees of intoxication we uncork or release varying levels of unconscious strivings and conflicts? In one it may only go so deep as the homosexual; the bachelorhood or club rapport in another; or even in the same individual at another time the autoerotic may be shown, or the exhibitionist, and the deepest regression of infancy may be invoked. When we come to study actual case material we are aware that the preconceived theory that all alcoholism holds a homosexual component may be true, but it is not at all clear in every case, and even when found there are many other autoerotic, heterosexual and maternal fixation principles brought out in many cases, and not infrequently in one and the same case.

Does the new conception afford more than scientific insight? It makes obvious the innate fault of the instinctive life, the fixation in the evolution of the emotional life and shows us the pattern plan of what sort of training out and social readjustment is necessary to heal such individuals. Anything less in the way of a comprehensive treatment is doomed to an early failure. In the definite periodical drinker (dipsomaniac type) the character usually shows less of the epileptic constitution *per se* and more of the unstable make-up of the constitutional inferior. Altogether the study shows the truth of the contention that the line of treatment must always rest upon the individual and social analysis of the particular subject under consideration and that here, as in other profound neuroses, analysis, and even routine psychoanalysis may be undertaken, but that as a whole the confirmed alcoholic is by far a less favorable subject for pure analytical treatment than almost any other neurosis. Perhaps in the vast majority of cases one may optimistically hope for an arrest of the habit if proper precautions and lessened social demands are made upon these special types of inferiors.

In a large amount of material which I have had for years under study, I have found all the foregoing mechanisms at work in the chronic or habitual drinker. Time does not permit a detailed analysis. We may turn our attention, however, for a few moments to some of the practical issues in reference to the demobilization of the saloon July 1st. We may do this by recognizing the conscious and unconscious motives that impel men to drink and lead them to the saloon. One may say if you take alcohol out of the saloon you remove Hamlet from the play and it is no longer the saloon. This may be so, but I think it is not meeting the question quite fairly nor in its entirety. Many men go

to the saloon for good fellowship as well as for alcohol. The bartender himself is usually a good, practical psychologist of human nature; he not only prepares the favorite tippie for his customer but also with quick though sometimes rather thin or spurious sympathy, furnishes him with the mental comfort he seems to need. Perhaps the bartender may be accounted a sort of low brow canteen worker or Y. M. C. A. assistant.

Perhaps all three can work together in the new saloon. At any rate, those who have charge must assume some of the nature and behavior of ordinary individuals and avoid the wearing of special dress or uniforms suggestive of inhibitions and prohibitions of certain aspects of society that have grown to be intolerant to the average individual. Probably all the bar equipment should be kept, its polished mahogany, its shining glassware and the brass rail for the life weary foot of the periodical visitant. There is no good reason why music may not be added to the new saloon, with a chance to sing. Pool and billiards should be reunited to the saloon wherever they have been divorced. Arrangements for card playing and games requiring manual dexterity as well as athletic skill may be added with advantage. If the saloon is the poor man's club, then assembly rooms with real good lunch counters should be added. One of the greatest and most popular producers of moving pictures here in New York was himself a bartender with both low and high brow instincts as well as the possessor of shrewd business acumen. He began his moving picture career in the double rôle of saloonkeeper and back room moving picture producer. Why not put in educational and recreational movies in the new saloon equipment? For those saloon frequenters with quieter tastes reading rooms may be provided. Some four minute speakers to talk on the political and social issues of the day as interestingly and seriously as though intent upon floating a Victory Loan may be furnished. Here is the readymade and receptive audience for the politician and the practical social worker. There is no good reason why the saloon and the movement for social and community betterment should be strangers. If relaxation and good fellowship are made the easier under the rule of alcohol let us work a little harder and with the same harmonies and gain these valuable attributes by saner and better methods in the new saloon and the new world which we all believe the future portends. I for one do not surcharge my mind with unmitigated woe and disaster in an alcoholless world. But I do believe that the new order cannot stop with a mere prohibition of alcohol without a positive and constructive program to meet in some measure the human craving expressed in alcoholic indulgence. For back of and beyond the saloon are many economic and social evils which must be recognized fully and be squarely met by all of us if we are to dismiss King Alcohol from his disastrous reign and dominion over the mind and body and make the world safe for humankind.

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ALCOHOL IN SOME OF ITS SOCIAL COMPENSATORY ASPECTS.*

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In speaking of alcohol at this late date, one is tempted to paraphrase Marc Antony: "We come to bury Cæsar, not to praise him." This type of funeral oration might seem out of place; why talk of the dead, anyway, and yet I am down on the program apparently to praise him. "The king is dead," but he has had a long and successful career.

I hold no brief for alcohol, nor yet on the other hand, do I maintain it to be the universal criminal with attributes so widely imputed to him. In view of the historical fact that from the earliest times recorded we have found man indulging in alcoholic drinks obtained from many sources, from fermented fruits, figs, dates, bananas, cacti, from sugars of all kinds; when we find its use intimately bound up in widely related religious ceremonies, bringing about and pertaining to divine and religious ecstasy, the problem is too complicated to be discharged by the appellation of "universal criminal" (1). The whole problem is so complex and has so many facets that it is impossible in the short time assigned to more than touch here and there upon some of the factors which might aid us in understanding the great hold alcohol has had on various types of peoples through thousands of years. By reason of the strange persistence in the use of this substance for so long a times, I have tried in my studies to arrive at some fundamental concepts which might throw some light on this ever recurring phenomenon.

First, I want to call your attention to man as an energy system. I want you to follow me for a moment in an appreciation of the mechanisms by means of which the human being captures, transforms, and releases energy. Man captures, transforms, and releases energy through a system of anatomical structures which in the language of neurological anatomy, are called receptors, connectors and effectors. The receptors are capable of catching specific kinds of energy from the cosmos streaming on the human animal in a volume that is incredible. To aid in emphasizing this point of the great amounts of energy which the human being has to handle, let me call your attention in passing to an experiment made by one of our physiologists on one species of jellyfish (2), a very simple organism with an elementary nervous structure which causes the contraction of its bill like mantle thus propelling it from place to place. It has about sixteen sets of simple receptors on its periphery through which it gathers in its energy. Harvey, by an appropriate technic, cut off these receptor organs, which brings about a paralysis of the motion and would cause its death from loss of appropriate stimuli. Before such a stage of paralysis was reached, however, Harvey started a mechanical stimulus by pinching the animal. Then by further technical proceedings this stimulus was made to follow a simple path around the nerve net which is characteristic of these Coelenterates. As a result of the stimulus, the animal

continued to contract for eleven days and the distance traveled along the nerve net was approximately 457 miles. While Harvey was confining his study to the problem of nerve fatigue, his experiment showed what a great amount of work was done from the simplest form of stimulus. Whereas, the medusa has only sixteen receptors, the human being has many million upon which immense volumes of energy are beating, necessitating the handling by the organs of the body of many billions of foot pounds of energy.

The science of dietetics would attempt to tell us that the 3,000 or more calories of energy which we take in daily as food is the main supply of our energy. I believe this to be nonsense and a misleading kind of teaching. The reasons cannot be gone into at this time but are evident if the conception here advocated, that man is an energy system which captures, transforms and releases energy through all of his receptors, is valid.

I have asked two physicists to work out how many foot pounds of energy are delivered by 3,000 calories of heat energy. They have given me differing figures. One computes it as follows:

1 calorie equals 4,186 joules
1 joule equals .73 foot pounds equals 10⁷ ergs
1 calorie equals 3,088 foot pounds
3,000 calories equal 9,264 foot pounds

Another figures it this way:

1 calorie equals 42,000,000 ergs of energy
42,000,000 × 3,000 equals 126,000,000 ergs
126,000,000,000 ergs in dyne centimetres of work equals
126,000,000,000
 $\frac{980 \times 16}{2.54 \times 12}$ equals 262,295 foot pounds per day

Whether the 3,000 calories will provide 9,264 or 262,295 foot pounds of energy a day is immaterial since the work done by the human body is vastly greater than either of these. To illustrate, let me call your attention to but one small bit of energy delivery going on in the human body—namely, the concentration of urea from the blood into the urea of the urine. Cushney tells us that the energy utilized in this conversion is the equivalent of forty-five foot pounds a day to the square centimetre of kidney tubule surface. The figures in surface of the kidney tubules are variously estimated but I calculate at least between 1,000,000 and 2,000,000 foot pounds a day are utilized in this one physiological function. Our food then provides practically no energy whatever; it merely provides us with the material over which energy can travel. It is the analogue of the metals used in a telephone circuit. Food is only substance for structure, it is not an energy source of any great matter. Furthermore, what does our calorie system tell of the capacities for utilizing the energy of calcium, of iron, of sulphur, of phosphorus, or of others of the twenty-six chemical elements found in the machinery of the human body.

Food, then, supplies material only over which the energy can travel. The energy itself comes from light, heat, sound, gravity, inertia, etc. The most important sources of energy for man is that which comes through special energy containers invented by man. With the development of language man

*Part of a discussion on alcoholism at the New York Academy of Medicine, May 15, 1919.

invented new energy containers which we call ideas, generalizations, concepts—in a word, the special energy containers in what we call symbols.

The greatest part of our energy comes from symbols and we transform it again into symbols. If the largest quantity of energy comes from and is discharged through symbols, we see how important language and thought must be for the proper functioning of the human body, and it is from this angle that I would attack the problem of the action of alcohol on mankind.

What does alcohol do to these receptors, connectors and effectors, thus modifying their function in handling energy? I shall not go into a lengthy exposition of the hypotheses concerning the action of alcohol upon the chain of neurons, which are separated from one another by synapses, and which make up the modern concept of the nervous system. A receptor receives a stimulus, it travels up a sensory nerve fibre and meets with a spark plug, a synapse, on its way to the spinal cord. That synapse, or spark plug, is there in order to redistribute the stimuli. There the stimulus, the incoming energy, meets with a certain resistance which is called the threshold resistance of the synaptic junction. It passes on to the next neuron and the next and finally reaches the cortical synapse. At every synaptic junction, often and incorrectly called nerve centres, there is a redistribution of energy. The resistance met with on the way to the cortex increases. Physiologists have shown this and we know some of the reasons. (3)

Alcohol has an interesting action on these synapses. It increases the amount of resistance of the synaptic threshold and tends to exclude stimuli from entering the human body or parts of it, and the individual, step by step with increasing narcosis, is reduced to a segmental animal. I need not go into detail as to the various steps of this natural vivisection method by which one group after another of the integral neural functions are cut out of the chain of switchboards which is the nervous system. The latest in evolution or those least firmly integrated tend to go out first. Hence the trend is to cut off the later acquired herd group tendencies which we speak of as niceties and refinements. In the language of the street, the individual tends to drop the more widely employed orthodox rules of conduct which are termed the group logic. He drops, I might say, some of his camouflage and tends to become more individual and less cultivated. In other words, his symbol handling capacity becomes involved. If the alcoholic action goes further, the synapses lower down are cut out in part or completely and loss of sensory discrimination at thalamic threshold levels commences to show itself. Sensory motor function now commences to be dismembered. When the oldest levels are reached by the cutting off process, only the simplest vegetative reflex arcs are in circuit. The bladder contracts, the intestines contract, the heart contracts, and the oxygen need stimulus keeps the respiratory reflex arc operative unless overwhelmed by a lethal narcosis. Thus progressively down the stairs of evolutive integration the nervous system gradually cuts out first the symbolic or psychical

levels, then the sensory motor, and finally the vegetative. The many details in this descent cannot be entered into here.

In this analysis lies one of the first considerations as to the value of alcohol because the first thing it tends to do, acting at the highest junctions and increasing the threshold resistance, makes it impossible for the individual to receive as much energy through symbols as was previously the case. Under any conditions of stress, fatigue, perplexity—when the individual in its sense of well being is unable to handle as much of this material as is convenient, a certain autonomic shunt, an anesthetic, is desired and the individual is more or less at rest. The most dynamic source of the energy streaming in all the time is cut off at the cortex where symbols are being utilized, and a sense of comfort is acquired depending on the amount of the dose and the meaning that the symbols have for the individual. In the homely vernacular of the street, "he should worry."

Some of the points I wanted to make clear have already been touched upon. Doctor Clark referred to the stimulation of alcohol, but I do not believe he meant that. It does not afford stimulation but only a pseudostimulation, a release of inhibition. This release of inhibition, however is a complex phenomenon. With creative individuals particularly, the pseudostimulation often took on striking forms. Inasmuch as many symbol stimuli were cut out of action, others more dear to the individual often came into prominence. Hence the phrase *in vino veritas*. Much of the *patin* with which man has covered himself in his acquisition of a protective coloring is not infrequently laid aside. The traditions, customs, usages, fads, eccentricities, fashions, logic of this or that particular grouping of his upbringing, are laid aside and out of the fullness of the heart the mouth is apt to speak. I would remind you I am not forgetting that foulness of the mouth may come out, which is known to all and which makes it difficult to speak of the favorable aspects of alcohol.

I set out to try to see what, in spite of the manifest disadvantages, were the compensations that made mankind cling to something so notoriously evil. Here in the ability to free himself from restrictions which might paralyze effort we find one of the greatest of the alluring aspects of this substance. The alcoholic tends to dismiss his timidity with reference to the herd. He commences to see for himself and that gives him a sense of power. He is lifted up from his environment and seems to have insight into the universe. Most of us are made cowards by the necessary restraints of civilization, and alcohol once in a while enables some to get away from it. We call this Dutch courage, but it contains something more than Dutch courage. The sense of timidity is swept away and a man is allowed to be what he really is—mostly an unpleasant self revelation, but occasionally he gives to the world a message. Anything that can do this the herd abandons with some misgivings.

Another of the more important functions that comes from alcohol as a social compensatory mechanism is the sympathy that man gets from man

in the welter of existence. With gradual increase of power, as the individual rises above the mass or as an organization gets power over the mass, he acquires a sense of the prohibitive Jehovah. Men and groups of men tend thus to be cruel to others, especially inferiors. They get out of touch with the struggling underworld from which they themselves may have come. Power would be used despotically and the hand of man is set against his brother as truly as in the days of Cain. He cannot understand the failings of others. Alcohol, however, has a tendency to bring man to a level where he can understand the feelings of his fellow man: it enlarges his comprehension of the difficulties of others and thus tempers the homosexual hardness to a sense of real brotherhood. In this adaptation we see the release of humor, of wit, of buffoonery. Men become children again, more lovable, less critical, less domineering, less to be feared and less to be hated. Caste distinctions are leveled and a real communism may be offered. Man, ever on guard, always protecting himself behind his logical motivation schemes, his hypocrisy and cant—varying of course enormously—under the influence of alcohol has the chance to overcome that Pharisaical attitude, "I thank thee, oh God, I am not as other men are." He sees for himself that he is as other men, and he has the rare opportunity to become a human being. That he may become a brute is not to be forgotten, nor should we forget that when spiritual wickedness is not unknown in high places, anything that will show up the vast possibilities of hypocrisy in human nature is not without some great value.

What Lafcadio Hearn could see when he wrote "Theological legislation, irrationally directed against human weaknesses, has only aggravated social disorder; and laws against pleasure have only provoked debaucheries," is true today, as it has always been. "The history of morals teaches very plainly," he continues, "that our bad Kami require some propitiation. The passions still remain more powerful than the reason in man because they are incomparably older, because they were once—and are still—all essential to self preservation—because they made that primal stratum of consciousness out of which the nobler sentiments have slowly grown. Never can they be suffered to rule; but woe to whosoever would deny their immemorial rights."

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64 WEST FIFTY-SIXTH STREET.

Congenital Rickets.—Méry and Parturier (*Presse médicale*, February 24, 1919) refer to the pathological changes found in the case of an infant six weeks old, exhibiting congenital rickets with fruste achondroplasia. The minute pathology of the bones corresponded closely to that described by Marfan as being characteristic of rachitis. There were multiple lesions of the viscera.

THE ALLEN METHOD OF TREATMENT FOR DIABETES.

BY WILLIAM G. WARD, M. D.,
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Since Allen gave his perfected method for the care and treatment of diabetes to the medical profession, I have applied the same to fifteen cases in my practice with most encouraging results. The last one of my series seems to be out of the ordinary and well worth recording at this time, not for the results of treatment by this method but more from the viewpoint of treatment as regarding the diagnosis in this case. A machinist aged forty-five consulted me on February 18, 1917. He said that he had been refused by a local medical examiner for one of the large life insurance companies, three days before coming to me, because sugar was found in his urine. He showed some anxiety about his condition and wished to have an immediate physical examination made to confirm or deny the decision which had been made.

There was no reason to doubt the word of the insurance company's physician, as it is a well known fact that an early diagnosis of diabetes by insurance examination occurs frequently, yet the man's physical appearance did not seem to bear out this assertion. According to Shöndorff, normal human urine contains sugar in a measurable quantity and by excessive carbohydrate intake may rise as high as one per cent. This man had been examined within an hour following a hearty meal and it occurred to me that possibly, as he is of the gourmand type, the excessive intake of carbohydrate in his meal, together with the lack of exercise following over indulgence at the table and the excitement of being examined for life insurance by a strange physician, might have caused the presence of a slight trace of sugar in his urine at the time of his examination.

As the specimen of urine he brought with him on analysis showed no sugar present, the possibilities in this case so interested me that I suggested to him that a series of daily urinalyses be made with voidance of urine at different hours each day, similar to insurance examinations. The mixed twenty-four hour quantity of urine which it is perfectly obvious should be examined, is rarely required in this locality. The patient readily acquiesced to this arrangement and the following case report and the analyses is appended.

CASE I.—Englishman, forty-five years of age, married, machinist. The patient's family and past history are excellent; his father was very thin, his mother obese. His wife has had no children and no miscarriages. No member of his family, as far as can be ascertained, has ever had diabetes. He has always been accustomed to the use of alcoholic stimulants and the last few years the excessive use of them on Saturdays and Sundays. At the insurance examination, on February 15, 1917, he was informed that he had sugar in his urine which worried him exceedingly and having recourse to whiskey he was quite emotional the remainder of the day. For years he has been doing his regular work with no noticeable fatigue. There was no history of tonsillitis or other acute infectious dis-

eases. There has been no serious demand on his nervous system, no pulmonary symptoms and no pain. His appetite is excellent.

The physical examination showed a strong muscular man, five feet six inches in height, weighing 176 pounds. No anemia present. Heart and lungs normal. The teeth are poorly kept and are covered with tobacco stains. There is pyorrhea present of the lower gums. Stein (1) states that pyorrhea is one of the symptoms of importance in diabetes and I have noticed pyorrhea present in several of my series. There is no dryness of the mouth or excessive thirst except on Saturdays and Sundays and then for alcoholic beverages alone. The pupils are equal and reacted normally. An astigmatism is corrected by glasses. No cataracts present. The skin is normal in appearance and there is no dryness. He has never had pruritus. Temperature is normal. No nervous symptoms present and the thyroid was not enlarged and shows no diseased condition. No glandular enlargements noticed. There are no disturbances of digestion. The abdomen shows nothing abnormal. His bowels are evacuated twice a day and there is no symptom of autointoxication from intestinal putrefaction. The extremities are normal, showing no edema. All the reflexes are normal, and there are no tremors. There is no diarrhea and no frequency of urination. Sexual life somewhat subdued. He is free from hemorrhoids and there is no blood in the stools. No blood examination was made. The blood sugar content was not estimated, but as the majority of the cases of diabetes according to Rogers (2), the treatment as carried out with the urinary sugar alone as a guide seems to be efficient in reducing blood sugar to within a slight amount above normal, so that the blood sugar determinations are not necessary as a guide. No history of trauma or infection. No arteriosclerosis apparent. His blood pressure was 160. He uses tobacco to excess. He denies syphilis and there is no visible evidence. No Wassermann taken. The pulse rate averages seventy-two. There are no gouty conditions. He has never had carbuncles, no attacks of neuralgia, no gangrene, eczema or tuberculosis. The external ears have never been attacked by eczema or furuncles and the mastoids were not diseased. He uses salt freely on all his food. He has not taken any medicine for years.

During a period of twenty-two days, sixteen urinalyses were made, and the results as regards the time voided, the specific gravity, and the albumen and sugar content recorded as follows:

Day.	Date.	Time.	Sp. Gr.	Alb.	Sugar.
Sunday,	Feb. 18,	2:30 p. m.	1.010	0	0
Monday,	Feb. 19,	7:30 a. m.	1.011	0	0
Tuesday,	Feb. 20,	6:00 a. m.	1.015	0	Trace.
Wednesday,	Feb. 21,	5:30 p. m.	1.031	0	Present.
Thursday,	Feb. 22,	10:30 a. m.	1.028	0	Present.
Friday,	Feb. 23,	5:00 p. m.	1.024	0	Present.
Saturday,	Feb. 24,	7:00 p. m.	1.020	0	Trace.
Monday,	Feb. 26,	12:00 noon	1.006	0	0
Tuesday,	Feb. 27,	12:00 noon	1.024	0	Present.
Wednesday,	Feb. 28,	9:30 a. m.	1.024	0	Present.
Thursday,	Mar. 1,	3:30 p. m.	1.023	0	Present.
Friday,	Mar. 2,	9:00 a. m.	1.020	0	Trace.
Saturday,	Mar. 3,	5:00 p. m.	1.014	0	Trace.
Monday,	Mar. 5,	10:00 a. m.	1.010	0	Absent after 24 hour fast.
Friday,	Mar. 9,	7:00 p. m.	1.027	0	Trace.
Monday,	Mar. 12,	6:00 a. m.	1.020	Trace.	Absent after 24 hour fast.

On March 4, 1917, I put him on the Allen method of fasting for twenty-four hours, allowing him no food except a thin soup, if he wished, and requesting him to drink a demitasse of black coffee and a half ounce of whiskey every two hours. He was not relegated to bed but requested to keep quiet about the house. No acidosis was present in this case and sodium bicarbonate was not necessary, neither was there any carbohydrate craving which seems to be the physiological demand on that food element which does the most, perhaps, to control the development of acidosis. Fast days were ordered for every succeeding Sunday. I thought this advisable for if he had unconsciously been semi-fasting for a long period in the past on Saturdays and Sundays it was best to keep this up and aid his assimilative function with its usual capacity. It will be noticed that of the four Sundays in this series, the first two were not fast days but the last two were, yet all four Mondays following, irrespective whether they were fast days or not, showed a sugar free urine. I have not considered it necessary to estimate the value of the food consumed, since put on diet, in heat units, such details are difficult to obtain in a hospital, let alone in private practice. In this series, I wish to point out that the specific gravity had a wide range from 1.006 to 1.031, the average being 1.019 +, showing conclusively that Joslin is correct when he says that a low specific gravity is no excuse for neglecting to examine a urine for sugar. Nine of my analyses were below 1.020. In this case, the twenty-four hour quantity was impossible to ascertain, but as the analysis in this series was to be carried out similar to life insurance examination, it was not necessary. The time the samples were voided was between six a. m. and 7:30 p. m.; they were passed sometimes before and sometimes after meals, similar in every respect to what the layman would do when requested to bring a sample of urine or pass it when present in the examiner's office and no specified time given. There was no polyuria present and this case might be called diabetes decipiens, the old name for glycosuria without polyuria. This condition always means one of two things, either an organic or functional abnormality of the kidney with diabetes, or a mild type of diabetes according to Allen. There was absence of albumen throughout the series except in the last sample when the faintest possible trace was present. If albumen persists in such cases as this the prognosis is always grave. In cases where nephritis is present, the urinary excretion of sugar may be much diminished. Excepting Saturdays and Sundays the sugar was constant in the urine examined till I put him on the Allen treatment, on March 4, 1917; since then it has been completely eliminated with one exception when he did not adhere strictly to his diet.

This man has been over weight for many years. We know today that obesity precedes the glycosuria in many diabetics and up to five per cent. of the diabetics begin with obesity. With the exception of using three or four teaspoonfuls of sugar in his tea or coffee, he does not use sweets to excess. If obesity is taken as an etiological factor in the causation of diabetes, I think this case is a good

example. He is at present twenty-five pounds over weight. (Since the dieting he has lost eight pounds in weight.)

In summing up this case, my conclusions are that this man is a diabetic, of the mild form, and, that owing to his habit of drinking whiskey on Saturdays and Sundays, and, as it is a well known fact that when a man is drinking to excess he eats less than at other times, he had been taking the Allen treatment for diabetes, unconsciously. If this man had been examined by the insurance physician on a Monday instead of in the middle of the week, I have no doubt that he would have passed successfully and have been accepted by the company as a good risk. It is my opinion, judging from the character of this case, that similar cases must exist and insurance examiners, possibly, have frequently passed them. So this case shows that the general practitioner and medical examiners for the life insurance companies should be on their guard in examining the urine of the weekend tippler, that they do not pass such a diabetic as a safe risk, and later have the death certificate signed diabetes.

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150 ESSEX STREET.

THE CLINICAL PICTURE OF STREPTOCOCCUS VIRIDANS INFECTION.*

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There was a time when a physician had to be a philosopher. An abundance of speculation had to be substituted for knowledge. Conditions which showed a mere resemblance were taken as identical and complicated names nicely covered up the mistake. Though modern medical science has bared the truth which was buried under these names we still cling to them. We talk of anemia, pneumonia, rheumatism as before, though we know that not one of these is an etiological nor a clinical entity.

Ernst Mach and his school have drawn attention to the economic value of the words. They are like coins taken by everybody but unfortunately their exchange value is not constant. I am afraid that no two physicians mean exactly the same thing when they talk about anemia. However, we have to resort to such expressions, particularly in teaching. We must show the student so-called typical cases though we know that the typical clinical picture is rather the exception. We must do it lest he should lose all guidance in the infinite variety of signs and symptoms. As with many other conceptions so it is with the medical terms. Our lines of demarcation are entirely arbitrary. To give you an instance I only have to point out the discussion about Banti's disease. Practically everybody has a classification of his own and this is due to our imperfect knowledge regarding the etiology of this disease.

Through the discovery of microorganisms as the etiological factor of many diseases the situation has changed materially. We call tuberculosis a pathological condition where the tubercle bacillus has been found to be the causative factor and the same holds true with many other well known diseases. This fact has had a great influence and it has given to the laboratory a tremendous importance. Our laboratory methods have assumed such a part in our examination that the study of the clinical picture has often become neglected. Why watch every little sign, every slight difference in the symptoms when the laboratory will tell the story? We have developed a haphazard way in examining injuries. Why? Röntgen rays are far more accurate. Ten or twenty years from now people will not go to a physician but to a laboratory. In the diagnostic clinic they will be examined by specialists, they will know every deviation from the normal but nobody will know what is ailing the patient and how he should be treated. As Goethe said, "*Sie haben die Teile in der Hand, fehlt leider nur das geistige Band.*" Here the parts in his hands he may hold and class, but the spiritual link is lost, alas (Thomas').

In this paper I wish to show that the study of the clinical picture is of vital importance and as I wish to be brief I shall confine myself to the so-called rheumatic manifestation with the exclusion of the endocarditis. Billings says (1) that our present knowledge is in accord with Nichols and Richardson in the statement they make that morbid changes both proliferative and regenerative of joint tissue cannot be differentiated etiologically.

Looking up the original paper (2) I found that the authors didn't mention the modern conception of the focal infection. In most cases I found the remark "cause unknown" in others "probably gonococcus infection." Sometimes they produce an illustration of a gonorrheal arthritis which is characteristic of anything but gonococcus arthritis. There can be no question that the structural changes in the advanced cases are about the same regardless of the etiology. But they do not take any notice of the clinical picture which is always more variable than the anatomical changes. If they are not able to connect a given change in the structure with the definite etiology then it seems to me that in spite of the excellent and exhaustive work they have done, they have never tried to link the clinical picture with the etiological factor.

Though it is hardly necessary to prove the importance of this question, I wish merely to report one case to illustrate my contention and to show that there is a possibility of differentiating between the various forms of infectious arthritis on the basis of the clinical picture in spite of an adverse biological reaction. I was called upon to treat a female patient in the ward, who was suffering from a painful affection of the shoulder. The patient was subjected to the regular examination and the blood was found four plus against gonococcus. Her case was pronounced a gonococcus infection. I found that she presented a typical case of bursitis subacromioidalis acuta, which in the large majority of cases is a pure *Streptococcus viridans* infection.

*Read before the New York County Medical Society, April 28, 1919.

Examination of the teeth showed many abscesses and the usual treatment which I recommended in such cases, consisting of gentle massage, wet dressings and aspirin, after the extraction of the teeth, led to prompt recovery.

I could cite a good many cases of this type. The gonococcus infection is by no means such a rare occurrence that we should not expect another infection in an individual showing a positive gonococcus complement fixation test. The number of patients who are treated with gonococcus vaccine for a rheumatic affection and whose disease has nothing to do with that infection is very large. As I cannot admit unconditionally the claim of many physicians that a nonspecific vaccine is just as effective as a specific one. I regret this prevailing practice of disregarding the etiology.

You have all seen many patients whose teeth have all been extracted without the slightest effect on the disease and this fact alone would justify an attempt to solve this etiological problem on the basis of the clinical picture. Another illustration: A patient has an active arthritis. An examination of the toothless gums showed an abscessed root buried in the gums. The clinical picture alone prompted me to have the x ray picture taken as the tonsils appeared to be normal.

And this task cannot be hopeless. If the reaction of the body tissue against the tubercle bacillus produces a fairly well defined clinical picture is there no hope that with an adequate effort a differentiation of the other forms of infectious arthritis could be accomplished? I think that it would help us in the solution of this problem if we could first agree on the question, whether the fact that an individual suffering from a pathological condition commonly classed as rheumatic should be taken as an indication that the microorganisms have entered the system? Is every case of this type due to bacteriemia or do cases exist where the toxin has merely entered the circulation and produced the symptoms? Rosenow claims to have found in many cases of chronic arthritis microorganisms in the joint fluid, organisms with a very low virulence, which produced a similar clinical picture when injected in animals. I accept this as correct. I even admit that the fact that he was not always successful in finding organisms is no argument against him and his theory. On purely clinical grounds, however, I cannot concede that a large number of such pathological conditions can be caused by bacteria in the tissues. I have often observed that an excruciating pain in the region of the shoulder bursa or a brachial nerve plexus which has lasted for days has ceased an hour or two after an extraction of a tooth. In consequence one could not believe in a metastatic infection.

Years ago I advanced the theory, which, by the way, even then might not have been new, that the local infection from which an attack of so-called rheumatism originates first merely throws toxins into the circulation, which as we would say now, produce certain pathological changes through their chemical affinity. This may occur during the course of the disease, which may be at any time that the barriers between the focal infection and

the entire system break down and the organisms enter the general circulation. This conception to my mind bridges the difference between the various authors and explains the changes in the clinical picture. Furthermore, our understanding has been aided by the works of Rosenow in which he proved the acquired affinity of certain strains of microorganisms. It would be necessary to explain why in some cases of metastatic infection only one joint is affected and why in other cases many. We could either assume that only a small number has entered the circulation or that one particular joint had a special affinity to said organism or that a *locus minoris resistentiae* has been created in that particular joint by a slight injury or otherwise.

In fact, the division of these infectious conditions into monarticular and polyarticular is not sharp. Even in those cases where apparently only one joint is affected we can learn by a close anamnesis that one or more joints were slightly painful. As the pain in these joints disappeared or the pain in the one which is badly affected becomes very severe the mild involvement of the others is overlooked. With this restriction I shall accept this division and speak first of the monarticular type of infection with *Streptococcus viridans*.

The most frequent seats of the *Streptococcus viridans* infection are the knee joint, the foot, the bursa subacromoidalis, and the hand. I have never seen such an infection in the hip joint. I speak here of the monarthritis.

Frequently there are premonitory signs in the joint, but the onset is rather sudden. There is a marked swelling of the periarticular tissue, but it is not so marked as in the gonorrheal infection and not so painful as the latter. The temperature of the skin is increased but there is generally no redness. On the contrary, the color of the skin is yellowish, and it has a waxy appearance. Severe as the pain may be it is not out of proportion to the local signs as I have found it to be in the infection with *Streptococcus hemolyticus*. Besides, I do not remember having seen a strict monarthritis due to the hemolyticus.

Lately I have seen three patients who had an inflammatory condition of the lateral part of the dorsum of the foot. In one case a number of other joints were somewhat affected, both hands being swollen but the swelling was in the subcutaneous tissue only. In this patient the inflammation was very severe and the skin was markedly red, which was to be expected. In two patients foci were found in the teeth, the removal of which cured the condition. In the third an x ray examination revealed an infected root fragment buried in the gums. The removal of the focus brought about a marked change in the condition of the patient. I wish to say that I made the diagnosis of infection on the basis of the clinical picture and this was corroborated by the examination of the teeth and the result of the treatment.

Aspirin gives only moderate relief. This, is due to the fact that the organism is located in the diseased area and produces the toxin on the spot. I believe that the salicylates merely neutralize the toxins and that they cannot be so effective, if

the toxins are constantly produced in a relatively great concentration *in situ*.

I have never seen a monarthrititis which I could have traced to an infection with colon bacillus, pneumococcus or staphylococcus. As far as the latter organism is concerned I exclude naturally those cases in which the joint is secondarily affected from an osteomyelitis in the neighborhood of the joint. One of the most frequent manifestations of this infection is the acute bursitis subacromoidalis. I found an infection of the teeth or tonsils in at least seventy-five per cent. of the cases and even in such cases where the disease followed an injury I had the impression that the injury was merely the exciting cause. In about ten per cent. of the cases the bursitis was combined with an affection of the elbow joint and particularly the hand. I need not describe this clinical picture. In only one case have I seen a gonorrheal infection of the shoulder joint which clearly resembled the bursitis subacromoidalis.

It seems as though I ought to mention the frequent occurrence of the brachial neuralgia in this connection. The toxin of the *Streptococcus viridans* has a special affinity to the perineurium and we find therefore very frequently a neuritis brachialis preceding, accompanying or following a bursitis subacromoidalis. It is a common error to look for the seat of the trouble in the nerve trunks. In most cases the seat of the pathological condition are the nerve roots and I consider the expression of radiculitis as a very fortunate one. I should like to mention in this connection that the treatment of the roots gives far better results than the treatment of the peripheral nerve.

The marked affinity of the peripheral nerves to this organism is proved furthermore by the frequent occurrence of a sciatic neuritis. I drew attention to this fact a long time ago and have repeatedly proved since that a distinction could be made between the neuralgic and the neuritic forms of sciatica. The latter is more severe and it is possible to distinguish the two forms by a gentle massage. Massage relieves the neuralgic form and aggravates the neuritic.

Coming back to the polyarticular form I again wish to say that the border lines between the monarticular and polyarticular form on one side between the toxic form and the metastatic on the other is not sharp but only artificial. A polyarticular arthritis can become a monarticular one if the other joints affected at the same time heal very quickly, a toxic form can become at any time a metastatic one, as soon as the organisms enter the general circulation and establish themselves in the region of the joint. However, I can not believe that all the cases are due to metastasis or that many begin as such.

One of the earliest symptoms of the *Streptococcus viridans* infection is a severe pain in the finger joints at night or toward morning. It does not last long in fact disappears in a few seconds when one moves the joints. There is no objective sign to be seen and if I had not experienced the sensation myself I should have never believed my patients. A friend and physician told me that he

feels perfectly helpless each morning when waking up but that all the pain and ache disappears as soon as he sits up. He found in his case a non-hemolytic streptococcus which produced a large amount of acid in the dextrose culture and I have had practically the same experience in other cases. In view of these facts I cannot be convinced that this symptom, this pain, is due to a metastatic infection. How could it disappear in a few seconds if such were the case? I don't know of a better proof. The existence of a toxic form is proved furthermore by the marked difference in the clinical picture of the toxic polyarticular and the metastatic monarticular form of gonorrheal arthritis.

This symptom of pain in the fingers may last for months before any other signs appear. It may soon be followed by pains and aches in other parts of the body, the knees and the back in the morning only at first, later these pains might manifest themselves on and off during the day. Still all the objective signs may be lacking. During this stage we can keep the pain under control by salicylates. Gradually one or the other joint begins to swell. Generally it is a phalangeal joint of the hands between the first and second phalanx. The swelling is intraarticular and we can feel the fluid. As the disease progresses other joints become involved particularly the knee joints. Gradually the capsules and the synovial membranes thicken and produce those periarticular changes which constitute the appearance of the arthritis and cause most of the symptoms.

In the beginning the pain is tolerable and the patients are able to walk to see the physician, later however, walking becomes very difficult. The rapidity with which the periarticular tissue becomes involved probably depends on whether the form has changed from a toxic form into a metastatic one. It is clear that if the organisms, though they are of low virulence, are lodged in the tissues the reaction might be more marked than when irritated by toxins. It is furthermore evident that the clinical picture may show a great variety of forms dependent on the fact that some joints may be affected by toxins only and the others by toxins and the organisms.

When the disease progresses we will see marked changes in the capsules and bursæ; the cartilages become more or less destroyed and we get corresponding symptoms. I think that a great many of the deformities are due to the large amount of fluid in the joints. The ligaments and capsules are stretched and subluxations which we see so often in the metacarpophalangeal joints develop. In this stage aspirin gives only slight temporary relief. This is easy to understand when we realize that the symptoms in this stage depend on the severity of the structural changes. An attempt to define positively the various forms would be very difficult, but it is possible to show those points by which they can be differentiated.

One of the essential differences between the infection with *Streptococcus viridans* on the one hand and the infection with gonococcus the colon bacillus and the *Spirocheta pallida* on the other is the inefficacy of the salicylates. This does not mean that

the salicylates are effective in every case of *Streptococcus viridans* infection. In the severe cases where the organisms have entered the circulation, where marked structural changes have taken place, salicylates may have only a slight effect, but even if the pain subsides only temporarily we can exclude the infection with the three above mentioned organisms.

The polyarthritis of gonorrheal origin is a purely toxic form. The joints which are most frequently affected are the knee joints, interphalangeal joints, the elbow and wrist joints. The swelling is strictly intraarticular. It develops very quickly, sometimes within a few hours, and does not cause much pain. The amount of the synovial fluid changes very quickly and a joint which was very swollen one day can be much better the next day while another one is swollen. We must not forget the frequency of occurrence of the periostitis of the spur of the calcaneus. Though we can find it in a milder form in other arthritic conditions, we will hardly ever miss it in the gonorrheal arthritis of the toxic form.

The infection with the colon bacillus is characterized by a peculiar change in the skin of the fingers; a peculiar blood picture. I have in one case made the diagnosis on the basis of the clinical picture led by certain analogies with another case and we found that the patient had colon bacilli in the urine and that the blood had a complement fixation of four plus. This in itself would be no proof, but I have been able to find the report of a case of arthritis reported by Luger, who had found the colon bacillus in the blood.

The differential blood count was as follows: Doctor Luger's case: White blood corpuscles, 12,000; small lymphocytes, thirteen per cent.; polynuclears, eighty-five per cent. Doctor Wolf's case: White blood corpuscles, 21,600; small lymphocytes, 9.2 per cent.; polynuclears, eighty-five per cent. Luger mentions the peculiar appearance of the skin of the finger. The temperature in both cases reached about 101° F. In both cases the large joints were affected and did not show any characteristic feature, which may be due to the fact that I saw the patient four months after the onset of the disease. The blood picture alone seems to change in the metastatic form.

Luetic polyarthritis is characterized by the mildness of the subjective symptoms, the pain. The joints generally affected are all the interphalangeal, but the swelling is strictly intraarticular. The knee joints are equally swollen but not very painful. There is no tenderness of the spur of the os calcaneus. I have seen three cases in which the arthritis was caused by a staphylococcus infection with a focus in the nasal sinuses and one due to pneumococcus infection. Although I have the impression that the clinical picture had special features which would allow a differentiation, I should call it impractical to establish an identity. I believe, however, that a thorough study of such cases would give us a clue.

The differentiation of an arthritis due to *Streptococcus viridans* on the one hand and to the *Streptococcus hemolyticus* on the other is rather difficult. In a case which was sent to me by Doctor Celler, I

had occasion to make such a diagnosis. I persisted in my diagnosis of *Streptococcus hemolyticus*, though *Streptococci viridans* were found in the teeth. As the patient did not improve after extraction of the tooth another examination was made and *Streptococci hemolyticus* in pure culture was then found. Extraction of the tooth and subsequent treatment with the autogenous serum cured the patient. I admit, however, that the fact of cure with said serum is no proof of my contention.

I made the diagnosis on the basis of the discrepancy between the objective signs and the subjective symptoms. The pain in such cases due to *Streptococcus hemolyticus* is more severe and persistent than in the infection with *Streptococcus viridans*. I do not lose sight of the fact that a very virulent *Streptococcus viridans* may produce as violent a reaction as a *Streptococcus hemolyticus* of a low virulence. The joints are only slightly swollen or not at all, the intraarticular fluid is scarcely increased.

One more word about mixed infections and, as I mentioned before it is plain that we have to expect a different clinical picture. I think it best to give you an illustration. Some time ago a patient came to me and complained of severe pain in her hands particularly at night and a swelling of the fingers for some weeks. This swelling was not confined to the joints but the entire subcutaneous tissue was doughy. The skin had a glossy appearance. This swelling was not permanent but changed in intensity. There were signs of angiospasm in the fingers. The appearance of the fingers suggested the trouble to be of intestinal origin and, while the patient had never complained of any intestinal trouble, an examination was made which revealed a very marked colitis and putrefaction. The peculiar kind of pain, however, and the stiffness of the fingers pointed to an infection with *Streptococcus viridans*. Aspirin relieved the pain to a certain extent, but not entirely. An examination of the teeth showed two infected teeth, though perfectly filled.

After a course of high colonic irrigation we could notice a marked improvement, but the patient still had pain. The teeth were now extracted and a pure culture of *Streptococcus viridans* was obtained. I am sure that without the guidance of the clinical picture a diagnosis could not have been made. In this connection the diagnosis does not tell us anything regarding the seat of the focus or the number of foci. It may happen that a focus exists in the tonsils as well as in the teeth. I need not dwell, however, on the fact that the diagnosis of the etiology gives us a clue where to look for the foci. We will, in general, not look for the gonococcus in the nose or the *Streptococcus viridans* in the prostate or the colon bacillus in the teeth. The advantage of my point of view is obvious.

It was most discouraging to see how often all the teeth of a poor patient were drawn without any result. That tonsils were taken out, and the patient subjected to all kinds of treatment which taxed his strength as well as his resources without relief. Patients are sent to spas and receive all forms of physical therapy in vain. But how can

we expect any results unless we have removed the active cause?

The worst feature is that the patient as well as the physician loses faith in the treatments. The indiscriminate removal of teeth and tonsils have shaken the confidence of many doctors themselves in the new theory of etiology of rheumatic affection and I have had great difficulty in persuading some of my colleagues of the connection of a given disease with a tooth abscess because they had been misled so often.

Let us realize the fact that the infection with *Streptococcus viridans* is the most frequent cause of the rheumatic affection but not the only one, and let me express the hope that further investigation will bear out my assertion that the clinical picture is an indication of the type of infection.

In summing up, we know that infectious foci can exist in the body without causing any symptoms. Abscesses in the teeth and in the tonsils may be found without giving rise to a systemic infection.

A systemic infection may be present in spite of a negative biological reaction.

A positive biological reaction, for instance a positive Wassermann or a positive gonococcus complement fixation test is no proof that a given disease is of the etiology which is indicated by the test.

The value of the clinical picture in determining the etiological diagnosis of the so-called rheumatic diseases has been grossly underestimated.

As the clinical picture is due to the reaction of the body tissue against the invading and attacking organism we may expect the clinical picture to vary according to the type of organism. In the case of tuberculosis of a joint it is generally accepted.

The differences in the clinical picture are not always pronounced, but they are distinct enough to allow of a differentiation. The fact that it has been overlooked can probably be attributed more to the dulling of our clinical eye and sense, than to the lack of clear indications.

We must not forget that a clinical picture may be due to a mixed infection and that each leaves its trace in the appearance of the disease.

In presenting this paper I do not pretend to have given you a complete answer to the question. The clinical material at my disposal is not large enough to work out a clinical picture for every type of infection.

My object is merely to draw your attention to the possibilities, to interest you in the problem of a possible emancipation to some degree from the tyranny of the laboratory and to give to the study of the clinical picture the importance which it deserves.

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161 WEST EIGHTY-SIXTH STREET.

Postoperative Pneumonitis.—Mather Cleveland (*Surgery, Gynecology, and Obstetrics*, March, 1919) divides postoperative pneumonitis "quite arbitrarily," into three types: true postoperative pneumonia, embolic pneumonia, and terminal pneumonia.

DOUCHING THE NOSE IN CHILDREN.*

BY WILLIAM A. HITSCHLER, M. D.,
Philadelphia.

A few preliminaries will have to be disposed of at the beginning. There are times when the nasal chambers need cleansing. For accomplishing this purpose there are several methods of varying degrees of efficiency, e. g., douching, spraying with an atomizer, suction, blowing the nose, the use of forceps, and perhaps other methods. The various methods may be combined. The merits of the respective methods will not be considered; I shall confine myself practically to douching.

Douching the nose either in adults or in children is a subject which has received scant attention. Even when mentioned there is no hint of technic. The manner in which it is treated in textbooks and in medical practice presupposes a knowledge upon the part of both practitioner and patient which is not exactly warranted by the facts. We are supposed to know, by intuition probably, certainly not by precept, just how to proceed. In the rush to describe more interesting and spectacular things no one stops to inform us. But there is a correct technic in douching the nose. Failure to observe the technic may result in consequences more or less serious, even if they are not extraordinarily common. That otitis media may result from improper douching is well known, but not fully appreciated; that otitis media may result in mastoiditis and its sequelæ is likewise well known, and at times is so much appreciated that some proscribe douching altogether. But it is not rational that infected material be allowed to remain in the nasal fossæ. These cavities demand cleansing with just as much surgical reason as other cavities; and fear of douching is based, not upon douching itself, but really improper douching. To quote one of Pudd'n-head Wilson's maxims: "We should be careful to get out of an experience only the wisdom that is in it—and stop there; lest we be like the cat that sits down on a hot stove lid. She will never sit down on a hot stove lid again—and that is well; but she will never sit down on a cold one any more."

At the Municipal Hospital of Philadelphia a series of 200 cases of measles and scarlet fever was used as a test. In half the cases douching the nose was practised, and in the other half it was omitted. The proportion of otitic complications in each series of 100 cases was the same. The conclusion was drawn that douching the nose was of no value in the prevention of otitic complications. But subsequent inquiry developed the fact that the douching was done by the nurses. This is quite sufficient guarantee that it was done improperly. Not that any blame is to be attached to the nurses, for nurses do not receive instructions in such matters. But whatever good was accomplished by the douching, was accomplished accidentally, and it was counterbalanced by the harm of the improper technic. At least that is the way it may be viewed. Nor would it have made any great difference had the douching been done by the interns themselves. Douching the nose is such a common and universal

*Read before the Philadelphia Pediatric Society, November, 1918.

practice that few know how to do it—and do it well. That its practice by the laity is far too common is a fact that should be recognized. There is no need of indiscriminate or constant douching and spraying of the nose—a matter which, however, will not be dwelt upon in this discussion.

We are concerned now more with the technic than with the indications and contraindications. Assuming, then, that douching is indicated in any given case, how shall it be done in a child, so that good instead of harm may result? A technic for nasal douching that reasonably meets the requirements is as follows:

Both nasal fossæ should be as free and as open as possible, so that the return flow of liquid be not impeded, to avoid carrying infection to the middle ears. Inspection of the nasal fossæ under good illumination is necessary. Patients requiring douching rarely have the fossæ open; but, open or not, contraction of the mucosa, especially the cavernous tissue of the turbinates, is indicated. This is accomplished by dropping a solution of adrenalin chloride (1:2,000 or 1:4,000), or some similar suprarenal preparation, in each nasal fossa. An ordinary medicine dropper makes a good apparatus. The tip should be perfectly smooth so that it will not scratch the mucosa in case of accidental contact, and it should be of generous calibre. In order that the adrenalin may reach the upper as well as the lower portions of the nasal fossæ, the child's head should be well extended, preferably while in the supine position on a bed, couch, or an attendant's lap. After a few minutes interval, during which the child may be allowed to resume the sitting posture, the instillation should be repeated until inspection demonstrates that the turbinates are well contracted. Ordinarily, it is wise not to use cocaine in children for the purpose of contracting the mucosa.

With the turbinates contracted, the child should occupy the sitting posture and bend the head forward and downward until it almost faces the floor. This is to allow gravity to assist the egress of the washing solution. A soft rubber nasal douche, of a capacity of a half an ounce or less, may be filled with the washing solution and introduced into the nasal vestibule. The solution should be comfortably warm. The ordinary soft rubber ear syringe with the long tip is objectionable in that it may penetrate too far into the fossa. The pear shaped douche with the short, blunt, conical tip, too wide to pass the vestibule, is a safer apparatus. The douche should be used with gentleness, and the stream directed along the floor of the fossæ as well as the upper portion. A douching apparatus of a larger capacity than a half an ounce is objectionable for the reason that a flow lasting more than a few seconds is likely to cause middle ear involvement, for the little patient may involuntary perform the act of swallowing and so permit the solution to enter the middle ears, possibly carrying infection with it. Deglutition may be delayed or prevented by having the child keep the mouth open. In children under seven years of age, there are ordinarily no organic obstructions in the nasal fossa to interfere with the flow of liquid. Whatever obstruction exists is usually due to adenoids, func-

tional swelling of the turbinates, or to secretion. In older children, however, a septal deformity alone may cause one fossa to be less free than the other, even after contraction of the mucosa. At any rate—and this is the important point—unless both sides are reasonably patulous, the solution should be introduced into the less open fossa of the two. Failure to observe this precaution has often resulted in an acute otitis media. With both sides sufficiently open, however, no such precaution is necessary. Ordinarily, from two to four ounces is a sufficient quantity of solution to cleanse the nasal fossæ. Inspection under good illumination is now in order, and if discharge still is present, the douching may be repeated. Unfortunately, with the means at our disposal including even the use of the postnasal mirror and the pharyngoscope, we are unable to ascertain if the nasal mucosa is completely cleansed; and in any event, the use of the postnasal mirror and the pharyngoscope is not practicable in a young child. Anterior inspection must then suffice; but we may gain additional information by having the child inhale and exhale rapidly through the nose, making note of the sound. Between the several douchings and afterward, the child, if old enough, should be instructed to blow the nose—both sides simultaneously. The common practice of closing one side of the nose while blowing the other is permissible under certain circumstances, but ordinarily it is to be avoided; the side held closed is usually the open side, and should the forcibly expired air be prevented from having easy passage-way through the remaining nostril, infection might be carried to the middle ear; or, if it is to be denied that infection may thus take place, at least an acute otitis media may be precipitated. It is well that the child learn in its earlier years to become habituated to blowing both sides of the nose at one time. Very young children and sometimes older ones, however, cannot blow the nose well at all.

Until their fears become allayed by a repetition of the process, douching the nose is not relished much by very young children. In such cases the little patients may be held by an attendant or parent. The child sits upon the attendant's lap, with its legs held between those of the attendant; the attendant's arms are placed beneath the arms of the patient; the attendant's hands fixed firmly on the sides of the child's head; the elbows of the attendant raised to keep the child's hands out of reach of the field of operation; and the child's head and body bent forward and downward. This is not a cruel procedure at all but anything strange done to a young child will not meet with its enthusiastic approval, and it will vent its protest in crying. Such little artifices as allowing the child to play with the douche bulb and to use it as a squirt gun are often of material assistance in gaining the child's confidence. The crying, however, is of short duration and does not interfere with the douching nor its object, if the stream is thrown gently into the nose during the expiratory cry—never during inspiration.

At this stage, whatever medication deemed necessary is instituted. After which a bland oil, e. g., liquid petrolatum, of known nonirritating character,

should be applied to the mucous membrane. This is for the purpose of supplying a protective covering to the mucosa, for the douching will remove not only pathological secretion but also some of the normal mucus. Either a medicine dropper, a nebulizer or an atomizer may be used to apply the oil, the atomizer under illumination only. The oil may be medicated. For this purpose, menthol and camphor are commonly employed, but in rather too strong solution. A half grain of each to the ounce is sufficient. A drop of fragrant oil, e. g., cinnamon or wintergreen, is a little thing that helps satisfy both the fastidiousness and the imagination of patients, little and big.

A few words concerning the nature of the douching solution. For many years, or more, alkaline solutions have been used. They have been recommended because they are the better solvents of nasal discharge. This is true, and also desirable. They are also better solvents of normal mucus—the natural protective covering of the mucous membrane. That is likewise true, but not desirable. To rob the mucosa of its normal mucus is to deprive it of its natural protection. And since acid solutions have no such tendency, acid solutions are to be preferred. Such a statement disturbs hoary tradition. But there are some traditions that are too snug and ought to be disturbed. All solutions will remove secretion by the physical force of the moving liquid, and that is quite sufficient for the purpose; chemical action is not advisable when it is capable of harm. Equal parts of normal salt solution and saturated boric acid solution is recommended by Freeman. This is absolutely nonirritating and not nearly so productive of dryness of the mucosa as are Dobell's, Seiler's, and other alkaline solutions.

The frequency of douching depends, of course, upon the nature of the nasal affection. Postnasal douching, which is of service in adults, is not practicable in young children. The technic of the nasal douching of a child, then, may be summarized as follows: Good illumination of the nasal fossæ by means of head mirror and reflected light; contraction of the mucosa to render the fossæ patulous; small soft rubber douche, with a capacity of not more than half an ounce; head of child bent forward and downward; douching solution should be warm, nonirritating and of slightly acid reaction, and introduced into less open fossa of the two; application of oil to nasal mucous membrane. Generally speaking, douching should be done by the physician only.

MEDICAL ARTS BUILDING.

New Treatment of Bacillary Dysentery.—D. Yandell (*Southwestern Medicine*, March, 1919) describes a method used by him in a series of ninety-four cases. This consists of the hypodermic administration of adrenalin solution ten to twenty minims every four to six hours, and thymol in capsules ten to twenty grains every other day on an empty stomach, followed after six hours by epsom salts. No food was given for eight hours following. The results were satisfactory and seemed to be a marked improvement over the former technic.

SYMPTOM COMPLEX COMPLICATING ACUTE MASTOIDITIS, ASSOCIATED WITH SCARLET FEVER.*

By J. CLARENCE KEELER, M. D.,
Philadelphia.

Owing to the complications and the complexity of the symptoms, and to the subsequent operations, I am prompted to report the following case:

CASE I.—Private C. J. B., aged twenty-two, admitted to the U. S. Army General Hospital No. 9, Lakewood, N. J., February 18, 1918, suffering with scarlet fever. There is nothing in this athletic young man's previous history bearing upon the present condition, except frequent and profuse epistaxis following an attack of typhoid fever, several years ago. Four days after admission, he complained of pain in the right ear. The drum membrane was not inflamed, but it was moderately retracted. There was, however, a well marked acute catarrhal pharyngitis. Five days later, when I again saw the patient, I found an acute otitis media hemorrhagica had developed. The external auditory canal was swollen and contained many hemorrhagic blebs which extended over the membrana tympani with a necrotic exfoliation of the dermal layer. Associated with this, was an attack of epistaxis from the right naris. Myringotomy was performed under local anesthesia. Within forty-eight hours, the right mastoid, seriously involved, presented the classical symptoms, i. e., pain, tenderness, redness, and swelling which extended well over the temporal region. The temperature was $102\frac{4}{5}^{\circ}$ F., the pulse 106, and the respiration 24. The urine showed double plus albuminuria with granular and hyaline casts.

A simple mastoid operation was performed under chloroform anesthesia. The mastoid was extremely hemorrhagic and pus was found throughout, but more especially, in the tip.

The cells were pneumonic in form, and hard, flintlike in character. After a thorough exenteration of the cells, the wound was irrigated, packed, and closed with a posterior drainage. About seventy-two hours later, the patient became restless, and complained of a distressing pain in the back of his neck and a severe headache. There was nausea, and projectile vomiting. He was very dizzy, and so great was the vertigo, that he gripped the bed fearing to be pitched out.

There was a mixed nystagmus, both rotary and horizontal to the right, and a distinct oblique nystagmus upward. His temperature dropped to 97° F., pulse 60, and respiration 16. Blood pressure, systolic 158, diastolic 125, and pulse 23; leucocytes 33,600, and double plus albuminuria, with granular and hyaline casts. A culture of the pus taken during the operation showed streptococci. Twenty-five c. c. of fairly clear spinal fluid under moderate pressure was removed. It did not reduce Fehling's solution. Kernig's sign present.

The symptoms strongly suggesting an extension of the infection to the labyrinth, cerebellum, and meninges—a circumscribed serous meningitis, the mastoid was reopened, under chloroform anesthe-

*Read by invitation before the College of Physicians, Philadelphia.

sia, and the simple operation was converted into a radical one. At the apex of Trautnant's triangle, there was a *dehiscence* of bone, and granulations which when removed, caused about two drams of pus to flow from the cerebellum. Fortunately, I was able to open the semicircular canals and remove the cochlear with little difficulty except for the persistent hemorrhage which continued throughout the entire operation. The wound was gently irrigated and packed. All the distressing labyrinth and intracranial symptoms ceased, and the patient did well, until the third night after the operation, when a hemorrhage occurred. This was so severe that both dressings and pillow were drenched with blood. The hemorrhage was from the posterior auricular artery. Pressure with gauze saturated with 1/1,000 adrenalin and a tight bandage controlled the bleeding. Happily, from that point, recovery was rapid and uninterrupted. And with the exception of the loss of hearing, in the affected ear, the young man is now in excellent health.

Summary.—The virulent form of infection involving the labyrinth, the cerebellum, and the meninges demanded immediate operation, and I believe the man's life was saved by this prompt action. The risk of operation was intensified by the kidney complications necessitating chloroform anesthesia, and I am greatly indebted to Lieutenant O'Brien and Lieutenant Becker for its successful administration.

RECENT GLEANINGS RELATIVE TO THE PROPHYLAXIS AND TREATMENT OF INFLUENZA.

By LOUIS T. DE M. SAJOUS, B. S., M. D.,
Philadelphia.

(Continued from page 859.)

Low blood pressure and weakened heart action in infectious diseases in general being apparently in some measure antagonized by a combination of quinine and arsenic, Armand Gautier, a well known French observer, was led during the epidemic in the fall of 1918 to continue his experiences with this combination in severe cases of influenza. The results obtained seem to have been good, for in thirty-eight cases already complicated with pneumonia and treated before the tenth day of the disease with quinine and arsenic, there were no deaths. Thirty-five additional severe cases in children likewise all terminated in recovery. Gautier's procedure is to administer subcutaneously twice a day to adults seriously depressed 400 mils of sterile normal saline solution in which have been dissolved 0.5 gram of quinine hydrochloride and 0.05 gram of sodium dimethylarsenate. These injections, which were continued until the febrile temperature yielded, seemed to have an especially prompt influence in relieving dyspnea and cyanosis, and in the aggregate apparently reduced the mortality from the disease. Gautier does not, however, make it entirely clear to what special actions of the drugs used the benefit he obtained is to be ascribed.

Another conception of the possibilities of drug treatment in antagonizing infectious processes in

general is that of Alvarez, 1918, who deems iodine internally a valuable measure both in influenza and other acute diseases. He views it as exerting a bactericidal action, stimulating the defensive activities of the organism, and reducing local congestions through regulation of the circulation. Five drops of the Spanish tincture of iodine—ten per cent.—are given every three hours from the onset, usually in milk or coffee. Clinical experience appears to him to have shown definite benefit from this treatment, especially when combined with enemas of sodium sulphate.

Methylene blue has recently been recommended in influenza by several observers. Blum, of Strasbourg, 1919, first found it of value in the course of the summer of 1918 in obstinate cases of influenzal neuritis, and when the epidemic recurred at the end of September, extended its use to all stages and varieties of the disease. The drug was often given by mouth in doses of 0.2 gram four or five times a day; in other instances, by intramuscular or intravenous injection. While the remedy did not prove sufficiently effective to save life in malignant cases, a diminution of mortality seemed to result from its use, and when administered from the onset, it proved capable in some instances of aborting the disease, or at least of rendering its course shorter and milder and preventing recurrences and complications. Loeper and Grosdidier, 1918, assert that they obtained positive results from methylene blue in influenza complicated with bronchopneumonia. They reserve the remedy especially for cases of this type, using other measures for the simpler forms of the disease. The intravenous route of administration did not, in their experience with this drug, seem in any way superior to the oral. As regards dose, the customary amounts were used and the results noted were consistently uniform, the effects being manifested shortly after the administration. The results were highly significant.

Intravenous medication with various agents has been thought of service by a number of observers. The authors just mentioned administered hexamethylenamine in this manner in the uncomplicated influenza cases, with asserted advantage. The amounts used aggregated two to three grams a day, and the drug seemed to act as a sedative, antipyretic and diuretic. Loeper and Grosdidier became convinced that the measure was capable of preventing or aborting bronchopneumonia in a considerable percentage of cases, and that its beneficial action was exerted through stimulation of elimination of the specific toxic products through the kidneys. The patients showing prompt diuresis were those who recover. Caution in the initial dose is advised, as excessive amounts from the start might accentuate the albuminuria sometimes present in influenza. The same measure was employed by Pissavy and Robine specifically in the treatment of lung complications. Among thirty-seven patients thus affected, seventeen received intravenous injections of two grams of hexamethylenamine in eight mils of water. Of the twenty patients treated in the customary way five succumbed, while of the seventeen treated with hexamethylenamine, but one died.

(To be continued.)

CLINICAL NOTES FROM FRANCE.

BY CHARLES GREENE CUMSTON, M. D.,
Geneva, Switzerland.

PREGNANCY AND CARDIAC LESIONS.

The present status in France of the question of pregnancy complicated by valvular lesions of the heart, will be discussed with particular reference to some work done in this direction by the Lyons school. The cases under consideration were studied by Bernard at the Maternity of the Hôtel Dieu Hospital in the city of Lord Bulwer's heroine. Unquestionably, pregnancy in women afflicted with cardiac lesions may be perfectly normal; all writers are at present in accord on this point and it would even seem, if statistics count for anything, that this is the more frequent occurrence. For some years Vinay has been in the habit of invariably examining the heart of every pregnant woman coming under his observation. Out of a total of 5,000 he found somewhat over eighty women with cardiac lesions. He is of the opinion that in fifty per cent. of these cases both pregnancy and labor took place normally. Demelin's statistics give approximately the same results. Bernard, who studied eighteen pregnancies in women with cardiac affections, states that in eight no accident occurred, four presented malaise which was not due to the existing cardiopathy.

Nevertheless, a pregnant woman with cardiac lesions is unquestionably exposed to various serious complications, which for convenience may be classified under two main headings, viz.: Complications due to the influence of pregnancy on the cardiac lesions (gravidocardiac accidents), and complications due to the influence of the heart lesions on the genital apparatus (metrorrhagia, miscarriage and premature labor). By gravidocardiac accidents are meant disturbances of the organism arising during pregnancy resulting from cardiac insufficiency. They have been described by Peter. Porah classified them into four groups, viz.: Disturbances of the cardiac innervation, comprising palpitations, paroxysms of tachycardia and mild syncope; 2, cardiopulmonary disturbances resulting from stasis in the lesser circulation and characterized by intense dyspnea with sanguinolent and expectoration, signs of pulmonary congestion and edema with absence of edema of the lower limbs; 3, asystolic disturbances or stasis of the great circulation, with generalized edema, signs of hepatic or renal stasis and those arising from dilatation of the right heart, and 4, disturbances due to visceral emboli, especially cerebral, and ending in hemiplegia.

This classification has been much criticized, and probably rightly so, by Pouliot, who points out that the so called disturbances of cardiac innervation strangely resemble those of nervous origin frequently encountered in pregnant women who have no cardiac lesion. Here are two instances:

CASE I.—B. A., aged nineteen years, primipara. At the age of thirteen she suffered from acute articular rheumatism which lasted six months, since then she had had several slight attacks. Menstruation appeared at the age of eleven years

and had been regular. During gestation had had some slight palpitations. Auscultation of heart revealed signs of aortic insufficiency. Normal labor, male infant weighting five pounds. Postpartum condition normal.

CASE II.—L. P., IV para. Three years ago was treated in hospital for rheumatism. Menses at the age of fourteen years, regular. Three former pregnancies normal except for the last one, during which there were cardiac accidents lasting for three days. Labors were normal at term. All the infants were breast fed and are living. During present pregnancy some dyspnea, no albumen. Auscultation revealed a slight, rather soft systolic murmur. Spontaneous delivery. Postpartum condition normal.

On the other hand, the cardiac disturbances may immediately precede serious accidents of asystolia and it is a question why the various symptoms belonging to the same phenomenon should be placed under two separate headings. Perhaps Porah was wrong to confound the cardiopulmonary disturbances in asystolia with those of acute pulmonary edema. One, due to stasis, with phenomena of passive congestion should remain under the heading of asystolia; the other acute edema, produced by a sudden hypertension of the lesser circulation, occurs especially in a very tight mitral stenosis. The presence of a renal lesion is necessary which will favor its appearance by creating either an intoxication or a retention of the chlorides. Finally, as to visceral emboli, although their frequency during pregnancy is fairly frequent, gestation cannot be greatly incriminated in their formation. Therefore, asystolia and pulmonary edema are really gravidocardiac accidents and as Bernard has never met with acute pulmonary edema and as I am outlining his particular researches I shall confine my remarks to asystolia.

Several theories on the pathogenesis of gravidocardiac accidents in pregnancy have been put forward. For example, Larcher admits that these are especially due to the physiological hypertrophy of the left ventricle during gestation, and the proofs that have been given in support of this theory may be summed up as follows: An increase of the cardiac dullness, a characteristic souffle, arterial hypertension, fatty overcharge of the ventricle and an increase in the weight of the heart. Regardless of its seductive character, this theory has been doubted by Porak and others and it could not withstand the precise researches carried out by Letulle, Merklen, Vaquez, Vinay and Barranger.

The theory offered by Vaquez and Millet is based upon the functional superactivity of the lungs. It is certain that the lungs of the mother do the work for two—herself and her offspring. But this exaggerated activity occurs more especially at the end of gestation and cannot explain the accidents arising at the beginning of pregnancy. Therefore, there remains the theory put forward by Vinay, who supposes that the cardiac accidents are due to the condition of the myocardium and the emunctories. It is certain that, if the valvular lesion is badly compensated and the myocardium fatigued, the slightest cause will provoke a paroxysm of cardiac insuffi-

ciency. This theory appears to be satisfactory and Bernard finds that in all his normal pregnancies (normal from the cardiac viewpoint) he never noted an acute or chronic affection of the lungs or other viscera and never any albumin in the urine. Three of his patients presented an asystolia, but their cardiac lesion was of long standing. The patients were not young (their mean age was thirty years), two were multiparæ and two had bronchitis. The third had an erysipelas. Finally, Bernard had another patient who had a paroxysm of asystolia during a former pregnancy, but none in the following one. As to the gravity, two causes must be taken into consideration: The nature and degree of the lesions, and the importance of the intercurrent disease. At present it may be admitted that a purely mitral lesion is the most serious but all depends upon the degree of the stenosis or the insufficiency. The lesion by its action on the emunctories is also important and greatly contributes in making a prognosis. Of course, although far less frequent, pulmonary edema is much more serious than asystolia. Gravidocardiac accidents may be serious for the mother, for the offspring, or for both at the same time. To save the mother an induced miscarriage may be urgently indicated and this question should be considered. In fact, the majority of writers advise induced miscarriage and, from what can be gathered from the literature, the impression is favorable for this interference. Now, as to the complications resulting from the influence of the heart lesions on the pregnancy a few words may be said. These complications comprise metrorrhagias, miscarriage and premature labor.

Metrorrhagia may arise at any time during gestation and assume any type. Usually, it occurs at the beginning of pregnancy and at the time when the menses should appear. It is difficult to say whether the loss of blood is due to the cardiac affection or from some other quite different cause, such as a bad insertion of the placenta or hemorrhagic metritis. Miscarriage due to heart lesions is a still much mooted question but premature labor from such lesions is better understood. Their mode of action has been attributed to blood collections resulting from cardiac congestion and bringing about detachment of the placenta. A defective development of the fetus has been cited while some writers have accused an excess of carbonic acid in the blood in patients with cardiac lesions as provocative of uterine contractions. All these accidents have only a bad prognosis for the fetus. Some women with cardiac lesions will miscarry during their first pregnancies but will go to term in the following ones.

Treatment of Pulmonary Tuberculosis in Children with Artificial Pneumothorax.—E. Stolkind (*British Journal of Children's Diseases*, January-March, 1919) gives the indications as one sided advanced phthisis, hemoptysis, lung abscess, carcinomatous pleurisy, pulmonary tuberculosis with pleural effusion, or spontaneous pneumothorax. Contraindications are complication of the lung process with other severe diseases and asthma of aortic, or renal origin.

LETTERS FROM OUR READERS REGARDING PROHIBITION.

NEW YORK, May 22, 1919.

To the Editors:

I fully appreciate the great importance of the present laws in regard to the use of alcohol and narcotics by physicians.

There is really no knowing at the present time when this reign of narrowness and fanaticism will stop. Already bootleggers have been killed by sleuths employed by the State Government of Virginia in order to stop illicit traffic; gentle women travelers have been submitted to shameless search by a band of hold up representatives of a sumptuary law; a Governor of Michigan has signed his name to a bill calling it a felony to have alcohol in one's home. Surprise is emphasized by a famous Englishman, Sir Thomas Lipton, just arrived among us again, that what he and his countrymen thought a country of liberty has now become in regard to one's personal liberty, an actual despotism. In the March issue of the *Pharmaceutical Era*, it is stated that this country has imported for the past ten years an average of four hundred thousand pounds of opium annually; of this about twelve per cent. has been used legitimately in medicine.

If this country uses legitimately only twelve per cent of the amount imported, what becomes of the other eighty-eight per cent.? There are no restrictions on either the importation or exportation of narcotics. It is said that heroin and cocaine are exported to nearby countries in large quantities and smuggled back over our border and distributed to the underworld and the large prices they are willing to pay for it makes the business attractive. I see only one way to meet the situation and that is to amend the narcotic laws by prohibiting the exportation of all narcotics except to those countries having narcotic laws that will control their sales and distribution. I have quoted tactfully what precedes on account of its urgent importance at present when the number of dope fiends is increasing by leaps and bounds; as we know, these addicts are not only a source of untold misery and degradation to themselves, they also contribute to the increasing criminal class, as is officially affirmed by our police. I ask imperatively, where are we, and where are we going? Are all worthy, patriotic, and useful citizens to be continuously and increasingly victimized by men and women of little faith? Practically, I claim that even well intentioned people, with muddled brains, do untold harm to the great causes of righteousness here and everywhere.

BEVERLY ROBINSON, M. D.

PHILADELPHIA, May 22, 1919.

To the Editors:

My feelings are very strong in the matter of the sale of alcohol and alcoholic liquors for medicinal and scientific purposes; and I can speak freely as one who makes little use of liquor for himself. This question has, of course, nothing to do with the matter of national prohibition.

The present state of affairs is one which the medi-

cal profession has done much to bring upon itself by ill advised action. In proclaiming by vote that alcohol never is of any therapeutic benefit of any sort, it has nullified any argument it might advance in favor of the sale of alcoholic liquors of any kind for medicinal purposes. It has always seemed to me difficult by physiological experimentation to controvert the experience which has come from centuries of clinical and lay observation. What we prove one year in this way we disprove the next—and this is no reflection upon physiological studies—but as it should be if we wish to advance in our actual knowledge. Physiological findings cannot, however, be our only guide; and the sick men who, during the hundreds of years past, have been revived when apparently slipping into the unknown, or aided promptly under other conditions by the administration of an alcoholic stimulant, would care very little what happens to the normal frog or dog or cat when dosed with alcohol. I am one of those who believe that alcohol under certain circumstances is a most valuable therapeutic agent; whether it is a cardiac stimulant or not, or whatever the way may be in which it acts. But whatever may be our views in this matter, and whatever the truth may be, the right of a physician to employ such remedies as experience has taught him to be useful should be inalienable and ought not to be curtailed and even removed completely as is done by the existing legislation. We are in the position of having our government dictate our therapeutics to us. This is certainly a galling position for the physicians of free America.

As to the present regulations upon the sale of pure alcohol, they would appear to the medical man as amusing if they were not so annoying, and the same is true of the Harrison law. Regulations concerning the sale of narcotics were and are needed; but it would seem that these might so have been framed as not to bring hardships upon practitioners, and suffering on their patients. A child who wakens in the night with croup; a man or woman with intense pain of any sort, can no longer telephone for aid to his physician who lives, perhaps, miles away. He cannot be told to go to the druggist and procure the remedy so badly needed, not even though the physician himself telephones to the druggist ordering the remedy to be given. Surely laws could be formulated which would not impose inconvenience and distress of this sort. Even a more anomalous case: the physician himself, taken with an attack of renal colic or other acute pain, and unable to obtain other medical aid, cannot have the druggist fill a prescription written by himself for his own use, and cannot urge by telephone that the remedy be sent speedily. A blank form must be filled out, or the physician is obliged to resort to falsification by writing the name of some imaginary individual upon the prescription. Again, to say the least, a most remarkable state of affairs. This in an instance where medical laws framed by other than medical men fail in their proper object.

The present restrictions are, in fact, burdensome in the extreme, and the good which they accomplish is in no way commensurate with the evil, when we consider that without doubt governmental regu-

lations which are not so obnoxious could well have been made. The problem is, of course, a difficult one. It is surely capable of solution, but no satisfactory one will be reached until the actual need of medical practitioners and of their patients is taken into serious consideration by our lawmakers. If the government would be willing to refer this matter to some advisory board of physicians and pharmacists for recommendation and advice, it seems reasonable to hope that a way out might be obtained.

Reverting for a moment to the question of national prohibition: The adoption of a measure of some sort which would curtail the prevalence of intemperance, with the manifold harmful results to the innocent progeny of drunkards, cannot be anything but welcome to physicians. Whether any less drastic measure would have answered, I do not know, but it is at least conceivable. Whether prohibition will actually prohibit where this is most needed, only time can tell. It is a noteworthy fact that, from the earliest times, as far as history informs us, and in all parts of the world, alcohol has been used as a beverage, sometimes with harm, sometimes apparently without it. Whether by the passing of a law we can subvert this thousand year old practice is an interesting problem for the future to solve.

J. P. CROZER GRIFFITH, M. D.

NEW YORK, May 16, 1919.

To the Editors:

Replying to the compliment conveyed in your request for an expression of my views on the subject of restrictive legislation regarding alcohol and narcotic drugs, may I say in brief that I am in hearty accord with the opinions expressed by Dr. Beverly Robinson. I feel rather opposed, however, to any weeping and wailing about what is going to happen to the public as a result of the withdrawal of alcohol from our *materia medica*. We physicians are not responsible for the legislation being complained of, and inasmuch as the public has decreed through its representatives for the elimination of alcohol it is not the duty of medical men to take issue with the public or its representatives. I can see no reason for physicians worrying about the impending absence of alcohol. Let the public have what it wants, but let it suffer the consequences. This seems to be a narrow and conscienceless point of view, but I am convinced that it is necessary for the community to learn through bitter experience what they have been urging their representatives to do for them in this matter of prohibition.

Personally, I resent the interference with my personal rights, though I rarely take any alcohol; but as a physician I feel it is no concern of mine what happens. I shall do the best I can and hope for the best. We cannot be expected to make bricks without straw. It is well, however, to remember that the medical profession is not altogether guiltless in the winning of this great prohibition victory. I remember distinctly reading the opinions of medical men of prestige and prominence, to the effect that alcohol was neither a food nor a stimulant in

sickness, and therefore could readily be done away with. And as far as my memory serves me, only one man in the profession has had the courage to advocate the use of alcohol in medicine—the illustrious Jacobi. Everybody else has either danced to the prohibition tune or said nothing. Then why this weeping and wailing at this late hour when the thing is a *fait accompli* and there is no remedy except some kind of evasion?

In short, it is my opinion that it is not the duty of the medical profession, individually or collectively, to take any active steps in this matter of prohibition. The people want prohibition, evidently; let them have it, and all that goes with it.

ABR. L. WOLBARST, M. D.

NEW YORK, May 18, 1919.

To the Editors:

You are quite right. I agree with you that the question of handling narcotic preparations and narcotic drugs is one of the most serious problems that is before the medical profession at this time, and it is going to be much more serious before long. I have not made up my mind as to what I think best. It is too complicated a situation to give an offhand answer, and I therefore do not care to give my opinion at this time. I am not yet ready to express myself definitely on the subject.

ALEXANDER LAMBERT, M. D.,

NEW YORK, May 19, 1919.

To the Editors:

In the combat with disease the physician's hands must not be tied. He must be free to use every curative agent which scientific research and clinical experience has demonstrated the value of. His mission is to prevent and to cure disease and he must be given free choice in the agents which he uses for that purpose. It is true that some physicians and laboratory workers decry the use of alcohol in any form, but the great majority of leading practitioners are agreed that under certain conditions alcoholic liquors are valuable medicaments. The federal and State laws should certainly be so adjusted as to leave the practitioner at liberty to order alcoholic liquors for his patients when in his opinion their use is indicated.

JAMES R. HAYDEN, M. D., F. A. C. S.

ASHEVILLE, N. C., May 23, 1919.

To the Editors:

Although I have found in my State, that the prohibition law we have passed here, which is a reasonable and sensible one, has been of infinite benefit to the poor people, and I would vote for it again gladly and am certain that no one in the State would wish it removed, I have greatly regretted the attempt at making prohibition nationwide through Congressional action, instead of leaving it to the action of the legislatures of the individual States. I have also in my State found it very awkward to be deprived of the use of alcohol in my medical practice, for while I did not use it in large quantities, there were many conditions in which I found it indispensable and cases where nothing else can take its place. It seems to me whatever law is passed, doctors as well

as pharmacists should be given the permission to prescribe and dispense liquors for strictly medicinal purposes under certain restrictions. I recognize that even our profession has certain members who would abuse this privilege, and doubtless it is true also of pharmacists, but the number would be very few, and the possible slight harm done would be more than compensated by the great advantage to patients. There are many conditions, especially in the very aged and in the very young, where moderate and intelligent use of brandy, whiskey, malt, sherry, and at times champagne, is strongly advisable, and it is wrong to deprive the patients of these useful articles. If I could send you worth while suggestions regarding the handling of the intricate and dangerous problems involved, I should feel that I was rendering a valuable service. It is a problem that has confused all of us, but I can only say that my experience with prohibition in North Carolina, as I have said earlier, satisfies me that in a State which desires it, it will prove a great blessing, but that there should be more liberal treatment of the profession, as regards their ability to use it for strictly medicinal ends.

CHARLES L. MINOR, M. D.

FERT WAYNE, IND., May 22, 1919.

To the Editors:

In reply to your inquiry concerning the legislation regarding handling alcoholic preparations, in my opinion such legislation as this is opposed to the interests of the public good. In my estimation alcohol is a valuable drug and it should be at all times possible to get it whenever in the opinion of the physician it is necessary. The present activities of the prohibitionists remind us of the fact that temperance should apply to other things as well as to the use of alcohol.

MILES F. PORTER, M. D.

NASHVILLE, TENN., May 20, 1919.

To the Editors:

I agree with you, and especially the article enclosed by my friend, Dr. Beverly Robinson, in regard to the prohibition law being a very grave menace, and while I would be glad to suggest some remedy in order not to make it so stringent, I do not know that I can do so, but think in its present shape it is a great barrier to a civilized country. The use of alcoholic liquors is important in the treatment of many conditions, and at times nothing seems to answer so well as whiskey or brandy. I trust, that our legislative body will become more thoughtful and find some remedy to meet the existing prohibition law.

DUNCAN EVE, M. D.

RICHMOND, VA., May 21, 1919.

To the Editors:

I should be glad to see an effort made in trying to check this mad wave of reformation in the use of alcohol and narcotics. This has now reached a stage in Virginia that is intolerable. In the practice of medicine we will be handicapped to such a degree that we will not be able to do justice to our patients.

C. A. BRYCE, M. D.

Editorial Notes and Comments

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NEW YORK, SATURDAY, MAY 31, 1919.

THE VALUE OF ALCOHOL.

The alcohol question has agitated the minds of men for a long period of time. The war brought the matter to the front more forcibly than ever before, the Allied countries taking steps to restrict the consumption of alcohol. Canada, for instance, prohibited absolutely the use of alcohol as a beverage. This country has now followed suit and nationwide prohibition is to be enforced. Naturally so radical a measure has aroused a great deal of criticism. This legislation is termed by many an unwarranted interference with the liberty of the citizen. Perhaps this contention is true to some extent, but we shall not discuss that side of the question.

Regarded from the physical, economic and social aspects, the use of alcohol as a beverage will not bear analytical investigation. Something may be said in its favor from the social point of view. Wine maketh glad the heart of man, and there are times when it is desirable and almost essential to health that the heart of man should be made glad. A philosopher once said that whatever added to the agreeableness of life added to its resources and power. There is no doubt that the case for alcohol used in moderation has much in its favor but scarcely warrants the assertion made by some that its advantages counterbalance its admitted dangers.

Strictly speaking, alcohol may be regarded as a food, a medicine, or a luxury. The food value is inconsiderable, and except in certain possible cir-

cumstances it is an extremely wasteful food; in fact, it is rather a fuel than a food. Alcohol possesses a drug value which in the past has been considerably overestimated and which at the present time has a greatly restricted application. On the other hand, as an aid to digestion diluted wine used with discretion appears sometimes to exert a decidedly beneficial effect.

The Advisory Committee of the British Central Control Board has issued recently a report on alcohol which seems to be marked by fairness and good judgment and which is conspicuously lacking in the dogmatic tone of many so called scientific pronouncements. The members of the committee submit that by no means the last word has been said on the subject and that the object of the report is to pave the way for further research rather than to send forth statements which are incapable of exact proof. They point out that a number of the theories hitherto promulgated have been based on erroneous data and false premises. They do not say what is unfortunately true, that the arguments of temperance reformers are apt to be born in prejudice and colored by well meaning but fanatical enthusiasm.

The provisional conclusions of the committee are as follows: 1, Alcohol is undoubtedly a food in the sense that its combustion in the body can supply a considerable part of the energy needed by the organism. 2, Unlike other food stuffs, it cannot be stored in the system in altered form to be used as required but remains in the blood and tissues as alcohol, exerting a deleterious influence if present in excessive amounts and over prolonged periods of time. 3, By reason of the latter characteristic alcohol cannot safely be used as a predominant element in the diet without risk of injury to health, and, on this account and also because of its disturbing effect on nervous functions, it is unsuitable as a staple food for industrial workers. 4, Its action on the nervous system, with the possible exception of its effect on the respiratory centre, is essentially narcotic and not stimulating. 5, The moderate use of alcohol by the average normal adult is physiologically unobjectionable provided it is limited to beverages of an adequate dilution, taken at sufficient intervals of time to prevent a persistent deleterious action on the tissues.

This summary expresses in a nutshell the opinion of the majority of scientific men. Emphasis should be laid on the fact that no definite conclusions have been reached as to the value or harmfulness of alcohol. Its abuse is harmful, and if

used as a beverage it should be taken well diluted and in moderation. Although its drug value is problematical, a number of medical men of wide experience state that alcohol is indicated in the treatment of some conditions. A few go further and assume that in the treatment of influenza and pneumonia its use is almost essential. Other medical men deny that alcohol as a drug exerts any therapeutic action worthy of consideration.

To arrive as near the truth as possible, it will be wise in politics to make a compromise: to allow that clinical experience has shown that alcohol possesses some therapeutic merits but not to allow that its value in this direction is exceptional. The argument that alcohol is a poison and consequently cannot be valuable as a drug is absurd, for if that line of reasoning were pursued a goodly number of our most treasured drugs would be condemned. At any rate, it would be well not to pass final judgment on the medicinal value of alcohol until the question has been thoroughly threshed out.

THE USE OR ABUSE OF ALCOHOL.

A hammer in the hands of a shoemaker is a useful instrument; in the hands of a maniac it becomes a dangerous weapon. The same is true of alcohol. The exact therapeutic value of alcohol is still a subject for discussion. Reputable scientific workers contend that in certain cases alcohol is of specific benefit and is a valuable therapeutic remedy. Others maintain that it is a toxin and that its use should be discontinued. This is true of any drug with the exception of a few accredited specifics.

No question need be raised as to the use of alcohol in medicine. This should be left to the discretion of medical men as in the case of other drugs. The food value of alcohol under certain conditions where rapid absorption is necessary for the maintenance of a patient's physical strength has been proved, and if there is divergence of opinion among medical men as to the exact medicinal value of alcohol it is not due to variation in results so much as to lack of scientific study.

The question which confronts us now is the abolition of alcohol as a beverage. Has society been harmed by the use of alcohol? In countries where light wines and beer are used drunkenness is seldom found, while in countries where spirits are freely used drunkenness is frequently encountered. Is drunkenness due to liquor primarily, or is liquor resorted to on account of the conditions under which these men live? Here again we find a diversity of opinion. Some workers contend that such conditions are due to the lowered status of

the men resulting from alcoholic indulgence, while others emphatically declare that if conditions were bettered people would not resort to such a method of escape from their surroundings. One Englishman has said that gin is an anesthetic that enables the workmen of London to go on with the operation of living. If this deduction is correct prohibition of the use of alcohol is not going to solve the question. These people will seek and find other channels of submersion to avoid facing disagreeable surroundings and empty lives.

Under the pressure of a highly organized society, with the mechanistic world setting the pace for individuals recently removed from an easy going, slow moving rural existence, many find it difficult to adjust themselves. They pause to rest and shut out the hurrying clatter by partaking of alcohol; tension is removed, and they go out refreshed to take up their mad race. Some pause too long. They lack courage to go on with the struggle. Through the long, relentless grind they find a bit of color in the cheering cup that relieves a horizonless existence. So we find that in rural communities beer and light wines are the prevailing beverage; it is in the cities, especially in the crowded industrial centres, that strong spirits are used in great amounts.

Legislation does not always search out true causes. Symptomatic treatment is attempted instead of a thorough study of the systemic malady underlying the disease. Perhaps legislators will find that they have not healed the diseased social structure and will look for a more fundamental remedy. The evil itself has been graphically pointed out, but the causative factors are far beneath the surface and have not yet been reached.

TONSILS AND APPENDIX.

That there should be so many cases of hypertrophied and chronically inflamed tonsils and of diseased appendices seems a mystery until one considers that these organs are subjected to conditions with which they were never built to cope. These and all other organs of the body were developed in our animal ancestors and, for millions upon millions of years fulfilled their tasks as perfectly as liver or lungs. Situated at the two extremities of the more active and fairly sterile portions of the alimentary tract, their business seems to have been that of citadels of defense full of leucocytes against bacteria of the mouth and colon. They had in earlier days, from the habits of the animal, comparatively little to do, and doubtless were kept in better condition from within than is so often the case in modern man.

Tonsillitis and appendicitis were probably un-

known to our simian and presimian ancestors. The presence of these diseases is indicative either that the structures are overwhelmed with defensive work, or that they are ill developed or damaged from want of certain food materials. So far as the tonsils are concerned the impairment of the protective means for keeping down the number of microbes in the mouth is responsible for the infection, if not of a work hypertrophy, of those structures, while the appendix is beset by bacteria which accumulate in force in its neighborhood either from overloading of the digestive tract alone or from overretention of material in the region just beyond. The prevention of tonsillitis and of appendicitis with their possible consequences, would seem to depend on such care, especially of the alimentary tract, as anticipates and prevents the overwhelming of the tonsils and the appendix with work. A tonsil or an appendix which has become chronically inflamed is worse than no tonsil or appendix and has become a menace, but, if not overworked, both are doubtless of use to the body and deserve to form a part of our anatomy rather than to be snared by the surgeon.

GREAT ENGLISH SPEAKING MEDICAL MEN.

Of the American medical men who have excelled in literature, Oliver Wendell Holmes stands easily first and foremost. In some respects Holmes holds a position quite in the front rank of writers, and although not a genius like Goldsmith, nor so prolific nor perhaps so gifted as Smollett, he is in his own particular line inimitable. Unlike these two, Holmes was a shining light in the profession, and his name will endure forever in the annals of medicine as the first man to point out the infectiousness of puerperal fever. His monograph on puerperal fever as a private pestilence will serve to keep his memory as a physician green long after men more famed as practising physicians have died and have been forgotten. He wrote considerably on various medical subjects, was professor of physiology in the medical school of Harvard University, and was a practitioner of noted repute. But after all his medical gifts and medical writing are overshadowed by his literary fame. The *Autocrat of the Breakfast Table* is *sui generis* and abounds with quaint whimsical fun, humor, and good natured wit, garnished throughout with sound common sense, while his language is easy, flowing, sparkling and radiating. Of that really remarkable band of New England writers, including Longfellow and Emerson, Holmes was a

prominent member. He was a facile poet, and some of his poetical outbursts were not only good poetry but were exceedingly apt. The word outbursts is used with intention, for as a writer of poems on the spur of the moment Holmes has had few equals and still fewer superiors. In conversation he was quite as effective as in his writings. Among the brilliant coterie of literary men aforementioned he was the best conversationalist. He was witty, brilliant, humorous, and amusing. His character was amiable, although he was endowed with much strength of will.

In referring to American physicians who were also literary men it would be an oversight to leave out Silas Weir Mitchell. Mitchell was a novelist of distinction, a historian, and a poet. Moreover, he was more than an ordinary scientist, and in his special branch of practice was supreme. As the medical man he was greater than the artist. Mitchell's vocation and special bent was neurology, and his avocation and distraction literature. Mitchell was an instance of superlative talent appearing in a family in which high ability had been noted. Mitchell's father was a great physician and a poet. He was also yet another example of ill health overcome and of old age reached. Like Darwin, he was almost a chronic invalid throughout his life, and like that great scientist he lived to a green old age.

Charles Lever is the last great English speaking literary medical man to be mentioned. Lever was an Irishman, and in many respects a typical Irishman, and on the whole was the greatest writer of fiction who has come from the Emerald Isle. Although a curious degree of obscurity exists as to Lever's early life, he is said to have visited America and to have lived here for some little time. He practised medicine during several years in Brussels, and when there, owing to his opportunities for coming into contact with army officers of different nationalities, collected the materials for his military novels. He completed *Harry Lorrequer*, which set the seal to his fame in Brussels. Lever as a portrayer of certain types of Irish character is unsurpassed. His pen pictures are graphic and lifelike and limned by a master hand. Priests, peasants, horse dealers, farmers, squires, soldiers, and attorneys pass before us in the pages of *Charles O'Malley* and his other novels, and their foibles, idiosyncrasies, and humor are depicted so vividly that we can almost see and hear the characters. His books are full to overflowing with wit, humor, and drollery, and taken all in all Lever is *facile princeps* of the Irish writers of fiction.

Among the great writers of literature who were also physicians Sir Thomas Browne is a conspicuous figure, while of those of the present day who may be classed as literary men the names of Charles L. Dana, Sir William Osler, and S. Squire Sprigge occur to the mind. The English speaking race has not been prolific of medical literary men of genius; Goldsmith is the only one who can be placed under this denomination. However, the British and American medical profession has teemed with literary talent, sometimes of a very high order. Modern medical science does not lend itself easily to flights of the imagination, but as a rule requires the exercise of persistent, painstaking work to bring about results. Literary effort and hard medical practice are generally incompatible. Still, the literary artist is born, not made, and even if he happens to be a medical man, his instincts in the literary direction cannot be repressed. Taking everything into account, the English speaking medical men have made a very creditable showing in literature.

UROTROPIN IN CERTAIN INFECTIONS.

The results recently obtained by certain observers, including Loeper and Grosdidier, with intravenous injections of urotropin in typhoid states, pneumonia, bronchopneumonia, renal lesions, and hepatic infections are interesting. In typhoid fever the injections caused a progressive fall in the temperature, which accompanied an improvement in the general condition. In bronchopneumonia, some fifteen cases of pneumococcic infection were all either ameliorated or cured, and in five instances the injections seem to have aborted the morbid pulmonary process. Septic bronchopneumonia is likewise favorably influenced by urotropin. Several cases of icterus were favorably influenced by the intravenous injections of urotropin in a very short time without the advent of hepatic insufficiency, while the urinary crisis took place early and was very free and prolonged. In some cases of cholecystitis the injections caused the febrile paroxysms to lessen and finally to cease altogether. The last class of infectious processes in which intravenous injections of urotropin have been resorted to have been cases of pyelitis and subacute nephritis. In the former the pyuria subsided after a few injections, while in the nephritides the albumin dropped to about fifty centigrams to the liter and the total daily amount of urine progressively increased.

In all of the cases observed by Loeper and

Grosdidier, urotropin acted on the temperature, the general condition of the patient, and the renal functions, while the results obtained by intravenous injections of the drug were infinitely superior to those resulting from subcutaneous injection or when administered rectally. When given intravenously, urotropin invariably exercises a threefold action, which justified the use of this method and its more general application. The triple action is: antipyretic, diuretic, and sedative. A watery solution should be used containing twenty-five centigrams of the drug to the cubic centimetre, which should be prepared in the cold sterile water. Urotropin does not lend itself to sterilization and, therefore, the solution should only be tyndallized.

THE NEED FOR WAR.

At the beginning of the world chaos there was a group of peculiar people who preached the biological necessity of war. Their voice has become exceeding faint in the land and perhaps they would be willing to admit that the world had had a sufficient dose of the needful medicine to last it for all time to come. Such advocates of the world's periodic sprees of lunacy were, many of them, of the type who in other times preach the necessity of sports in which young men are especially likely to be injured or killed, and doubtless to them a Fourth of July without explosions of gunpowder is a most unpatriotic and noneducational affair. Much has been said about the good things which will come from the war, and there are many, but none of these benefits balances the bad that has and will result therefrom. "Granting the gain, what was the cost? Granting the profit, what was the loss?" Ward Muir, the author of the above words, goes on to put the matter most thoughtfully:

"War is a tangle of paradoxes and incongruities: good where you least expect it, bad where it has promised to be noblest. Here in London I am told by one sort of observer that the spirit of the people is being exalted and purged of self seeking and grossness; by another sort of observer that decadence and demoralization are rampant. We are improving. We are degenerating. We are being uplifted. We are being vulgarized. Religious feeling is deepening. Flippancy and frivolity are everywhere. Sobriety is marked. Vice flourishes. . . . And does it not all sound to you rather like what might have been said of London, by different types of wiseacres, any day these twenty years past. Yes, we are at war. It is hurting horribly. We are learning a lot—especially learning to take the measure of those fools who said, in their folly, that war was glorious." Certainly we have learned that war is not a biological necessity and he who says it is should be placed in the first line trench until he at least has learned differently. What we have fought for, is, that war shall never more exist.

News Items.

Plague in California.—Two plague infected ground squirrels were reported found April 28th and 29th in Alameda County, Cal. Diagnosis was based upon animal inoculation and cultures.

Leprosy in the United States.—During the week ending May 3, 1919, one case of leprosy each was reported in New Orleans, New York, Philadelphia, and Portland, Ore. One death from leprosy was reported in New York.

Public Health Nursing.—Several courses on various phases of home and community nursing will be given at the summer session of Columbia University, which lasts from July 7th to August 15th.

Juniors and Orphans.—The Junior Red Cross is undertaking the support of the American Red Cross Orphanage on Mount Zion in Palestine. The home is for children orphaned by the war, whatever their nationality.

Allied Medical Association of America.—This organization will hold its annual convention June 16th-19th inclusive, at the Hotel Pennsylvania, New York. Information regarding the program may be had from Dr. Charles H. Duncan, 2612 Broadway, New York.

Venereal Disease Control.—Surgeons of the United States Public Health Service have been in conference with local health officers relative to the control of venereal diseases. Assistant Surgeon C. C. Pierce has been doing such work at Harrisburg, Pa., and Acting Assistant Surgeon E. E. Cable at New York and Hartford, Conn.

United States Pharmacopœial Convention.—The convention of 1920 will mark the first century of the *Pharmacopœia* and will be held in Washington, D. C., under the presidency of Dr. Harvey W. Wiley, on the second Tuesday of May, 1920, at a place to be designated later. Delegates are requested to forward their credentials to Dr. Noble P. Barnes, Arlington Hotel, Washington, D. C.

Charge Against Sea View Hospital.—Calvin D. Van Name, president of Richmond Borough, New York, at a meeting of the Board of Estimate charged that sufferers from tuberculosis of the lungs sent to Sea View Hospital rarely came out alive. It is probable that an investigation will be made to determine the truth of the charges. Sea View Hospital, on Staten Island, is maintained by the city and is under the control of the commissioner of charities.

Physical Training for New York Boys.—Physical training will be provided for all boys in this State between the ages of sixteen and eighteen years who are included in the universal military training law, according to plans discussed by the Physical Education Society of New York. Some 220,000 boys are affected by the law, and it is estimated that only 20,000 of these attend schools where there are facilities for physical training. The society proposes to drill the remaining 200,000 in beneficial athletics, games, and gymnastics. The plan was embodied in an address by Dr. Thomas A. Storey, State inspector of physical training.

Foreign Doctors Arrive for A. M. A. Convention.—Sixty physicians representing foreign governments will land in New York Monday to attend the American Medical Association convention. The visitors will be received by the mayor and taken for a cruise on the patrol boat *Correction* as well as to the Willard Parker, Bellevue, and Blackwell's Island Hospitals.

Meetings of Local Medical Societies.—The following medical societies will meet in New York during the coming week:

MONDAY, June 1st.—New York German Medical Society.

TUESDAY, June 2nd.—New York Neurological Society.

WEDNESDAY, June 3rd.—Bronx Medical Association; Society of Alumni of Bellevue Hospital.

THURSDAY, June 4th.—Brooklyn Surgical Society.

FRIDAY, June 5th.—Alumni Association of Roosevelt Hospital.

\$200,000 Given New York Hospitals.—The United Hospital Fund has just distributed \$200,000 among forty-four hospitals in New York city. This is \$50,000 more than was distributed last year. The basis on which the fund is distributed is the number of days of free hospital treatment given by each institution during the last year, as shown by audited statements. The quality of the individual hospital management is also taken into consideration because one purpose of the fund is to promote economy in hospital management.

Drug Warning Given Dishonest Physician.—Health Commissioner Copeland and Dr. Walter R. Herrick, of the State Narcotic Commission, warned the members of the Medical Society of the County of New York at a meeting last Tuesday that the dishonest physician and druggist would be controlled by federal and State authorities. At the same time it was pointed out that it was not the desire of the commission to interfere in any way with the doctor or druggist honestly trying to practise his profession.

Resolution on Compulsory Health Insurance.—At a meeting of the Medical Society of the County of New York, the following resolution was passed on compulsory health insurance:

Resolved, That the Medical Society of the County of New York approves of the instructions against compulsory health insurance given by the House of Delegates of the Medical Society of the State of New York to its delegates to the House of Delegates of the American Medical Association, and that this society confirms these instructions to such of the members of the House of Delegates of the American Medical Association who are members of the Medical Society of the County of New York.

Personal.—Dr. G. Sterling Ryerson, who has devoted the greater part of his time for the past four years to the American and Canadian Red Cross societies, has resumed practice in Toronto. He is founder and past president of the Canadian Red Cross.

Dr. H. Sheridan Baketel, professor of preventive medicine and hygiene in the Long Island College Hospital, has been commissioned a lieutenant colonel in the Medical Reserve Corps. He has just concluded two years and nine months' active duty in the army. Upon retiring from his station he was the recipient of a Westminster chiming colonial clock, presented by the soldiers and civilians under his command.

Association of American Peroral Endoscopists.

—The second annual meeting of this organization will be held at the Hotel Imperial, Brooklyn, Thursday, June 5th, under the presidency of Dr. Hubert Arrowsmith, of Brooklyn. A scientific session will be held in the morning, the program for which will include the president's address, the presentation of specimens, instruments and apparatus, the reports of interesting cases, and a lantern demonstration of the removal of foreign bodies by Dr. Henry L. Lynah. Following this an executive session will be held, and at the close of the morning session there will be luncheon for members and guests at the Imperial. The afternoon session will be devoted to clinical demonstrations at St. Peter's Hospital. The medical profession is cordially invited to attend the scientific session.

Clinics for A. M. A. Foreign Delegates.—The committee in charge of receiving and entertaining the foreign delegates to the Atlantic City meeting, American Medical Association, during their stay in New York has arranged a series of clinics for Wednesday, June 4th. Clinics in all departments of medicine and surgery will be held from nine to twelve and from two to five at the following hospitals: Roosevelt, St. Luke's, Bellevue, Presbyterian, New York, St. Francis', St. Vincent's, Post-Graduate, French, Hospital for Ruptured and Crippled, New York Eye and Ear Infirmary, Manhattan Nose and Throat, Lying-in, Hahnemann, Flower, Woman's, Cornell Medical College, College of Physicians and Surgeons, University and Bellevue Medical College, Fordham Medical College, Long Island Medical College, and Rockefeller Institute. Visiting doctors and members of the associations are cordially invited to attend these clinics.

Victory Meeting of A. M. A.—The seventieth annual session of the American Medical Association, to be known as the Victory Meeting, will be held June 9th to 13th at Atlantic City, N. J. The general meeting, which constitutes the opening exercises of the scientific assembly, will be held at 8:30 p. m., Thursday, June 10th. The various sections of the scientific assembly will meet Wednesday, June 11th, and subsequently according to their programs. The registration department will be open from Monday morning to Friday noon, June 13th. The registration bureau will be located in the ballroom of the Steel Pier, where there will also be a branch postoffice and a bureau of information. Dr. D. B. Allman is chairman of the subcommittee on hotels of the local committee on arrangements. A special train will be run from Chicago to Atlantic City for the accommodations of Western and Middle Western physicians, leaving the Union Station at 10:30 a. m. Sunday June 8th, and scheduled to arrive in Atlantic City about ten o'clock the following morning.

By the authority of the Secretary of War the association has requested the governments of the Allied nations to send representative delegations of their medical professions to participate in the meeting. This assemblage will confer on the medical knowledge which has grown out of the war and will elaborate plans for cooperative interallied study and research. A number of the governments have

indicated their purpose to appoint delegates.

Hotel Holmhurst will be the headquarters for women physicians, and the dinner for women physicians will be held Wednesday evening, June 11, at the Marlborough-Blenheim.

Sectional meeting will be held as follows: Section in Miscellaneous Topics, Egyptian Room, the Breakers; Section in Practice of Medicine, St. Paul's Church; Section in Surgery, General and Abdominal, First Presbyterian Church; Section in Obstetrics, Gynecology, and Abdominal Surgery, First Presbyterian Church; Section in Ophthalmology, Hotel Traymore; Section in Laryngology, Otology, and Rhinology, Belvidere, Hotel Traymore; Section in Diseases of Children, St. Paul's Church; Section in Pharmacology and Therapeutics, St. Paul's Church; Section in Pathology and Physiology, Royal Palace, and St. Paul's Church auditorium; Section in Stomatology, Royal Palace, Hall B; Section in Nervous and Mental Diseases, Brighton Casino; Section in Dermatology, Hotel Traymore, Belvidere, and Seaside Hotel; Section in Preventive Medicine and Public Health, Egyptian Room, the Breakers, and St. Paul's Church; Section in Genitourinary Diseases, Brighton Casino and Alamac; Section in Orthopedic Surgery, Hotel Chalfonte; Section in Gastroenterology and Proctology, Hotel Chalfonte.

The scientific exhibit promises to be one of unusual value and interest. One feature will be the exhibition by the different government departments of scientific work done during and in connection with the war. Exhibits will be shown by the Medical Department of the United States Army, the Bureau of Medicine and Surgery, United States Public Health Service, Bureau of Chemistry, Bureau of Entomology, Bureau of Standards, Bureau of the Census, Children's Bureau, and the American Red Cross, in addition to the customary exhibit of individual research.

Casino Hall, on the second floor of the Casino Steel Pier, will be the scene of a continuous moving picture exhibit during the noon intermission on Tuesday, Wednesday, Thursday, and Friday in connection with the scientific exhibit. Films have been furnished by the Medical Department of the Army, the Bureau of Medicine and Surgery of the Navy, and the United States Public Health Service, as well as by private exhibitors. A half hour illustrated lecture will be given each day on some phase of the work on nostrums and proprietary preparations of the *Journal of the American Medical Association*.

A number of special meetings and social events have been planned to fill in whatever gaps are left by the scientific sessions. Two large general meetings, one devoted to general medicine and the other to surgical topics, will convene Thursday afternoon on the Garden Pier, when the foreign physicians will deliver addresses. Thursday evening at the Garden Pier there will be a reception to the president of the association and to the foreign guests. The American Medical Gofing Association will hold its fifth tournament and luncheon on Monday. There will be a number of section dinners and alumni meetings during the convention.

Miscellany from Home and Foreign Journals

Autoserum Treatment of Chorea.—Alan Brown, George E. Smith, and J. G. Phillips (*British Journal of Children's Diseases*, January-March, 1919) report the use of this method in twenty-three cases of chorea of which seventeen were mild and five severe. After one year and a half of observation seventy-seven per cent. of the patients were cured, nineteen per cent. improved, and only one patient unimproved, who refused further treatment on account of a severe reaction. The average number of injections given was three, but several patients were given only one, and one received five; the average amount of serum employed was seventeen c. c. Nineteen patients were cured in three weeks and four in one week. The authors sum up their results as follows: 1, The method has given infinitely better results than any other form of treatment; 2, the technic is so simple that it may be employed in any home or out patient department under mild anesthesia; 3, with the observance of proper precautions the reactions were negligible; 4, there were no recurrences in a period of one year and a half. The technic consisted in withdrawing about fifty c. c. of blood from the median basilic vein into three test tubes. After clotting, the tubes are put into the centrifuge for thirty to forty minutes, after which time the serum is pipetted off and put into the incubator to keep at the proper temperature for injection. Twenty to twenty-five c. c. of cerebrospinal fluid are withdrawn by lumbar puncture and the serum gradually introduced through a Record syringe, taking care to avoid too great pressure. It was found that light anesthesia with ethyl chloride enabled the operator to estimate the resistance which is the guide to the quantity to be injected. The method is based upon the hypothesis that there are antibodies circulating in the blood which are inimical to the infecting organism of chorea and that these antibodies cannot come in contact with the organisms in the spinal canal on account of the choroid plexus. These antibodies are by this intraspinal method placed in contact with the bacteria.

Accidental Drops of Blood Pressure in Cases of Permanent Hypertension.—H. Vaquez (*Bulletin de l'Académie de médecine*, March 11, 1919) points out that certain infectious diseases, e. g., typhoid fever, pneumonia, and especially influenza, lower the blood pressure sufficiently to eliminate, for a time, any preexisting hypertension. Thus, in one of his pneumonia patients the pressure descended from 240 to 160 millimetres of mercury and rose only gradually in the days succeeding recovery, without returning to the preexisting high level. During the influenza epidemic the author often noted a drop of seventy or eighty millimetres which persisted even after recovery from the disease. Cardiac insufficiency shows similar effects. Not rarely, after an attack of acute cardiac dilatation, the pressure is lowered by fifty or sixty millimetres, often for a considerable time, especially if the cardiac distention has been followed by functional insufficiency of the auriculoventricular open-

ings. Slowly progressive cardiac insufficiency produces the same result, and the observation of a pressure of 160 to 170 millimetres in a subject with complete arrhythmia by no means warrants an assumption that the pressure has never been higher. Coma has particularly depressive action on blood pressure. In a patient with an almost fulminating type of cerebral hemorrhage it descended from 270 to 160 during the course of the hemorrhage. Arterial hypertension would not have been thought of in this case as the cause of the hemorrhage had the preexisting high pressure not been known. Data such as these elucidate in a measure the still contested pathogenesis of high blood pressure. The author disagrees with the majority of observers, who ascribe high pressure to the renal lesions so frequently found in high pressure cases. He deems the high pressure, at least at the outset, to be independent of any organic lesion, and attributes it to a functional disturbance of the organs regulating arterial pressure. It is noteworthy that those infections which, like pneumonia and influenza, nearly always induce insufficiency of the adrenals are precisely those most apt to be accompanied by a transitory drop in blood pressure in the course of a chronic arterial hypertension.

Treatment of Hodgkin's Disease.—Curtis F. Burnam (*Surgery, Gynecology, and Obstetrics*, May, 1919) in discussing the treatment of Hodgkin's disease bases his observations on the results in over 100 cases which he had under his care in six years. The variations and rate of progress of the disease were pronounced and extended from a few weeks to a course of several years. The primary lesions appeared in the neck, mediastinum, abdomen or in all of these places. The diagnosis was made by the x ray, blood and tissue examination in addition to the general physical examination. The most valuable of these for differentiating the disease from syphilis, metastatic tumors, and tuberculosis in the early stages was the examination of the tissues. Two glands were examined and it was found that this did not tend to spread the disease. The results of the blood examination were not so valuable. The greatest value of the x ray was in the determination of mediastinal and chest involvement. The medicinal treatment was considered unsatisfactory. Forced arsenic medication was thought to hasten the spread of the disease. The treatment of greatest value was surgical removal of the glands supplemented by x ray treatment. While the x ray treatment, which has been used for the past twenty years, tends to ameliorate the condition, no authentic cures have been recorded.

In the treatment of this series of cases radium combined with rest in bed, forced feeding and iron in the form of Bland's pills were employed. The results have been more satisfactory where the tissue examination showed lymphosarcoma than when Hodgkin's disease was demonstrated. The chronic cases reacted more favorably than the acute. In

the chronic cases limited to one set of glands one exposure would often suffice for a cure. Heavy exposures in acute cases were usually followed by a marked glandular improvement but no corresponding improvement in the blood or the patient's general condition. In these cases rest in bed, fractional radiation and forced feeding were indicated. This method has been employed for eighteen months. Heavy work and exposure led to relapses. In chronic cases the disappearance of the gland masses almost invariably led to improvement in general health, gain in weight, disappearance of pruritis and the return of the blood to a normal appearance. Treatment must be planned so that adequate radiation will be applied to all parts of the body affected by the disease and great care must be taken to avoid injury of normal structures, particularly the skin. The guide to treatment is in the effect on the gland masses, the blood, the appetite, and the general health of the individual. No fixed plan of treatment is possible as a routine measure. The doses varied from several hundred milligrams to fifty gram hours in a single dose.

Treatment of General Paralysis.—Harry Campbell and Charles Ballance (*Lancet*, April 12, 1919) reported in 1914 the injection of salvarsanized serum into the lateral ventricle in three cases. The first of these patients, a violinist, is still alive and has returned to his occupation though he is a little less expert than he was before. Nevertheless his cure has been apparently complete, except for the fact that destroyed cells could not be restored. This method of treatment was employed because it is well known that drugs introduced into the blood stream do not reach the parenchymatous tissues of the brain in effective concentrations, while drugs free in the subarachnoid space do bathe and penetrate deeply into the cerebral tissues. The best method of introducing large amounts of a drug into this space is by injection into the lateral ventricle. Cases of general paralysis are unfortunately not often diagnosed until there has been extensive damage to the cerebral cortex, whereas the greatest benefits from treatment can only be expected when it is carried out before such damage has been done. It is therefore necessary to make the diagnosis in the preclinical stages when possible. The Wassermann reaction is of the greatest assistance in this connection, for a positive reaction in the spinal fluid indicates that the central nervous system has been infected. In general paralysis both the blood and spinal fluid are almost invariably positive, and if the blood is negative the chances are almost 100 to one that the case is not one of general paralysis. In every case of syphilis if the blood remains positive after vigorous treatment with salvarsan and mercury the spinal fluid should be examined. If it is found positive spinal subarachnoid injections of salvarsanized serum should be pushed, and if the fluid still remains positive following that treatment it is probable that the cerebral parenchyma is infected and the case is potentially one of general paralysis. In such a case the salvarsanized serum should be injected into the lateral ventricle. It is further suggested that since the optic nerve carries sheaths from the dura, the

pia and the arachnoid, the space beneath the latter communicating directly with the substance of the nerve, injection of this space should prove a valuable method of treating syphilitic lesions of the nerve. Whether the injection should be made by way of the lateral ventricle or directly into the subarachnoid space through the outer angle of the sphenoidal fissure remains to be determined.

A Case of Lethargic Encephalitis.—Grenet (*Presse médicale*, February 24, 1919) reports the case of a boy of fourteen years who, though presenting at first the manifestations of ordinary mumps, soon developed all the recognized symptoms of lethargic encephalitis. Along with strabismus, slight stiffness of the neck with Kernig's sign, and trismus, the child showed enlargement of both parotids and an erythematous pultaceous stomatitis. Lumbar puncture yielded fluid rich in lymphocytes. At first a diagnosis of meningitis due to mumps seemed indicated, but on the succeeding days, while the parotid swelling was going down, there appeared ptosis, at first on one side, then bilaterally; frontal paresis, dysphagia, and aphonia. The child was inert and somnolent. The condition later gradually improved, but there persisted a weakness of the lower extremities with difficulty of locomotion, and roughness of the voice. In spite of the initial symptoms suggesting mumps, the author does not believe that mumps was actually present. The child belonged to a large family with seven other children; none of the latter contracted mumps, though no attempt at isolation had been made.

Pancreatic Lymphangitis.—John B. Deaver (*Surgery, Gynecology, and Obstetrics*, May, 1919) states that in the course of his abdominal work he had become more and more convinced that the first stage of chronic pancreatitis was usually a disease of the pancreatic lymph glands. The primary disorder could rarely be diagnosed prior to operation nor was a preoperative diagnosis of chronic pancreatitis always possible. In both conditions the predominant symptom was always that of some upper abdominal disease, with which they were frequently associated, principally gallbladder disease, peptic ulcer, disease of the liver, or appendicitis. In the absence of definite indications of calculi the appearance of jaundice served to suggest the possible cause of the trouble. The onset of jaundice in these cases, as a rule, was gradual and its intensity, variable at first, was more apt to be constant than when due to stone or stones in the common duct. The pancreatic and peripancreatic inflammations were comparable to cervical adenitis following tonsillitis or inguinal adenitis after an infection of the extremity. The subsidence of the infection in the gallbladder was steadily followed by subsidence of the lymphangitis. In the present state of surgery there was no successful method of attacking a chronically diseased pancreas, therefore the early treatment of "prepancreatitis" was desirable. Medical treatment was slow and gave no assurance of freedom from recurrence. Surgery gave reasonable assurance of removing all foci of infection and freedom of recurrence. The importance of early surgical treatment is emphasized.

Differentiation of an Acid Fast Oospore from the Tubercle Bacillus.—A Sartory (*Bulletin de l'Académie de médecine*, March 11, 1919) reports four cases of suspected tuberculosis in which acid fast organisms easily confounded with the tubercle bacillus were observed. One of the differential features was that in the presence of the oospore there were found, in admixture with rods of the usual size, longer rods frequently bearing lateral branches which themselves divided at their terminations. The characteristic granulations of the tubercle bacillus were present in these organisms. In two cases the tubercle bacillus and oospore were found simultaneously present. The acid fast property of the oospore passed off after three recultures whereas that of the tubercle bacilli persisted indefinitely. Inoculation of the mycelial organism in guineapigs and rabbits proved negative. In one case the oospore was isolated singly from the urine in a nephritic case. The oospore grows well upon a jelly medium containing salep and maltose. At 37° C. colonies appear upon this medium after four days as small greyish dots with irregular margins. These colonies then thicken without extending and cease growing after twelve days. On maltose bouillon the organism develops in thirty-six hours. After eight or ten days the mycelium breaks up into bacillary forms. The importance of this organism lies in the fact that, where present, it is almost certain to be mistaken for the tubercle bacillus, even by the expert.

Apical Respiratory Insufficiency and Enlargement of the Cardiac Ventricles.—Merklen and Chuiton (*Bulletin de l'Académie de médecine*, March 11, 1919) refer to a clinical condition characterized by lassitude, dyspnea on exertion, pains in the chest, and sometimes loss of weight. The breath sounds are harsh or obscure, and at times resonance seems impaired. X ray examination conducted for the purpose of ascertaining whether any tuberculous condition exists proves negative, as does likewise examination of the sputum for bacilli. Posteriorly the physical signs referred to are not found or are modified. In this condition, often met with in soldiers of eighteen to twenty-five or occasionally thirty years, cardiac examination reveals apparent enlargement of the organ. Orthodiagraphy and telerradioscopy confirm this. Anteriorly, the enlargement is seen to involve especially the right ventricle, which extends farther than usual over the diaphragm, and many even press into it. In some patients, the left ventricle appears rounded out and the apex displaced to the left; or, it may be elongated, with the apex lowered. Actual measurements of the longitudinal and transverse diameters of the heart show an increase of eight or ten millimetres over the normal. The auricles, however, are unaffected. The ventricular enlargement described is sometimes also noted in patients suffering from functional cardiac disturbances. The enlargement perhaps constitutes a reaction of the heart to the fatigue incident upon active military service. At any rate, wherever the apexes of the lungs breathe poorly, the size of the cardiac ventricles should be investigated before making a decision that there is nothing wrong with the patient.

The Problem of Chemotherapy in Tuberculosis.—Louis Rénon (*Bulletin de l'Académie de médecine*, March 4, 1919) conceives of two solutions of the problem, viz., first, some measure which will render the system refractory to the action of the tubercle bacillus and prevent the development of the latter; second, a measure acting upon the bacillus itself and killing it in the infected organism. Chemical substances which prevent development of the tubercle bacillus in its cultures include the following: Sodium nitrate, phenylhydrazin, sodium arsenate, allyl sulphide, cadmium fluoride and chloride, uranium nitrate and acetate, the sulphates of lanthanum, neodymium, and praseodymium, the salts of silver, gold, and selenium, barium chloride, the sulphates of zirconium, yttrium, and titanium, glucinium sulphate and chloride, nickel chloride, and the salts of bismuth. Development of the bacillus in culture media is prevented by alkalization with sodium in concentrations exceeding N/5, as well as by absence of potassium, sulphur, phosphorus, iron, or magnesium. On the other hand, the addition of but one part in 100,000 of iron is sufficient to treble the growth of the bacillus. Therapeutically, only the addition of chemicals, including alkali, to the system appears practicable. It would seem difficult to prevent the entrance of potassium, sulphur, magnesium, iron, or phosphorus. Definite knowledge of chemotherapy in tuberculosis requires, in the first place, observation of the effects of a given chemical or cultures of the germ; its toxicity should then be studied in animals, likewise its action in experimental and spontaneous tuberculosis in animals, and finally its effect in human tuberculosis. The problem of chemotherapy in this disease must be settled in its entirety, one way or the other, before there is thought of giving it up. In spite of the tremendous amount of labor necessary in carrying out a complete program, a definite solution might be reached within a few years if the question were taken up systematically.

Castellani's Bronchospirochetosis.—R. Dalmier (*Presse médicale*, March 10, 1919) notes that this disease, at first considered exclusively exotic, has recently cropped up in several localities in France. At first sight these patients greatly resemble the tuberculous, exhibiting pallor, loss of weight, asthenia, cough, and expectoration of blood. Upon physical examination, however, the chest signs are found limited to vague, scattered, sibilant sounds. The apexes are usually normal, but occasionally show slight impairment of resonance. The x rays reveal nothing other than trifling disturbances of thoracodiaphragmatic expansion. The temperature is normal, there are no night sweats, and tubercle bacilli are absent. Practically, the entire symptomatology resolves itself into hemoptysis. The behavior of the sputum in the sputum cup is pathognomonic. At first it is either glue like, adherent, and finely streaked with red, or frankly hemoptysic, dark red, and viscous. In the course of some hours the blood in the first type of sputum becomes liquid and flows together to form a species of pink, mobile jelly over the surface of the glue like layer. The second type of sputum becomes in-

creasingly purple in color, like a crushed black cherry. Bacteriological examination clinches the diagnosis, but must be carried out on fresh sputum; otherwise both the spirochetes and the blood cells undergo rapid lysis. Thin smears, lightly stained, are to be preferred. Any basic stain, including gentian violet and methylene blue, may be used. The polymorphism of the spirochetes, which are usually to be found in large numbers, is characteristic. The number of spiral turns varies from one to ten. In recent cases of the disease the patients expectorate blood for a month or two, then recover. Recurrence after an interval of complete freedom from symptoms is said to be not uncommon. Some patients survive a year or more and constitute actual carriers, from whom the disease is spread, chiefly by direct contact. In the treatment, calcium chloride, ergotin, opium, emetine, mercurial salts novarsenobenzol, luargol, potassium iodide and tartar emetic were alike found useless. Better results were obtained from inhalation twice daily of mentholated oil of gomenol together with daily subcutaneous injections of ten to twenty mls of an oily solution of camphor and gomenol. In recent cases hemoptysis was cured by these measures, the symptom not having recurred for several months. In chronic cases, however, they failed, the following combination alone proving serviceable: Wine of cinchona, sixty grams; Fowler's solution, ten drops to be taken daily.

The Mensurgraph.—Theron Wendell Kilmer (*Journal of Orthopedic Surgery*, May, 1919) describes a method of measuring and plotting orthopedic deformities by means of photography in which the photographic camera is used in the same manner as a surveyor uses a transit. A stool with painted footprints is used for placing the patient. The camera is placed at a fixed distance depending upon the lens. The plotted ground glass of the camera must correspond to the markings of the stool and the size of the patient. After the photograph has been taken the negative is printed on a screen of semiopaque substance on which are drawn transparent lines. The lines on the screen are placed in register with the lines on the photographic plate negative. By the use of these plates, taken at intervals, the progress and improvement of orthopedic cases may be noted.

Removal of a Rifle Bullet from the Wall of the Intrathoracic Portion of the Esophagus.—De Gauléjac (*Presse médicale*, March 6, 1919) reports the case of a man in whom a rifle bullet lodged in the esophageal wall at the level of the aortic arch and excited no symptoms until three months after due periesophagitis, appeared. An attempt to remove the missile by the customary subpleural route proved unavailing owing to the presence of a dense mass of adhesions. The transpleural route of access was then resorted to. A costal flap having been made, the esophagus was readily exposed and the projectile embedded in its wall like a stone in a ripe fruit, extracted by simple puncture with a scalpel. The postoperative period was entirely free of complications. By the tenth day the patient had completely recovered, being able to eat without the least functional difficulty.

Treatment of Empyema.—Captain F. J. Savage (*Minnesota Medicine*, March, 1919), from his army experience, is of the opinion that the procedure of choice is the early use of the Brewster tube attached to a negative pressure system, followed later by rib resection. The tube is inserted in the axilla between the ribs under local anesthesia, and when used early in the disease gives good drainage, prevents extreme collapse of the lung and displacement of the heart. After resection, the use of the Carrel-Dakin method rapidly sterilizes the pleural cavity, thus preventing the formation of much fibrous tissue to keep the lung contracted, allowing early closure of the wound (either surgically or by granulation), and rapid reexpansion of the lung.

The Factor of Safety in the Pulmonary Circulation.—J. P. Simonds (*American Journal of the Medical Sciences*, April, 1919) declares that the factor of safety in the pulmonary circulation may have a very practical importance in several ways: 1, It may act as a safety valve to relieve back pressure in diseases of the left side of the heart.; 2, there is a close relation between the condition of the pulmonary capillaries and the ventilating capacity of the lungs; 3, the factor of safety is responsible for the maintenance of normal systemic blood pressure in those diseases of the lungs, such as emphysema, chronic interstitial pneumonia, lobar pneumonia and tuberculosis, in which there is an extensive reduction of the total vascular area of the lungs either by destruction or occlusion of large numbers of bloodvessels; 4, it accounts, also, for the difficulty encountered in attempts to produce fatal experimental pulmonary embolism and for the rarity of fatal results in humans following the lodgment of aseptic emboli in the lungs.

Methylene Blue in the Treatment of Influenza.—Blum (*Bulletin de l'Académie de médecine*, March 4, 1919) treated 250 influenza patients, including 185 hospital cases, with methylene blue. In about half the hospital cases there was pneumonia. By mouth the drug was given in cachets, pills, or gelatin capsules in doses of 0.2 gram for adults and 0.1 gram for children, four or five times a day. About eight per cent. of the patients, especially those severely ill, showed a tendency to vomiting after taking the drug, but giving it with lactose in cachets seemed to reduce this difficulty. In the intestinal form of influenza with profuse diarrhea, the drug proved of marked assistance in arresting the diarrhea. Intramuscular injections of methylene blue proved painful, but by adding to 100 mls of a five per cent. solution of the drug half a gram of quinine hydrochloride dissolved in a little water with 0.25 gram of urethane, a preparation sufficiently anesthetic in action was produced to permit of its intramuscular administration. The procedure of choice was found to be intravenous injection—one or two mls in twenty-four hours—of a five per cent. sterilized solution. Administered in the initial stages of the disease this measure frequently aborted it. In severe cases with lung complications it often arrested the infection and was followed by rapid defervescence. Relapses and complications seldom occurred in cases in which methylene blue was used.

Removal of a Comparatively Healthy Gallbladder.—W. H. Magie (*Journal-Lancet*, April 15, 1919) draws upon his personal experience in 300 operations upon the gallbladder when he pleads for saving that viscus wherever possible. He believes that it should be preserved for the following reasons: Because it has a function in the storage and regulation of the bile, both with reference to time of delivery into the intestine and with reference to the pressure in the bile capillaries; because the organ is of great value for drainage purposes when drainage is necessary, thus constituting a safety valve, and because the mortality from cholecystostomy is much less than from cholecystectomy. The proper performance of cholecystostomy is not followed by the necessity for secondary operation in more than five per cent. of the cases. Drainage should be continued for a long period of time and the removal of the drainage tube should be followed by daily irrigation of the gallbladder, the latter contributing very largely to the complete eradication of infection, the escape of undiscovered stones, and the restoration of the viscus to normal. Acute cholecystitis of brief duration, recurrent cholecystitis without great thickening of the bladder walls or obstruction of the cystic duct, and all cases of simple cholelithiasis should be treated by cholecystostomy and drainage. Cholecystectomy should be performed in cases with stricture of the cystic duct, in many cases of acute gangrene, in all cases with embedded stones in the cystic duct causing ulceration, in all very thick walled bladders, in all cases with ulceration from pressure of large stones, and in cancer.

Treatment of Injuries of the Posterior Urethra.—Marion (*Journal d'Urologie*, February, 1919) asserts that in obstruction of the posterior urethra following trauma, the surgeon should find the two ends of the urethra, resect the tissues separating them, and then reconstruct the urethra, by end to end suture if possible, or if not, by drawing together the periurethral tissues. Where urethrorrhaphy is performed, no catheter should be used; if it cannot be carried out one should either leave in a catheter or else introduce a filiform sound which will facilitate subsequent passage of the catheter. If the ends of the ruptured urethra have become stenosed, dilatation must be attempted; if it fails, internal urethrotomy should be done or, if this proves unsuccessful, the urethra should be reconstructed as in obstruction. Where fistulæ are known to be complicating a lesion of the posterior urethra, the first care should be to render the region as surgically clean as possible, e. g., by cystostomy, opening of abscesses, and extraction of foreign bodies, calculi, or sequestra. A catheter should be inserted. These measures often suffice, leading to recovery. If, in spite of them, a cure cannot be obtained and the urethra is blocked from the start, the canal should be located and causes tending to prevent healing of the fistulæ corrected, e. g., by complete excision of fibrous tissue, removal of valve like formations, opening of foci of osteitis, elimination of sequestra, etc. Finally, the urethra should be reconstructed in a manner adapted to the lesions present, e. g., by closure of an

orifice by a U or purse string suture, by approximation of the periurethral tissues, by the use of a bulb carried beneath urethra and by end to end suture of canal or the surrounding tissues. The cystostomy opening should be preserved until recovery. In urethrorectal fistulas the urethra should first be separated from the rectum and the condition corrected either by separate closure of the openings in the urethra and rectum, with interposition of periurethral tissues between them; by drawing down a curtain of rectal mucosa below the fistula, as recommended by Gayet, or by suprasphincteric resection of the rectum, with downward displacement of the upper end of the freshened anus in case the rectum is the seat of stenosis. Exceptionally, an iliac artificial anus is of value. In extensive destruction of the urethra and perineal tissues, autoplasmic procedures in which tissues are borrowed from the scrotum or thighs are indicated.

A New Incision for Appendectomy.—Leigh F. Watson (*Boston Medical and Surgical Journal*, April 17, 1919) advocates an incision from a point one and a half inch from the right anterior superior spine, on a level with a line connecting the two superior spines, vertically downward for two or three inches to a point just above, and to the inner side of the internal abdominal ring. He claims the advantages of this incision to be: Traction to expose the appendix is avoided, because this incision, in the external oblique and its aponeurosis, the most resistant structures, is directly over the base of the appendix. It can be enlarged without weakening the abdominal wall. The iliohypogastric and ilioinguinal nerves are not injured because the incision lies between them. Because this incision is made over the cecum the small intestines do not crowd into the wound as they do when the McBurney and lateral rectus incisions are used.

Intrascleral Cartilage Transplantation.—Duverger (*Bulletin de l'Académie de médecine*, March 4, 1919) sought to utilize the esthetic advantages of the Mules operation, which consists in enclosing in the sclera spheres of glass or silver to prevent retraction of the stump after enucleation, while eliminating the danger of subsequent inflammation, by substituting for the sphere a living intrascleral transplant of cartilage. In the procedure he has devised, the anterior segment of the eye is first excised under procaine regional anesthesia, and the entire contents of the sclera curetted out, care being taken to clear away all débris of the choroid and retina. The transplant is taken from the seventh costal cartilage, given a rounded form with the scalpel, and placed in the scleral cavity, which is then closed with three sutures of fine catgut. The conjunctiva is united with three fine silk U sutures. Cases are referred to in which the procedure was followed by only a moderate degree of reaction, as in ordinary oblation of the anterior ophthalmic segment. An artificial eye was well borne one month after the operation, and in two cases dating back ten and eleven months, respectively, the initial successful results were well maintained. The stump was rounded, large, and mobile, and the usual muscular insertions were preserved. The benefits obtained appeared to be quite permanent.

Malaria and Trench Fever.—Gordon Ward (*Lancet*, April 12, 1919) says that the close resemblance between these two diseases is not generally recognized. When malaria is toned down by quinine rigors are uncommon and in trench fever they are not frequent, though in both a hot stage and a sweating stage are common. In malaria, under the influence of quinine, undoubted relapses may occur without sporulation of the parasites in the peripheral blood, and it is possible that the unknown parasites of trench fever may behave in a similar way to those of malaria when influenced by quinine. Extreme pallor without marked anemia is characteristic of both disease, the pallor being probably a vasomotor phenomenon. Both malaria and trench fever show a tendency to daily rises of fever at first. The hyperalgesia and pains of both diseases are located in almost the same regions and are probably due to disorders of the same internal organs, although the relative frequency of the three common areas of pain are different in the two diseases. The headaches and eye pains are much the same in the two diseases and vasomotor symptoms of the Raynaud type are recorded in both. It is known that relapses of malaria may occur for many years where there is no chance of reinfection and evidence indicates that the same may be found true of trench fever. Differential diagnosis without laboratory aid rests upon the following points: In untreated malaria rigor is usual, while it is uncommon in trench fever. Quinine controls the temperature in most cases of malaria in temperate climates, but it has no effect on that of trench fever. A rash may occur in trench fever, while it is absent in malaria. Leg pains are more frequent in trench fever, but they may occur and be of equal intensity in malaria. Finally, in some cases of malaria there is general pigmentation which does not occur in trench fever. Both malaria and trench fever may be contracted in England and a patient who has suffered from one of them will not necessarily be able to distinguish between a relapse of the one and a fresh attack of the other.

Treatment of Seborrhea Capillitii.—H. Merz (*Correspondenz-Blatt für Schweizer Aerzte*, March 1, 1919) advocates the use of a preparation of sulphur, called sulphur snow, in which the particles of the substance are very minute. His method of treatment is as follows: A thorough shampoo weekly with soap and borax, carefully rinsed off and the scalp dried. As soon as the scalp is dry, and while the roots of the hairs are still moist, a two to five per cent. ointment of sulphur snow is to be rubbed in. After three days the application of sulphur snow is to be repeated, but without the preliminary shampoo. In obstinate cases, or where there are atony and faulty growth of the hair, he recommends a course of twelve sittings of irradiation with the Kromayer quartz lamp; two irradiations a week with a pause of from two to four weeks after the sixth. As prophylactic measures against seborrhea he recommends a shampoo with soap every week or two, the inunction of sulphur snow once or twice a week, sometimes the use of the powder when there is very much fat, and the application of an alcoholic tonic.

Lemon Juice in the Treatment of Stomatitis and Glossitis.—Leven (*Presse médicale*, February 20, 1919) used lemon juice empirically in various forms of stomatitis and glossitis with marked success. Even in recurring mucous patches which had proved rebellious to all treatment, the addition of lemon applications to the specific measures was followed by disappearance of the patches. The lemon exerts an immediate analgesic action on the fissured lesions commonly met with in long standing cases of gastric disorder. In all these affections citric acid alone is much less effective than lemon juice.

Bone Transplantation.—Muller (*Presse médicale*, January 16, 1919) reports a case clearly demonstrating that a bone transplant may be perfectly nourished and grow within the tissues into which it has been transferred. In a wound case with loss of a six centimetre length of the tibia, a transplant obtained from the tibia below this point was introduced to make up for the missing portion of bone. Four months later, when the author intervened again to activate ossification, splitting of the transplant from below upward with the chisel revealed its cross sections bleeding copiously. The transplant was widened by separation of its two parts, and subsequently increased in volume. After a few months the transplant was so firm as to afford good support to patient even though he weighed ninety-five kilograms.

Severe Sprains of the Knee Joint.—Maynard C. Harding (*Journal of Orthopedic Surgery*, March, 1919) reviews seventy cases of severe acute sprain of the knee joint which were treated in the orthopedic wards at the Camp Lewis base hospital. Twenty cases which cleared up under simple treatment are not included in this list. In the cases reported all of the classical signs and symptoms of sprain were present: History of the accident, immediate disability, usually total, pain, prompt swelling, effusion, and tenderness over the torn capsule. The sprains were distributed as follows: General sprain, forty per cent.; internal lateral ligament, forty-two per cent.; internal semilunar cartilage, thirty-one per cent.; external lateral ligament, one case; periosteal tear, internal condyle of the femur, two cases; and cracks of the patella, three cases. All had effusion. Sixty-five per cent. were aspirated. Eighty-seven per cent. of these had bloody fluid. Thirteen per cent. had clear fluid. The average amount collected was 63 c. c. The x ray findings showed three crack fractures of the patella. Three old dislocated semilunar cartilages were diagnosed and confirmed by operation. The conclusions arrived at as the most satisfactory method of treatment were: First, a careful diagnosis of the type of sprain; second, a prompt aspiration of any distended joint, since practically all the effusions were bloody and absorbed slowly. It was found in some instances that the effusion would remain for several weeks and tended to form thickened, chronic joints; third, prevention of distention of the capsule, as it was one of the main causes of weakened knee in after life; fourth, early baking and massage; fifth, strict supervision of the manner of returning to use.

Proceedings of National and Local Societies

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting Held on May 15, 1919, in Cooperation with the Section in Neurology and Psychiatry.

The President, Dr. GEORGE D. STEWART, in the Chair.

SYMPOSIUM ON ALCOHOLISM.

What Constitutes an Intoxicating Beverage?

—By Dr. C. P. Sherwin, professor of physiological chemistry, Fordham University. This paper is published in full on page 925.

Alcoholism and the Individual.—By Dr. A. A. Brill. This paper is published in full on page 928.

Some Psychological Aspects of Alcoholism.—By Dr. L. Pierce Clark. This paper is published in full on page 930.

Alcohol in Its Social Compensatory Aspects.—By Dr. Smith Ely Jelliffe. This paper is published in full on page 934.

Discussion.—Dr. JOSEPH BYRNE made a few brief remarks regarding alcohol as a friend of humanity, contending that it had been proved to be a great social benefit. He had not the least doubt that there were many in the audience who at some time or other had realized the debt they owed to moderate indulgence in alcohol. There were also economic questions to be considered in this hurried undertaking that the legislators of the country had committed themselves to in the sudden prohibition of alcohol. Close contact with the poor and humble and a thorough understanding of the needs of those people showed what a drab monotony constituted their lives at best. In the past the ordinary laboring people had done perhaps the hardest work of life and received the least remuneration. They did tremendous tasks of physical drudgery and they needed the assuaging psychical offset of alcohol; they not only needed but highly deserved the refreshing drink of beer or light wine that they took with their lunch. Total prohibition would inflict needless suffering on these people who were the very Atlases of modern civilization.

It would look as though prohibition represented an overreaction on the part of certain people who wanted to make the world good whether or no, but one of the greatest authorities on the common law of England, Sir Frederick Pollock, considered it a grave mistake to attempt reform by legislation; it was one of the saddest forms of bungling and eventually, as Sir Frederick showed by numerous examples of such attempts made in England, resulted invariably in greater abuses than those the legislation was intended to reform.

Dr. E. E. SOUTHARD, of Boston, remarked that in regard to the prohibition of alcohol he had no opinion founded on personal researches. With others he was interested in the outcome. It would be worth while as a social experiment, if it helped in reaching a decision regarding the causation of certain mental and nervous diseases. Mental disease occurred in about the same number of males and females. In Germany, Scotland, Massachusetts, and New York the number of beds required

for the two sexes was approximately identical. The male side, however, was well supplied with alcoholics, while the female wards were filled with cases of mental diseases due to other causes. This had led to a doubt whether alcoholism was in reality the sole cause of the mental disease among so-called alcoholic psychoses or whether some previously existing mental defect had not brought about or been associated with alcoholism. If prohibition went into effect it would settle some very important questions regarding the nature of mental disease, and perhaps procure in time a reduction in the number of those suffering from it.

The speaker favored prohibition to some extent, but he did not always like the prohibitionists personally. They were so strongly individualistic that they were almost the equivalent of the Bolsheviks, a small, noisy minority. Small, noisy minorities seemed to rule at the present time, and this would be likely to continue until some group system could be organized that would carry into effect the wishes of the majority in matters which affected large groups of people and in this way effect a democratic rule.

In a recent letter to Doctor Southard, Colonel F. W. Mott, head of the Maudsley Hospital, London, England, had expressed regret that the United States had taken this step and hoped that the soldiers on their return would have something to say about it.

One point might be made with regard to *In vino veritas* and the release of inhibitions: Babinski in his work on shell shock found that by giving chloroform one might bring out an excess of reflexes; a leg yielding under ordinary circumstances a normal knee jerk, would in an early stage of chloroform anesthesia show excess and even polykinesis of the knee jerk. Consequently it was theoretically possible that alcohol, by removing inhibitions, might at times release something in the nervous system that would be deleterious. This might even be true of operations in the cerebral cortex. These synaptic resistances, which Doctor Jelliffe had spoken of, might work both ways. For instance, contrast effects on the vagus nerve with effects on the sciatic. Good effects and bad effects could be produced and stopped by alcohol according to the nature of the neurones and neurone complexes whose thresholds were lowered thereby. What Doctor Jelliffe said about adjustment was in point and recalled Herbert Spencer's formula to the effect that life is the adjustment of inner and outer relations.

Dr. HYMAN CLIMENKO thought it might be *a propos*, speaking of the relation of alcoholism to insanity, to comment on the fact that although alcoholism was almost unknown among the Hebrew race, insanity and degeneracy were by no means absent. Another point to be made, in reference to prohibition, was that although there was no alcoholism among the Jewish people, they were not abstainers from alcoholic beverages; in fact, their religion encouraged its use on certain occasions.

NEW YORK NEUROLOGICAL SOCIETY.

*Three Hundred and Seventy-first Regular Meeting,
Held at the Academy of Medicine, Tuesday,
March 4, 1919*

The President, Dr. WALTER TIMME, in the Chair.

(Concluded from page 924.)

Tonus of Autonomic Segments in Abnormal Behavior.—Dr. EDWARD J. KEMPF, of St. Elizabeth's Hospital, Washington, D. C., delivered this address (by invitation) in which he traced the causes of abnormal behavior to physiological facts. The evolution of man from the lower biological types was sufficient reason for giving the primitive autonomic apparatus the greatest emphasis in formulating a conception of the personality. The lowest biological organisms have a relatively highly developed autonomic apparatus, but a poor proficient apparatus as the instrument by which the autonomic apparatus masters its environment. The old assumption that the brain is the organ of the mind, is entirely unsatisfactory for localizing or explaining the dynamic forces that make up the personality. The autonomic apparatus, as herein conceived, is constituted of the digestive, circulatory, respiratory, and urinary systems, the glands of internal and external secretion and their ganglionic nervous systems, i. e., the ganglionic nervous systems lying outside of the brain and spinal cord and those ganglionic types of centres imbedded in the brain stem and spinal cord. It is obvious that this is the apparatus that regulates the accumulation and assimilation of energetic products from the environment, regulates their transformation, distribution and use, and the elimination of the waste products. It might be said that these processes constitute about all the fundamental functions of living, and that the striped muscle apparatus and its cerebrospinal nervous system had been developed in order to obtain the necessary means from the environment.

The physiological researches of Cannon and Carlson on the peripheral origin, in the stomach, of the craving for food, as a typical acquisitive assimilative compulsion, and Mosso's and Pellacani's experiments on the postural tonus of the bladder, show that when the grip of the bladder wall on the inert contents raises the pressure to over eighteen cubic centimetres, a type of localized itching is aroused which constitutes the desire or craving to urinate, and which, as it becomes vigorous, compels the organism to behave so as to relieve the hypertension of this segment. This may be considered to be a very typical emissive avertive type of compulsion. All compulsions to act are either acquisitive or avertive in relation to the environment.

Freud's suggestion, that all emotions and sentiments are really cravings, is further borne out by the studies of Cannon and others on the physiological changes that occur when the individual feels fear, or is said to be afraid. Since certain types of gastric contractions cause the intragastric itching felt as hunger, it is consistent to consider that other changes in the gastric functions, such as diminution of peristaltic functions and the maintenance of spastic tensions, when the individual is exposed to some type of actual injurious or potentially in-

jurious stimulus, arouse an afferent stream that is more or less painful and disagreeable; that is to say, fearful. It is obvious that only those primeval animals or rather autonomic systems that felt distressing, fearful tensions, sought to protect themselves and so, by surviving in the struggle for life, have transmitted this fundamental attribute or function to man.

Wertheimer's experiments on the unconscious anesthetized dog, in which he injured the sciatic nerve in a manner that would surely cause pain in a conscious animal, shows that gastric changes occur which are very similar to the fear producing tensions, without the faculty of perception, to arouse the emotion, being present. This shows that at least certain cerebral integrative activities which enable peripheral activities to coalesce into perceptual images (or thoughts) are not necessary to cause many of those definite, important, autonomic tensions which, if the animal were conscious, would certainly cause it to be aware of very disagreeable (fearful) visceral feelings. Like fear the other primary affective cravings, such as anger, love, shame, disgust, and sorrow have their origin in characteristic peripheral disturbances in various visceral segments, and these peripheral disturbances are constituted of changes in the muscular activities, particularly the tensions of the viscera, stimulating the local sense organs. This means that it is of the utmost importance to recognize that our affections are symptoms of autonomic tensions and activities and we must practice visualizing these activities behind the symptoms that we see or hear complained of. These autonomic affective tensions set up afferent streams of nerve impulses which, as the autonomic component (Langelaan), contribute greatly to regulating and sustaining the postural tension of the striped muscle apparatus, and the tension of the striped muscles in turn stimulate the proprioceptors imbedded in the muscles and tendons and about the joints, setting up converging kinesthetic streams which coalesce into images and concepts, i. e., the mental pictures constituting most of the contents of consciousness. In a sense we think with our muscles.

The present controversy between Langelaan, de Boer, von Rinjberk and J. G. Duesser de Barenne as to the exact manner and through what channels this influence is exerted is not so important for psychology and psychiatry as the fact that it does occur in some quick, intimate manner and follows the law of the autonomic affective apparatus striving to maintain a state of comfortable tension with the greatest economy of extent and duration of effort. This law may be formulated as follows:

As the autonomic affective apparatus is forced into a state of unrest, either through metabolism or endogenous or exogenous stimuli, it compels the proficient apparatus to adjust the receptors in the environment so as to acquire stimuli that have the capacity to produce comfortable postural readjustments in the autonomic apparatus. For example, when the autonomic apparatus of a child assumes fearful tensions because of the barking of a dog the effect from these tensions compels the child to run to its mother who, as a soothing stimulus, readjusts

the tensions. So too the business man takes out insurance as the soothing stimulus, the fearful sinner goes to church, the savage and the modern speculator wear charms and fetiches, in order to counteract the fearful stimulus existing in his expectation of a disastrous fire, storm, or coincidence.

Von Bechterew has shown that various autonomic segments and even the simple striped muscle reflexes become conditioned by experience to react to certain stimuli. This occurs by the reflex being aroused by the primary stimulus while it is associated concomitantly with other stimuli which ordinarily have no effect, but which, after repeated simultaneous association with the primary stimulus, come to have the same influence upon the reflex that the primary stimulus had. For example, when a child going barefooted for the first time in the grass steps upon a bee which stings its foot, the child, for some time after this experience, has strong autonomic fear reactions which prevent it from walking on the grass while barefoot. Here then the grass, formerly a pleasant stimulus to the bare feet, by being associated with the bee sting comes to have the capacity to arouse strong autonomic fear reactions. It becomes a painful stimulus while to other children it is a pleasant stimulus. We can readily see how, by experience, the individual segments of the autonomic apparatus of an individual become conditioned to react to stimuli that have little or no effect upon other people and determine most of our eccentric or individualistic preferences and prejudices, our taste, hobbies, phobias, obsessions, compulsions, vocational pursuits, etc. No doubt all our selections and aversions for simple things and for complicated things, that are immediately present or that may arise in the future, are greatly determined by our autonomic affective cravings having been conditioned by previous painful or pleasant experiences to seek or avoid the future possibility.

Since all the autonomic segments must obtain their stimuli through the proper exposure of the favorite receptors, for which they have become conditioned, there is an incessant convergence upon and striving for control of the final common motor paths, and our complicated stream of thought and overt behavior must be seen as the resultant of these converging forces. When any particular autonomic segment becomes hyperactive and tends to dominate the autonomic union and obtain control of the striped muscle apparatus the individual becomes conscious of a definite stream of thought which is symptomatic of the activity, as gastric itching hunger thoughts and acts about when, where, and how to get food; cystic itching, craving to urinate; reversed gastric and esophageal peristalsis and feelings of nausea with avertive compulsions for a particular odor, vision, taste, person, or suggestion.

It follows logically that if one autonomic segment becomes thoroughly conditioned to react in a distressing manner to certain stimuli, and other autonomic segments become thoroughly conditioned to react in a pleasant manner to certain stimuli, whenever the individual happens to meet those two groups of stimuli associated together in a situation,

he will feel a confusion of tensions with compulsions to seek the advantages of the situation as well as compulsions to avoid it. For example, a young married man complained that although he was fond of his wife and desired to be loyal and faithful to her, that such asinine things as the hair on her legs caused him to lose his sexual excitement (depression of the tonus of an autonomic segment) which irritated him exceedingly. Many of the attributes of his wife, such as her wit, sense of humor, facial expression and coyness, as stimuli had a decidedly invigorating effect but when he made further approaches he met with a stimulus that had quite the opposite effect. He finally compelled his wife to shave her legs in order to remove the distressing stimulus. We see here how the autonomic apparatus—looking at it in a biological sense—compels the love object to remove or avoid stimuli that jeopardizes its potency as well as seek stimuli that tone up the autonomic segment.

At birth we have a perfectly organized but unconditioned autonomic apparatus with a very poorly coordinated projicient apparatus. The autonomic apparatus begins immediately to organize the projicient apparatus to suit its cravings in their struggle with the environment, and we see this process continuing throughout life as the individual develops his education, vocation, or profession. For a considerable period after birth the infant indulges heedlessly in its segmental pleasures, such as nursing, urinating, defecating, cooing, and screaming, without regard to the interests of other people. But these indulgences soon become an imposition upon many of the autonomic interests of its parents and its social group and they in turn are compelled to exert an incessant pressure upon the infant which eventually conditions and more or less conventionalizes its methods for acquiring gratification for its segmental pleasures. Thus the infant gradually becomes conditioned to avoid the loss of favor and esteem of its parents and playmates because, when in disfavor, it is subject to many distresses, such as physical punishment, humiliation, lack of petting, and feeding. On the other hand, by behaving in a manner that wins favor and esteem from its associates, many of its segmental cravings are more easily gratified, such as cravings to be petted, played with, fed, given preferences. Gradually we see the infant changing from heedlessly enjoying its segmental pleasures to secretly doing so, such as nocturnal bed wetting. Then as the ego develops, the coordinations to control them entirely, in order to prevent the loss of esteem, become apparent. That is, the segments of the autonomic apparatus which are similarly conditioned gradually become integrated into a unity to prevent any hyperactive segments from jeopardizing them. This process of integrating into a unity is a compensatory reaction to prevent getting into the fear, shame, sorrow, or anger state, autonomic compensation being one of the most fundamental attributes of living tissue.

The development of the ego begins as soon as the infant begins to fear to lose the favor and esteem of its comforters and protectors by becoming inferior (organically or functionally) to a competitor, or by selfindulgently yielding to oral, anal, ureth-

ral pleasures, by sucking, defecating, urinating, screaming, stealing, and lying, without regard for the feelings of others. Any form of fear or pain no matter how mild or indirect the cause, initiates more or less of an autonomic compensatory reaction; hence, the individual's incessant compensatory striving to learn to help and improve itself is really the autonomic apparatus striving to avoid getting into the malnutritional fear, shame, or sorrow state. In due time this incessant striving to avoid the stream of incessant interrelated fear causes that confront the child during the day, becomes knitted or integrated into a complicated unity that eventually comes to regard itself as I, or the ego and its various segments (teeth, eyes, and stomach) as mine. Now the perversely conditioned segments that jeopardize the ego become outlawed as not mine, or sinful, evil, the devil, hypnotic influences, and secret forces, etc.

Serious and fatal interautonomic conflicts occur when most of the apparatus is conditioned to strive for biologically and socially estimable things and one or more vigorous segments become intolerably or perversely conditioned. This is the foundation of the anxiety neuroses, the benign and pernicious psychoses and many forms of criminal or asocial adjustments. This constitutes the conflict between the ego and the not ego, that is, the struggle between the autonomic apparatus, coordinated into an egoistic unity or personality, striving to win social esteem, and the selfindulgent segmental cravings that only crave for the counter stimulation that neutralizes or gratifies their tensions; as in masturbation, sex perversions, envy, gluttony, and slothfulness.

The ego can only control the jeopardizing segment by preventing it, more or less, from using the final common motorpath or striped muscle apparatus to acquire what it needs. When the jeopardizing craving is permitted to cause the ego to be conscious of its needs but is not allowed to act, it is suppressed, and when it is also prevented from causing consciousness of its needs, it is repressed. The suppressed and repressed hypertense segments, like compressed springs, exert an incessant, severe pressure to break through the resistance and obtain gratifying stimuli. This is shown in sudden changes of purpose, selections, obsessive thoughts, errors, accidents, misinterpretations, dreams, delusions, hallucinations, mannerisms, old memories, and deliria. By a summation of the repressed cravings, or the fatigue or weakening of the repressing ego, a dissociation of the autonomic apparatus or personality occurs and the ego is forced to struggle with all sorts of compulsions, delusions, hallucinations, etc. Here then lies the psychopathic struggle. The fear of the loss of social esteem initiates the compensatory striving, which, because of the vigor of the fear of the influence of the repressed, tense, autonomic segment, becomes progressively eccentric, finally causing the loss of the confidence and esteem of the social group. Now a vicious affective circle is established which tends to eventually destroy the socializing capacities of the personality. Gradually, as the ego becomes more and more asocial the erotic segment obtains complete control of the personality.

A photograph of the perpetual motion machine of a paranoid negro was shown to illustrate how fear of the loss of sexual potency and of becoming an oral erotic homosexual initiated the eccentric, compensatory, divine inspiration (a truly biological compensation) to build a perpetual motion machine which would make him a great prophet, allow him to found a faith and have many wives. This perpetual motion machine is called the first church, where the blood of the world is mixed, and is a simple copulation fetish. Photographs of so-called hebephrenic dementia præcox cases showed the women squatting like apes and the incessant attention and frequency with which their hands counter-irritated the urethral, anal and vaginal zones showed how, as biological types, the anal and genital autonomic segments had destroyed the ego and dominated the autonomic apparatus. Another photograph was shown of a soldier who carried his foot over his anus. He had passed through an anal erotic homosexual panic in which his delusions and hallucinations of being assaulted were caused by the anal erotic cravings (like gastric cravings and thoughts of food) seeking appropriate stimuli and his defense against the compulsion was a violent functional distortion compelled by the autonomic apparatus, as a compensation, in order to protect itself from going into the fearful state. He anxiously protested that he would go mad if the leg was straightened out.

Dr. SMITH ELY JELLIFFE said that the point of view presented by Doctor Kempf struck a responsive chord in his own thoughts, and he had certainly performed a signal service in that he had bridged successfully two parallel lines of interpretation which were found throughout the medical community. There were those who held that mental causes and somatic causes ought to be considered as separate types of activity. Not only through this presentation but through Doctor Kempf's work on *The Autonomic Factors in Personality* these two parallel trends had been made to merge and a synthesis was presented whereby one could understand the individual working as a unit. What Doctor Jelliffe had to say he would confine to a few points, one of which interested him a great deal because it so frequently came up as a point of issue between these apparently parallel types, the question of infections, autointoxications and focal infections. Perhaps some of those present would recall an illustration of this, a patient who having suffered from a severe compulsion of washing the hands came for treatment at the age of fifty-two, the compulsion having existed since she was eighteen or nineteen years of age. In the early days of the compulsion the washing of the hands was associated with certain prayers for purity, cleanliness and holiness and she got along very well, the personality adjusting itself. At the age of twenty-three, however, she had an attack of influenza and immediately the depressing effects of the influenza toxin broke down the adjustment of the hand washing and the prayers and two new symptoms developed, diarrhea and auditory hallucinations in which obscene voices made vulgar references to defecation. If one conceived of an individual having sixty-five per cent. efficiency and a loss of

thirty-five per cent. in a range of 100, the hand-washing and prayers took up the thirty-five per cent. of the loss under ordinary circumstances, but the minute the influenza toxin came along, ten per cent. more load was drawn on the autonomic segment adjustment, the diarrhea representing five per cent. and the hallucinatory projection representing five per cent. As a result of the strain she made a suicidal attempt. Ten years later another attack of influenza produced a similar result with diarrhea and hallucinatory voices which took on a more erotic form. Later, at the age of fifty-two, a partial analysis enabled the patient to partially understand the compulsions as analerotic components in the personality. In an attack of influenza following the analysis she developed a diarrhea, but did not hear the voices and made no more attempts at suicide. At fifty-two, she was much better able to handle her autonomic segment maladjustment thrown out of gear by reason of the toxin of influenza.

It was not influenza toxins, nor poisons from the intestines, nor infected tonsils that produced these situations in so many, but they should be considered as partly accessory in the breaking down of the combination. The real difficulty was the personality difficulty and the infection or toxemia was an additional factor to that difficulty. Furthermore, Doctor Jelliffe said that he thought that the original personality difficulty, if it could be analyzed out into its original roots, would afford a clue as to reasons why the infection or the toxemia could localize its effects in certain autonomic segments. Such autonomic segment neural pathways were under constant tonal maladjustment; they were overactive in the attempt to effect healthy functioning in the segment in spite of the instinct distortions, due to the conditioned segment stimulus to early emotional stimuli. After many years of such faulty strain in the reciprocal activity of the two components in the vegetative arc, the resistance of the tissues under the neural innervation in this arc were so seriously undermined as to permit of localization of an infecting or toxic agent in that arc. This was a local anaphylactic sensitization. Thus the localization of the disease in the badly functioned autonomic segment.

Doctor Jelliffe spoke of the influence of faulty anal neurotic stimuli, under constant repression, and the possible determination of rectal crises in tabes, localizing themselves as rectal rather than other types of crises because of this autonomic struggle. An illustration was cited in which a partial uncovering of a passive pederastic unconscious repression in a tabetic with rectal crises possibly precipitated an intense delirium with fecal content. The speaker said he was simply following the clue which Potzl, Adler and others had offered in their attempt to answer important questions concerning why one or another organ or special parts of an organ were involved in a diseased process.

Dr. ADOLPH STERN considered Doctor Kempf's presentation especially interesting from the point of view that, as suggested by Doctor Jelliffe, it served to bridge over two apparently conflicting conceptions of mental (emotional) processes, namely, the

physical and psychological, by giving the physiology of the emotions. This conception of Doctor Kempf, explained in concrete form, gave the physical basis for various (neurotic and psychotic) symptoms, which were, in a measure, understood by psychoanalysts and explained by them as physical manifestations of thought processes. These now had a physiological explanation as well.

It was also very instructive to find that the laboratory experiments on animals by Cannon, Crile, Sherrington, and others served to establish on a firm foundation the concept of the unconscious or autonomic system as presented by Doctor Kempf. Cannon especially has demonstrated the bodily changes that accompany the strong emotions and the instinctive cravings. Judging from the sensations as described by patients suffering from neurotic symptoms in the form of bodily sensations, i. e., various paresthesiæ and other similar manifestations, it was now known that such sensations were not at all imaginary but that they had a definite physical, physiological basis consisting in a change, in the region in which the sensations were felt, from the normal tonus maintained by the autonomic system, the change being one determined by the emotions present at the moment.

Referring to the condition reflex and its bearing on psychoanalysis, a certain patient bore for many years a more or less conscious hatred for his father. He was always very irritable and easily incensed at any attempt to give him an order, even though he complied readily enough. He was very ambitious, the ambition being in a great measure a desire to be superior to his associates. Failure in any ambition was always accompanied by anger at the successful individual, whose ability he depreciated. This patient was aware of a general sense of tension of all muscles of the body, especially the arms and face. He frequently, without any conscious cause, doubled his fist and smote the palm of his other hand. On analysis he disclosed that the peculiarities noted were determined (conditioned) by the unconscious attitude he bore toward his father to whom he attributed motives present in his own mind. Qualities present in people recalling to the patient those he saw in his own father determined the attitude of the patient toward these people. This state of affairs extended over many years and the emotional state was of similar duration. Applying to this what Doctor Kempf taught, this patient's autonomic system would seem to be conditioned by attributes he saw in people suggesting unconsciously those possessed by his father, causing a change in the normal muscle tonus sufficient to bring about muscular discharge, i. e., striking of palm with fist. This change of tension was the "feeling," in the present instance, of anger felt by the patient as a disagreeable sensation, the origin of which was unconscious to him. This gave a physiological explanation for that which Freud empirically designated as an unconscious wish. To him it was a psychological phenomenon, and it was gratifying to substantiate his clinical findings by means of physiological data. In the case just cited, the more or less unconscious hatred for his father, his pathologically motivated ambition, his rebellion to authority, all

were accompanied by an unconscious wish to remove a rival, i. e., the irritating stimulus. This was the unconscious wish.

Dr. FOSTER KENNEDY, of New York, thought that it might be of interest to some of the members of the Neurological Society in this connection to hear of two soldiers who were under his care last year and who exhibited in a very astonishing manner a cooperation of endocrinological disturbance and emotional disturbance. These men were admitted to hospital with complete emotional collapse after having been blown up without physical injury. They were in identical conditions, almost mute, almost inaccessible; it was difficult to make them eat and emotionally they were given over entirely to the phenomenon of fear. In both cases the hair was standing erect on their heads and remained so for nine days. The hair of both these men was long and stood on end like that of a Zulu. After a few days rest in bed they recovered their usual mental and emotional balance and were able to state in each instance that their hair previously was normally tractable and flat.

Dr. BERNARD GLUECK thought that everyone should become familiar with Doctor Kempf's monograph, *The Autonomic System and Its Relation to Personality* because of the very helpful synthesis he had accomplished of the various physiological and psychological researches into human conduct. It made more acceptable to the average mind the central theme in the Freudian theory of conduct, namely, the wish. Doctor Kempf's discussion of the place for the craving of social esteem in human conduct was particularly illuminating, as it frequently was found to be a prominent factor in problems of social maladjustments.

Dr. S. ROTHENBERG, of Brooklyn, thought that everyone present was indebted to Doctor Kempf for his splendid presentation and he personally appreciated it particularly because of having done some work in attempting to interpret the so-called mismatching complex from a psychosexual point of view. This work was done at the National Desertion Bureau here in New York. He found there were decided and peculiar condition reflexes in many of these people who could not adjust themselves to the marriage state, which would explain the underlying difficulties better than in any other way. Many interesting instances of that kind had been noted.

Doctor Kempf, in closing the discussion, expressed his gratitude for the kind appreciation given him. He thought that the hallucinations in Doctor Jelliffe's case could be interpreted as an auditory hallucination caused by the anal segment, which had become dissociated, trying to obtain the necessary stimulus for gratification. He had been forced to the conclusion that one could not get a psychosis from an organic or toxic cause in which the primary autonomic affective cravings had not been previously repressed. The study of paretics, deliria and arteriosclerotics showed that strong autonomic compulsions, which had been repressed or were perversely conditioned, had become dissociated and caused the hallucinations.

Doctor Jelliffe's point about the localization of disease processes in repressed segments might be

explained by the fact that an autonomic segment which was more or less anemic or hyperemic, due to the vasoconstriction or vasodilation in this segment which existed because of its repression, disease, or overtension, became a more fertile soil for bacteria.

As far as therapeutic principles were concerned, there were two schools; one believed in building up the health, confidence, self control, and integrity of the ego, and the other in getting a transfer from the ego so that it would no longer be afraid of allowing the repressed craving to cause awareness of its efforts. With the transfer, the patient became conscious of what his personality craved and by learning to analyze and know himself, he became able to make much more comfortable practical adjustments, without becoming fascinated by bizarre, asocial, or perverse stimuli.

Letters to the Editors.

AFTEREFFECTS OF INFLUENZA.

ONTARIO, N. Y., April 17, 1919.

To the Editors.

In a little community known to your correspondent, there has come about an outbreak of throat and lung troubles following in the path of influenza. These aftereffects of the epidemic are almost as disastrous as the original form of the disease. Their effect upon the general health of our small city is very marked and most unfortunate.

Surely, we are not alone in suffering these conditions. Communities throughout the country are probably in similar circumstances. Can nothing be done to check these devitalizing germs? The writer is aware that campaigns have been inaugurated to prevent the spread of pulmonary diseases after influenza, but such campaigns seem to have but meagre practical results. Ignorance among the masses of our citizens as to proper preventive measures is very widespread. It would seem that some form of simple instruction might be given the public. Most people do not understand medical terms, but they would be greatly helped by simple direct teaching given through such agencies as daily newspapers, plainly worded leaflets, workers who would give practical talks in homes, stores, and factories, and by the use of motion pictures. We quite naturally ask, "Who will pay the bills?" Municipalities, State governments, and the Federal government spend large sums each year for the conservation of public health, to say nothing of the excellent work of various public charities and the Red Cross along these lines. Money could not be more wisely spent. Are there any better dividends for city, State, or nation than healthy citizens? Only let us have larger appropriations for preventive measures, then we shall need less for curative purposes. When the child in school, the mother in the home, and the father at his work really understand simple ways of making and keeping themselves well, the number of beds in hospitals and wards in insane asylums will be decreased and we shall have gone a long way toward solving the problem of national health.

M. G. DUNN.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

A Treatise on Orthopedic Surgery. By ROYAL WHITMAN, M. D., M. R. C. S., England, F. A. C. S.; Director of Military Orthopedic Teaching; Chairman of the Medical Advisory Board for Orthopedics in New York City; Associate Surgeon to the Hospital for Ruptured and Crippled, etc., etc. Sixth Edition, Revised and Illustrated. Philadelphia and New York: Lea & Febiger, 1919. Pp. xii-915.

The many followers of the teachings of Royal Whitman will welcome the new and revised sixth edition of his original book. Many physicians have used the methods described by him in his earlier books during the war and now the lessons learned from the war are incorporated in the new text. The book is characterized by the simplicity of the methods described, and the clarity and directness of the descriptions. The illustrations have been selected with care and are of great aid to the practitioner who has not been fortunate enough to see the various types of appliances in use. A chapter has been devoted to a description of orthopedic methods as applied to war injuries. The early development of reconstruction is also described. A clear working model of the so-called Balkan bed is shown and the practicability of its use in orthopedic surgery is given. Various ambulatory fracture devices are also briefly described in such a manner that the general principles can be accurately followed by the practitioner who does not have access to the ready made apparatus. Some changes have been made in the chapter on artificial limbs resulting, no doubt, from advances made in war surgery. The book is an excellent groundwork for the study of orthopedic surgery.

The American Illustrated Medical Dictionary. A New and Complete Dictionary of the Terms Used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, Nursing, Veterinary Science, Biology, Medical Biography, etc., with the Pronunciation, Derivation, and Definition. By W. A. NEWMAN DORLAND, A. M., M. D., F. A. C. S., Member of the Committee on Nomenclature and Classification of Diseases of the American Medical Association. Ninth Edition, Revised and Enlarged. Philadelphia and London: W. B. Saunders Company, 1919. Pp. 1180.

A thoroughly revised convenient reference dictionary is presented in the latest edition of the American Illustrated Medical Dictionary by W. A. Newman Dorland. Dr. Fielding H. Garrison has assisted the author in this revision. Over 2,000 new terms which have appeared in the past two years have been added. The fields of dentistry and veterinary medicine have not been neglected. The attention which has been given to the historical aspect and origin of medical terms should prove of value to medical writers. The illustrations are clear and well defined, and in many instances valuable reference aids. The frequent use of tables often helps in the visualization of complex material which ordinarily requires the perusal of considerable text. The flexible leather cover and thumb index are features which should appeal to the busy practitioner who frequently uses a dictionary.

Sex and Sex Worship. (Phallic Worship.) A Scientific Treatise on Sex, Its Nature and Function, and Its Influence on Art, Science, Architecture, and Religion—with Special Reference to Sex Worship and Symbolism. By O. A. WALL, M. C., Ph. G., Ph. M.; Author of *Handbook of Pharmacognosy*, *The Prescription*, etc. Illustrated. St. Louis: C. V. Mosby Company, 1919. Pp. xvi-607.

In this profusely illustrated volume a whole library of information has been condensed. Doctor Wall often tries to deride and escape from the puritanical ideas which have prevailed for so many centuries regarding sex and sex life, but while his general conclusions are undoubtedly logical, the methods he uses in arriving at them are at times involved. It is to be regretted that the references to quotations are not more complete. This is explained on the ground that the original manuscript was destroyed some years before the book was published and the writer was unable to refer to the library where he made his first rough draft. An apologetic note is offered for certain phallic photographs which have been omitted because of the fear that they would shock some modern ideas of propriety. In reading the book one feels that the same weeding out process has occurred in the text. Nevertheless, an earnest effort has been made and much useful material has been gathered together even though it is presented in a form almost maze-like in its intricacies. Other authors on sex problems will doubtless profit from the labor which has been expended and psychoanalysts will find a fruitful field in further deciphering the accumulated material.

Births, Marriages, and Deaths.

Died.

ADAMS.—In Fort Wayne, Ind., on Friday, May 2d, Dr. John H. Adams, aged fifty-seven years.

ANDERSON.—In Estherville, Iowa, on Wednesday, May 14th, Dr. Albert M. Anderson, aged fifty-eight years.

BEARD.—In Avon, Ind., on Thursday, May 1st, Dr. Edward D. Beard, aged fifty-two years.

BENNETT.—In Atlantic City, N. J., on Thursday, May 15th, Dr. William H. Bennett, aged seventy-six years.

BOLD.—In Atlantic City, N. J., on Wednesday, May 21st, Dr. Valentine J. Bold, of Philadelphia, Pa., aged fifty-one years.

BROCKETT.—In New Haven, Conn., on Friday, May 16th, Dr. Charles H. Brockett, aged fifty-seven years.

HEATH.—In Wakefield, Mass., on Thursday, May 15th, Dr. Joseph Webster Heath, aged sixty-five years.

HENDRICKSON.—In Jamaica, New York, on Tuesday, May 20th, Dr. Samuel Hendrickson, aged sixty-nine years.

LASHELLE.—In Media, Pa., on Tuesday, May 20th, Dr. Ralph MacClay Lashelle, aged seventy-seven years.

LYLE.—In New York, on Friday, May 23d, Dr. Alexander Lyle, aged fifty-three years.

MCLENNAN.—In Syracuse, N. Y., on Thursday, May 15th, Dr. Roderick Collin McLennan, aged sixty-one years.

MARR.—In New York, N. Y., on Tuesday, May 20th, Dr. Myran Lawrence Marr, of Dorchester, Mass., aged sixty-seven years.

REDMOND.—In Danville, Ill., on Thursday, May 1st, Dr. Theodore B. Redmond, aged seventy-three years.

SMITH.—In Cold Spring, N. Y., on Saturday, May 24th, Dr. Edwin Everett Smith, aged seventy-five years.

WINSTEAD.—In Wetaug, Ill., on Friday, April 25th, Dr. Marcus L. Winstead, aged sixty-four years.

WILDE.—In Cheshire, England, on Saturday, May 17th, Dr. Henry A. Wilde, of New York, aged eighty-six years.

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Original Communications

ACUTE DIVERTICULITIS OF THE COLON.*

By JOHN F. ERDMANN, M. D., F. A. C. S.,
New York,

Professor of Surgery, New York Post-Graduate Medical School and
Hospital.

In previous communications I have reported twenty-six cases of acute diverticulitis. The last communication reported by me on this subject was in 1917. Since then I have operated in several acute cases and a number of subsiding or chronic cases, and have observed, during my abdominal work, a number of colons studded in the sigmoid zone with noninvolved (noninflammatory) diverticula; and on two other occasions have removed large diverticula from the first and second portions of the duodenum. Recently I have removed two appendices with beautifully shown diverticula. One of these I removed from a male child, six years old, in whom the diverticulum contained a fecolith the size of a hemp seed and was in the zone of gangrene in the appendix. An interesting case is that of a male, sixty-nine, well preserved, from whom I had removed the lower four inches of his anus and rectum for a carcinoma about two years before. Unknown to me, he had the habit of flushing his bowel with a long piece of rubber tubing attached to his bathtub faucet. About the latter part of August he was seized with an acute attack of pain in the left side either during this use of the hose or immediately following. The operation revealed a ruptured gangrenous diverticulum in the midsigmoid region, with a progressive peritonitis. He died in two days.

A more recent case, which teaches us not to rely too implicitly on the frozen section at the operating table, gave the following history: Female, aged fifty, well preserved, no loss in weight, no pain or fever, at a time when family anxieties due to illness and death prevented her paying proper attention to herself, noted a tender area in the lower left side. Later found that she passed foreign matter from bladder. A cystoscopic examination, about two weeks before she was admitted to the hospital, showed a distinct opening into the bladder fundus. Abdominally, a left sided mass was found. A diagnosis of perforated diverticulitis was made. On operation a large tumor involving the sigmoid, connected with the bladder

was found. The bladder was released and the opening sutured. While this was being done a specimen from this area was sent to the laboratory for examination. A diagnosis of malignancy was returned. Although we did not believe this to be true, yet in the light of knowledge that a fair proportion of these cases become malignant, the sigmoid was excised, and a permanent artificial anus established. Upon cutting the specimen open, no erosion of the mucous membrane was present. Diverticula could be demonstrated throughout. Within an hour the pathologist revised the diagnosis, but I could not revise my operation. Subsequently this patient died of uremia on the tenth or twelfth day.

One of the twenty-six patients referred to was reported as Case 7, in my original article (1), as having been operated upon in 1903 or 1904 for a supposed left sided appendix but which I thought was a diverticulitis. This patient was seen by me again in 1915 on account of an acute left sided mass and the statement made by him was that about once every ten or twelve months he would have an attack of pain and vomiting, followed by a mass formation in the left side, and in a day or two an opening would appear discharging foul, brown colored pus. The opening would discharge for a week or so and then close perfectly until another attack.

I saw him again in June, 1916, with a very grave attack. This time his family physician and myself were finally able to secure his consent for an operation. There was a temperature of 103°, pulse 100 to 120, and a large, tender, painful mass, the size of a fist, in the left loin. A discharging sinus was not seen at this time. On opening the peritoneal cavity there was a free discharge of foul pus and an easily displaced giantlike sigmoid, with a gangrenous perforated epiploon on its left side and a fistulous tract on its right superior border attached to the parietal peritoneum. This was the canal of the original diverticulitis attack thirteen years before. The patient's condition illustrates the fact that as long as a diverticulum exists there is a possibility of an acute attack, and as the diverticula never come singly, one can see the futility of promising future freedom from repeated outbursts. Nevertheless, the rarity of a second gangrenous and abscess attack makes possible a very wide proportion which do not recur.

The sigmoid at the time of operation was found so thoroughly infiltrated and with numerous epi-

*Read before the Buffalo Academy of Medicine, Surgical Section, January 8, 1919, and the Lackawanna County Medical Society, Scranton, Pa., April 22, 1919.

ploon invasions that an immediate repair was not considered justifiable. The part of the sigmoid involved was placed extraperitoneally and walled off with gauze, and in addition supported by a rod, as in the preliminary step of a sigmoidostomy. A few days later a resection was made of this part of the gut and an end-to-end anastomosis done. Recovery was obtained after some weeks of fistulous discharge. Even beyond the sigmoid, noninvolved diverticula were observed. The portions removed contained noninvaded diverticula, some containing fecoliths, while one was perforated and gangrenous, and another, the thirteen year one, presented a perfectly healthy channel communicating with the gut.

Sex.—Of the thirty patients only six were females, or five males to one female. Carnial states that there are two to three males to every female. Of the thirty, one diverticulum was of the ascending colon, the remainder in the sigmoid.

Carcinomatous involvement.—In one female and one male, carcinoma was diagnosed as having been found implanted upon, or coincident with this condition. One of the patients operated upon had once been reported by me as having carcinoma. This patient, was, without question, one of the cases of so-called cures of carcinoma, that are later proved benign. She was operated upon by me for a suspected malignant obstruction of such an involved area as to preclude excision. An artificial anus was made. Sometime afterward feces began to move per anum, the patient gained weight, and was kept under observation by me for years. Finally the artificial anus was repaired and the pelvic mass was found to have disappeared. As a possible source of carcinoma, diverticula cannot be ruled out any more than can the possibility that a gastric ulcer will become a gastric carcinoma.

Symptomatology.—These patients are usually well preserved, in fact not one of the thirty could be called slender. By several, complaints were made of an occasional sense of soreness or distress in the left lower quadrant and hypogastrium. Neither mucus nor blood was present in the stools. There was a tendency to constipation, occasional dysuria and frequency, occasional mild acute attacks simulating the mild to profound attacks in the right lower quadrant when one has the appendix as the source of complaint. One of the patients of the last series, in fact, was operated upon for an appendicitis, his pain being in the right side. Upon opening the abdomen over the cecum, a gangrenous diverticulum about one and a half inches long was seen upon the colon near the terminal portion of the cecum, while the appendix, perfectly normal, was lying downward and inward.

There was an absence, in the history at least, of pus, mucus, and blood in the stools. Upon examining the patients with a proctoscope, it was rare that a lesion could be discovered. It is possible with good inflation of the sigmoid and a proper illumination, that one might see the wider mouthed diverticula—especially if a concretion lies near or in the mouth. These symptoms are so characteristic that one can safely advance the diagnosis of suspected diverticulitis and, if not acute, refer these patients for x ray diagnosis. These pouches are at

present being found quite frequently by x ray search. The youngest patient of my series was six years old and the oldest eighty-one, both males; the majority were between forty and forty-eight years of age.

There were four deaths in twenty-seven patients operated upon, two from sepsis with gangrenous perforation and retroperitoneal abscess formation, only drainage being established; one acute intestinal obstruction following a resection of ten inches of sigmoid for multiple perforations, two which were in the bladder, two were in adherent loops of the sigmoid and two in adherent loops of the ileum. This patient had a second operation for acute obstruction, due to a loop of jejunum becoming adherent to the anastomosis and angulating.

Postoperative fistula.—The operation for immediate repair of the gangrenous diverticulum is very likely to be followed by a fistula. There were four such postoperative results in this series; one mentioned before in which the fistula continued for quite a number of months, then closed and reopened for ten or twelve years about every ten months; one which, although union was positive, opened in the seventh week and continued to discharge almost constantly for seventeen months, has now been closed for from eighteen to twenty months; one, a physician, weighing 240 pounds at the time of the first and second operations (Case I, in my series also reported by Dr. William Mayo) had a fistula or sinus for several years, but has now been well about five years. The fourth patient was a woman in whom I had some difficulty in placing sutures. The wound leaked for about eighteen months. These sinuses discharge a fluid which varies in consistency from a thin, slightly colored, nonodoriferous liquid, to a distinctly fecal mixture, with an occasional evidence of gas, and now and then a small fecal mass.

Differential diagnosis rests between a possible but rare left sided appendix, and carcinoma. That a left sided appendix may be present, has been demonstrated. It is evident that a normal side origin appendix may be so long as to extend to the opposite side. Abscesses have been opened on the left side that subsequent operations have proved to be of appendicular origin in the right side.

Carcinoma.—We have, especially in the adenocarcinoma, a disease of late years, while diverticulitis usually occurs in the earlier years. Ulcerative perforation in carcinoma, without previous distinct symptoms for some time are exceedingly rare. Carcinomata usually give rise to mucus and blood in the stool, singly or combined, alternating diarrhea and constipation, loss in weight, secondary anemia, prostration, and cachexia. By proctoscopic examination, if the tumor is within twelve or fifteen inches evidences of mucous membrane invasion of the canal are found.

Terminations of diverticula.—These may be subacute; or acute as in appendicitis; or chronic, with thickening and obstructive symptoms; and finally may terminate as carcinomatous implantation. The subacute conditions have been considered as those of an irritable or recurring appendicitis and in all probability are due to an over distention of the

pouch with fecal matter or an irritation by some sharp substance, as in one patient seen by me in whom a shell of a rice kernel was lodged in the pouch. Such masses produce irritation possibly in the efforts of the bowel at ejection.

The acute manifestations include all the phases seen in a diseased appendix; so-called catarrhal subsiding; abscess formation, the abscess either being in the protecting folds of the intestine or in the omentum or if the diverticulum is in the tissues between the peritoneal folds, a retroperitoneal abscess and gangrene, with or without perforation. In many of these cases, perforation of the abscess into the bladder or into the adjacent gut has been demonstrated. Three patients of this type were seen in this series, one was reported in an earlier communication, and one was a multiple perforation referred to in this paper.

The chronic type is due evidently to a recurring condition or chronic irritation. Here we may encounter the condition described by Wilson of a peridiverticulitis, consisting of chronic proliferation, extramucosal inflammation with round cell infiltration, which results in mass formations and may encroach upon the caliber of the gut to such a degree as to become obstructive and be taken for malignancy. The carcinomatous involvement type has been considered.

Gross pathology.—Upon opening the abdomen, the picture of the intensity of the process varies. Noninflamed diverticula are seen protruding from all or rather any surface of the gut. They are bleb-like, but resistant to the sense of touch, and may or may not present evidences of foreign body contents. The acutely inflamed variety varies from a markedly injected diverticulum to one which is gangrenous and perforated. In most of the patients with acute lesions the one or more of the epiploons were found to be involved. These tabs of fat were either extremely hard and intensely injected or in varying stages from hemorrhagic to gangrenous.

On section of the epiploon near or at its base, a diverticulum is usually found. These bodies or pouches are round or ovoid and range from the size of a pea to that of an egg. The resected or open colon has the appearance of a healthy mucous membrane thrown into folds with here and there a crypt or long opening into which instruments from the size of an ordinary probe to those of considerable size can be passed. In places foreign bodies or fecal concretions are seen occupying the diverticula. The wall of the sigmoid or colon in chronic cases is thickened, while the caliber is distinctly diminished (Burns). McGrath has shown that most of the diverticula are of the false variety and that the mucosa is pushed through the muscularis in the region of the penetration of the vessels.

Causation.—Much has been said concerning the origin or cause of these protrusions. Hartwell and Cecil in summing up the etiology of the disease after considering the various theories and arguments make the following statement: "We, therefore, are driven to the conclusion that up to the present time no complete explanation of the primary cause of intestinal diverticula has been offered. The most that can be said is that for some

cause a weakness exists in the intestinal coats, and by reason of the weakness a pouching of the coats takes place when undue pressure arises."

The formation of diverticula was attributed by Graeser to hernial protrusions which follow the emerging veins after they have taken a wandering course through the intestinal walls, finally reaching the subserosa. His conclusions were based upon a study of twenty-eight cases, from which he made more than a thousand sections. Sudsuki contended that Graeser was at fault, that his findings were purely accidental. Klebs noted that the diverticula occur in close relationship to the points of entry and exit of the vessels in the gut but along the mesenteric attachments, and offered as his chief argument, that the intestinal wall was weakest at the mesenteric attachments.

My personal observations in the acute, as well as in the chronic cases, has shown that the diverticula may occur at any portion of the gut circumference although in the acute cases, they were most frequently found in the anterior and lateral margins, especially in the regions of the fat lobules or omentula. Traction upon the mesenteric border was given by Klebs as a causative factor in diverticula through possible weakening of the walls resulting from the traction. Old age as a cause is disproved by Ashhurst's patient, a boy of seven, in whom a diverticulum occurred; by two patients of Hartwell and Cecil, aged seven and ten years; by one of my own, aged six years; and the great proportion of patients under consideration in this communication under forty-five years of age.

Reference to the literature and our personal experience produce sufficient evidence of the fact that the entire alimentary tract, from the esophagus to the rectum, is subject to diverticula. These protrusions are classified as acquired or congenital, false and true; the false in which one or two coats are absent, the true in which all coats are present. The false and true classification is the more popular for a working basis.

The number of cadavers, in which diverticula are found upon autopsy, that are merely curiosities or entities and not pathological causes of the demise, proves that diverticula, like gallstones, are harmless until certain changes arise which produce the necessary irritation or inflammation and they become irritative, symptomatic, or destructive. These changes may be allied to those which arise in the appendix, from a simple congestion, and obstruction by adhesions or thickening, ulceration, and finally carcinomata.

Acute diverticulitis either in the esophagus, small intestines, or colon is due to food retention with irritation in the esophageal and intestinal varieties, while in the colonic and appendicular varieties it is due to feces or foreign bodies such as the oatmeal husk or rice bodies.

Operative treatment.—The acute types call for drainage or excision and suture as in appendicitis. In a great many of the acute gangrenous cases, the protrusion may be excised, the edges refreshed if necessary, and sutured; while in other patients the edematous condition found is obstructive to suture work and drainage must be relied upon or upon an

imperfect closure of the opening by a suture which surround the omentula to the intestinal opening. Where the opening exists in the mesosigmoid or mesocolon, splitting one or both layers of the peritoneum forming these mesostructures and drainage is advisable. In the chronic infiltrated obstructive type, excision of the gut is called for with anastomosis, preferably end to end. In the irritative variety, noninflammatory or acute, careful attention to the intestinal tract and warning the patient of the acute emergency is in order.

Attention has been called to the possibility of attacks occurring. These are not of necessity in one diverticulum, but, as in the case referred to, in several different diverticula. Such an occurrence as stated before will of necessity provoke a very guarded prognosis even after successful resection of certain segments, as the presence of diverticula throughout the colon is more than possible, although not visible during the operative procedure.

60 WEST FIFTY-SECOND STREET.

N. C. A.—NEUROCIRCULATORY ASTHENIA.*

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When I first saw the abbreviation, N. C. A., and learned that it stood for such a dignified clinical condition as neurocirculatory asthenia, I admit that it struck me as a bit of persiflage. It seemed rather flip to designate a perfectly respectable and interesting disease by the abbreviation N. C. A. One might have expected something like this from America, but coming from England—never!

On the other hand, if N. C. A. is a new fangled term coming from England, as it does, it should not distress us any more than what our very own Irvin S. Cobb tells us. The Cobb, whom we have always known as a humorist, in his overseas notebook, shows evidence of becoming serious, and in all seriousness he avers that the Britons have a wonderful sense of humor, that the Irish are not, and never have been witty, and the French as a people are not mercurial.

In these wonderful days, we are being forced into a revaluation of all values, and the careful as-saying of all our possessions. So that whatever is true of our friends abroad, we know this much of ourselves; and that is, that a large component of the American genius is adaptability. Therefore, we have adopted the abbreviations, N. C. A. (neurocirculatory asthenia), D. A. H. (disordered action of the heart), S. C. D. (surgeon's certificate of disability), C. D. D. (certificate of disability discharge), and V. D. H. (valvular disease of the heart), and we have also learned that a medical officer is an M. O. We have adopted these with perfect impunity, we like them, and who knows but what we may even add a few of our own to the present list.

N. C. A. is a comparatively new characterization to the practitioner of medicine, nevertheless he

must get acquainted with it and the sooner the better. A case of N. C. A. may seem to him at first like a cubist or a futurist picture. Shown a case of N. C. A., the uninitiated may aver that he sees almost nothing at first, and yet, he is assured by the artist that all the components are there. The onlooker needs only to focus his attention on the picture and in a little while the image will resolve itself clearly to his complete satisfaction. What I have thus far stated is not specious argument—it is true.

We have all seen cases of N. C. A. in our practice daily, but we have not understood them. Some of them have irritated us, many have left us to seek health and comfort at the hands of drugless healers, and others have shown a faith in the medical profession which may be said to be either wonderful or pathetic. And all the time we were treating patients whose disease we did not understand. With a better understanding of N. C. A., neurasthenia will go out of fashion, organs will not be stitched up as frequently, and, perhaps, it is better for a physician not to enumerate all of his own mistakes.

Nor would we have understood this disease or syndrome, or whatever it should be called today, were it not for the war. The medical officer of the recruiting station found in young men of from eighteen to thirty-one a set of symptoms which he might have expected to find in a nervous woman, but certainly not in a prospective soldier who was about to live in the trenches and be exposed to shell fire and bombing and what not. So the medical officer began correlating the symptoms of these young men, both the subjective and objective symptoms, and soon the thing formulated itself into something like a definite disease entity.

Neurocirculatory asthenia is an abnormal state occurring in individuals whose physical substratum is wanting in that something which makes for a perfectly coordinated organism. Histologically the cells and the tissues of these individuals may not show any abnormality, yet their organs fail to functionate up to a normal standard; nor do the various functions of the organs complement one another as they should. In these individuals we find evidences of a nervous system which lacks stability and reserve and we find a circulation which is not properly controlled by the nervous system. We also see evidences of disharmony in the internal secretions—notably the adrenal and the thyroid.

There are no evidences that N. C. A. is primarily dependent upon nutritional or metabolic disturbances. We see it in the undernourished, in the average individual, and about as frequently in those who show a tendency to obesity. It is found among the poor and in the wealthiest families, in the ignorant as frequently as in the intellectual. There is one rather striking exception and only one, of which I know, and that is the apparent immunity of the negro. The reason for this may be purely anthropological. Examining thousands of negroes as we did at Camp Sherman, the absence of typical cases of N. C. A. was very striking. We frequently saw cases which presented incomplete syndromes but some of the diagnostic criteria were

*Presented at the staff meeting of Base Hospital No. 5, Mineola, Long Island, January 30, 1919.

always absent. For example, we rarely saw the fine tremor of the extended hand in the negro.

Osler has said of the N. C. A.'s, "that there is something wrong with the blastoderm"; it would perhaps be even more inclusive to say of them that there is something wrong with the chromosomes of these individuals.

Up to the present time it must be said that we are far from being able to state the exact etiological factors in N. C. A. As these cases appear before us they seem to align themselves into three groups. First, there is the so-called constitutional type, the type of individual who has a bad family history, and who tells the examiner, "I have been very delicate all my life." Then there is the type of case which has its onset after some severe shock, mental or physical. I recall two very marked cases of N. C. A. in one morning's examinations, in which the onset of their symptoms dated from the time the patients received electric shocks, one from a switchboard and the other from a live wire. In another case there was a history of lightning shock several years before. In this class also belong those cases which develop especially in women who have come through some severe crisis in their social life, as well as those who have undergone extraordinary physical hardships.

In such surroundings as cause shell shock, one individual comes out unscathed, while the other, who is potentially an N. C. A., develops the complete syndrome and becomes unfitted for the ordinary duties of life. Then there is the third type of case in which the onset dates back to one of the acute infectious diseases. We saw many of these after the recent influenza epidemic. My impression is, however, that when we come to a fuller understanding of this disease that we shall eliminate this last group, because in the majority of cases the symptoms are more or less transitory.

A rather careful study of N. C. A. was made at General Hospital No. 9, at Lakewood, N. J. As the guest of Major Peabody, I had the opportunity of observing these studies. They carried out complete physical examinations, strength tests, metabolic studies, blood and urine examinations, electrocardiographic studies, reaction to adrenalin and vasomotor reactions. The work of Major Peabody and his collaborators has thrown considerable light on the etiological factors and will help to classify properly the cases which fall into the large group of N. C. A.'s. It was determined, first of all, that one portion of the group is made up of cases which in reality are cases of hyperthyroidism. In these cases, a careful search will usually reveal enlargement of the thyroid, fine or coarse tremor, a history of vasomotor disturbances, diarrhea, sweating, persistent tachycardia and eye symptoms more or less marked. In the laboratory they show an increased basal metabolism.

A second portion of the group resolved itself into the adrenalin nonsensitive cases. The test of Goetch was used. The test is performed by injecting intramuscularly 0.5 c. c. of a 1:10,000 solution of adrenalin chloride. A positive reaction consists of increased blood pressure and pulse rate, increased respiratory action, pulsation of vessels of

neck and aorta, and flushing which characterize N. C. A. I have seen a dose of adrenalin in one of these sensitive cases produce a picture of extreme anxiety and fear in a subject who had no anxiety or fear. The symptoms were merely those of an excessive adrenalinemia.

The third group which the work at Lakewood seems to have identified is the constitutional type. These patients are not hyperthyroids, and usually they are not adrenalin sensitive.

The symptoms by which we recognize N. C. A. are quite definite, and while well marked cases are extremely easy to diagnose, many others shade off into more or less atypical forms, and their recognition is not so simple. For a characteristic picture and history I will describe later on a case of N. C. A. of the constitutional type.

Subjectively, these individuals give a history of never having been robust; as children they were delicate and sickly, as youths they never experienced the joy of effort. The ebullition of youth is unknown to them. They do not partake of strenuous physical exercises, they do not rough house as healthier ones do. As they grow up, their tendency is to be introspective; sometimes artistic, sometimes perverted, and at all times avoiding the greater responsibilities of life. If wealthy, they do little or nothing; if poor, they float about from one job to another at short intervals. They are always giving up the hard and nerve racking work for an easier job. If they work at one job for any length of time they take weeks off at regular intervals. Frequently they are good talkers, they are convincing and succeed as salesmen and promoters.

The symptoms of which they complain are dyspnea on exertion, precordial pain—not substernal as in true myocardial disease—and palpitation. A mild effort will accelerate the pulse to 110 or 120 beats. They faint readily after physical or psychic shock, they complain of dizziness, light headedness, cold hands and feet—profuse perspiration. At times they have nausea and vomiting. There are disturbances of speech, they stammer, they are irritable and do not concentrate well.

Objectively, they present quite a typical picture. Their cold, clammy hands and feet are cyanotic. It may be a hot July day and every article one touches is radiating heat, but the hands of the N. C. A. are cold and clammy. When they shake hands with you they deposit something cold and wet and lifeless into your grasp, which makes one feel that he would like to throw the hand back into the face of such an individual if he dared. There is profuse sweating of the axilla as well as of the hands and feet. It was a common sight in the examining room to see the floor wet with perspiration where these individuals had been standing. As they approach the examiner and are being questioned their speech is tremulous. One would think them about to be court martialed or shot at sunrise. They have a coarse tremor, a tremor of the large muscles, from which they quake as they are undergoing physical examination. The outstretched hand shows also a fine tremor as in a case of hyperthyroidism. Their knee jerks and other reflexes

are exaggerated. Some show a dermatographia, some have flushing and others still, a pseudoanemic pallor.

It is essential that we fully understand the cardiovascular disturbances in these cases, and that we differentiate them from the true organic affections. As head of the cardiovascular board at Camp Sherman it fell to me to determine whether we were dealing with a functional or an organic condition, and, needless to say, the problem was frequently a very perplexing one and could only be decided after one or more reexaminations.

In the simple N. C. A., first of all, we find that the right border of the heart does not go beyond the usual 2.5 centimetre margin—that the apex is to be found in the fifth interspace from seven to nine centimetres and the left border as a rule not more than eleven centimetres from the median line. In other words there is no cardiac hypertrophy nor dilatation, without which the diagnosis of myocardial involvement is uncertain. There is not the typical accentuation of the pulmonic second sound which indicates an overacting right ventricle, nor the ringing quality of the sounds at the aortic area which indicates an overworking left ventricle. The sounds at the apex may be short and quick, but they are not snappy as we hear them in mitral disease. There is a poor response to exercise and an exaggerated postural variation in the pulse rate. In this type of case we frequently saw a reversal of the normal reaction to exercise. Hopping 100 times on one foot is followed by a decrease in the already high pulse rate rather than an increase; the physical effort seems to deflect the heart accelerating factor. We very frequently find systolic murmurs in these cases—in the region of the aortic, pulmonic or apex areas, but these murmurs without alteration in the size of the heart indicate functional disturbances only. Tachycardia is very commonly found. Disturbances in rhythm take the form of respiratory arrhythmia in which the heart slows during expiration, of extrasystolic arrhythmia in which the subjective and objective symptoms of extrasystole are present, and the occasional alternating pulse. These disturbances are functional. Then too, especially in subjects with thin chests, we detect systolic and occasionally presystolic thrills with the palpating fingers—and these are also functional. In these patients aortic pulsations and pulsations of the abdominal aorta are extremely common. Let us diverge for a moment and see what sort of an individual the N. C. A. gives to society.

Whether William J. Locke, the well known English novelist, has made a study of N. C. A. as brought out by the great war, and how such individuals react to it, or, whether he had in mind only a single instance and portrayed it exquisitely, I do not know. But in his recent tale, *The Rough Road*, we have a most interesting character who belong to the very class of individuals which we are now considering. James Marmaduke Trevor is the name of the central figure in the story. James Marmaduke Trevor's father died before James had cut a tooth. His mother was old enough to be his grandmother. (Bad family history.) James was an only child. (Psychology of the only child.) As the story goes,

James's mother wrapped him up in cotton wool and kept him so until he was almost a grown man. His cousin Oliver, who was a virile English boy, named him Doggie, because, as he said, James had been brought up like a toy Pom.

Oliver had a profound contempt for Doggie, kicking him whenever he had the chance, and Doggie, who loathed Oliver, shrank into the governess' skirt whenever Oliver came near.

When Doggie was twenty-five his ambition was to write a history of wall paper. At twenty-six, a healthy daughter of England engaged herself to Doggie, because, as the author suggests, no one else was available, and, perhaps, also, because Doggie had a good income, and because no one could say anything against Doggie. The elderly ladies said of Doggie that he was such a nice young man. But the Great War broke out, and Doggie's bride to be wanted to see him in khaki. When she spoke of it, Doggie was startled, and cried out, "It is impossible!" When asked "Why?" he said, "What good is a helpless, delicate crock like myself? My weakness is constitutional he said. 'I've never been able to do things like the other fellows. The least thing bowls me out.'"

To justify himself, Doggie goes to his family's physician, whom, strange to say, Doggie never had occasion to consult before; and the physician's report was that there was no disease found. Doggie did not believe this and consulted a London specialist, who also pronounced him free from disease. Doggie was bewildered and amazed—"How could it be?" He who had been so delicate all his life, should be pronounced sound and free from disease and fit for the arduous duties of a soldier!

Influential friends got him a commission, but in a short time he was forced to resign. He could neither take an order nor give one. He then dabbled with the thoughts of suicide. Being in London at the time, he went to Waterloo Bridge, but that did not seem to him to be a suitable place for committing suicide, it was too public. So he proceeded to inspect all the bridges before deciding upon the proper one. But before he could decide, he fell into the hands of his former tutor who was a private in the King's Army. He confessed his intentions to the professor soldier who finally persuaded him to join his own regiment.

Doggie had many great struggles with himself, but somehow, and perhaps by not exposing himself to too many dangers, he got through the war. One year of the life of a private with freedom from responsibilities and plenty of systematic exercise, improved him considerably and helped him to regain confidence in himself and even some courage.

Meanwhile, the girl who had engaged herself to Doggie readily disengaged herself from him when a real soldier came along. But to end the story happily, the author saw to it that Doggie found another. My diagnosis of this case, the London specialist notwithstanding, is that Doggie was an N. C. A. of the constitutional type.

Cases of N. C. A. were common in all of the armies. With us, many of the severe cases were rejected, while the milder ones were accepted for domestic service only. We were acting upon the advice of the English when we rejected men of the

Doggie Trevor type. Indeed, there were such numbers of them that they formed a considerable portion of the work of the depot brigade.

Having been retained in the service, the problem of proper treatment and reconstruction of these individuals become imperative. These men being unfitted for full military service should at least be useful for some domestic service—something similar to the work which they found themselves able to do in civil life. Ways and means were provided to improve their conditions and restore them to as near normal health as possible. The British had found that systematic physical training was beneficial, and following their example we adopted a similar plan. Model exercises were developed at the Lakewood Hospital under the guidance of Captain Smith. Muscle strength tests were made of every individual, before the exercises were begun, and at intervals, during the course of treatment. All the cases showed marked improvement in strength and endurance, and there was a simultaneous improvement of the general condition. Aside from the systematic daily exercises in these cases, the treatment consists of the removal of any discoverable etiological factors; second, a change of environment; and, third, an attempt to correct any abnormalities of nutrition, if they are present.

An important adjunct in the treatment is hydrotherapy. Dr. Simon Baruch, who may well be said to be the father of hydrotherapy in America, tells me that he has used hydrotherapy in this very class of patients with excellent results, for the past thirty years or more. He called my attention to the first edition of his book, *Neurovascular Training*, which appeared about twenty years ago, in which he described the effect to be obtained from hydrotherapy.

RÉSUMÉ.

N. C. A.—Neurocirculatory asthenia, is a syndrome found in certain individuals in whom the nervous or the circulatory symptoms may predominate. Under this heading we find those cases which Da Costa characterized as the "Irritable heart of the Soldier" and the group which the English have designated as D. A. H.—disordered action of the heart.

Strictly speaking, as we have seen it, it is primarily not an affection of the soldier—rather is it the civilian in whom he saw it, the civilian of whom we tried to make a soldier. Nor is it primarily the affection of a disordered heart. Therefore, the term, neurocirculatory asthenia seems the most applicable.

The predisposing factors appear to be hereditary and acquired; a bad family history, a bad environment, previous disease, physical and psychic injury. Most of the patients, according to Lewis, are in the twenties and twenty-three per cent. give a history of rheumatic fever. The exciting factors, those which convert the potential N. C. A. into a full blown case may be any physical shock—and certainly those conditions which exist in modern warfare, such as prolonged marching, intense fighting, terrific bombardment, shell shock, gassing, burial, trench fever, dysentery, and infected wounds (Lewis).

Subjective symptoms.—The patient feels shaky

after exertion; and after physical strain he will have breathlessness, fatigue, chest pains, palpitation, giddiness and faintness. The chest pains of true angina is substernal—in the N. C. A. it is precordial. Extrasystole is very common. They also complain of tinnitus, backache, muscle pains, stiffness, nausea and vomiting, night sweats, enuresis, unpleasant dreams, disturbances of speech and voice, irritability, lack of power of concentration.

Objective symptoms.—Fine and coarse tremor of the extremities and muscles of the trunk. The posture is faulty at times. Pseudoanemic pallor; at times flushing and dermatographia. Hands and feet cold and clammy and cyanotic, axillary sweating, hyperalgesia of the chest wall, exaggerated reflexes, diffused apex impulse and pulsating abdominal aorta. Pulse rate accelerated, irregular heart action, respiratory arrhythmia, extrasystole, exceptionally bradycardia, poor response to exercise, phosphaturia and oxaluria.

MALINGERING.*

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Of the importance of malingering and of its detection no one will gainsay. That it has played an important part in the past, and probably in the future will play its part, is eminently true, for no matter how we may gloss over the unpleasant fact or grimace as we swallow the bitter pill, the truth remains that there is a strong tendency in human nature to malingering. Let us clear the premises by first clearly and distinctly understanding what we mean by malingery. "Malingery is the act or practice of pretending or shamming illness" and the lexicographers parenthetically add "to escape or shirk duty." In the broad and more modern conception, however, of malingery, I would like to add to this definition "for some object" or "to secure pecuniary reward," for malingery carries with it plainly and clearly the idea of falsification. We might call attention at this point, to the fact that this definition conveys the notion that the malingerer is in the possession of health or that the disease malingered is absent and that therefore the disease or disorder is shammed. But this is not enough. As I understand it, we mean by disease a definite, objective, structural or humoral disturbance capable of being found without direction, aid, or word of the patient. For example, we might enumerate the well known diseases of pneumonia and tabes. As an actual fact malingerers as a rule, in the practice of malingery do not select a disease, but usually select a disorder, so that we may say that the greater part of malingery consists in the imitation, pretense, and shamming of a disorder and not a disease. By disorder we mean, generally speaking, a so-called functional or nutritional disturbance, whose largest number of symptoms are nonobjective, that is to say, subjective and usually related by the patient.

At this point in our consideration of the question

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of malingery we must with great clearness draw the line between malingering and exaggeration. By exaggeration we mean an over statement of facts; to describe or represent as greater or intenser than it really is, or that truth and justice warrant. Exaggeration must be considered in a lenient way; malingery is of course to be condemned. Exaggeration is a very normal, common and usual expression of the individual's ego in the vast majority of cases, and in this connection we can well relate the well known story that the other fellow after eating green apples suffered from an ordinary and unimportant and slightly painful bellyache, while we suffered from a severe and excruciating attack of toxemia or intestinal colic. A human statement of the facts as coldly viewed, by the outsider would be that there "wasn't a dollar's difference between the two." Exaggeration does not carry with it, however, the idea of falsification or pretense but that the condition mentioned and the suffering indicated were and are present, but the effects and its results are largely ballooned.

Why should a person mangle? This question finds its answer in a knowledge of human nature. To know and understand thoroughly why a person should mangle, one must have a reasonable grasp upon the social status, the mode of life and the financial needs of the individual, and these facts in many instances pierce the darkness of malingery like a great searchlight. Then, again, we must remember that we have to deal in this work-a-day world of ours with many different people, with many different kinds of personality, and many whose ego may lead them to practise deception. From no small opportunity of observation certain types seem to me to stand out with peculiar vividness when we come to consider the individual. There is the man, and the woman for that matter, who are under the somewhat painful obsession that a living and success in life are not to be carved out by one's good right arm but that the world owes to them a living and that a part of it can be collected at this stage of the journey. Then we have those of the avaricious trend who are always anxious and more than willing to get something for nothing, no matter whether the turning brings up an honest or any other kind of penny. There are types of those who are so malicious and vindictive that they gain and gather real pleasure, as well as pecuniary satisfaction by punishment, sadistically complexed perhaps, with at the same time an added satisfaction in the gain that the malingery promises.

Another influence that is far reaching and very pernicious, that leads to malingery and exaggeration, or both, is the influence of friends and advisors who come to the traumatically and emotionally receptive individual and relate stories of similar trauma, producing certain symptoms with physical suffering and mental anguish and how Mr. X. and Mrs. Y. obtained large sums for similar accidents and suffering to which the individual has been subjected. Much of this so-called advice is to the slightly or greatly traumatized individual like the fertilization of the field before the crop is sown and we frequently find that "whatsoever a man soweth, that shall he also reap." Here the powerful influ-

ences of pecuniary gain and suggestion of illness form the basis for conscious and oftentimes for an unconscious adoption of malingery.

Another influence that may be of incalculable harm is the attitude of the legal advisor. I would indeed be the last to deprive any human being of all the rights that are given to him by the Declaration of Independence, the bill of rights, or any other document or any statute or law in this broad land of ours, especially after the terrible and cataclysmic struggle through which the world has recently gone, and especially in view of the fact that I was reared in a legal atmosphere that at all times taught the need and the necessity of the honorable attorney. There can be no question that an attorney would be derelict, disregarding truth and justice, if he failed to take and prosecute an honorable and real cause of action and a no small acquaintance with the legal profession leads me to believe that in the vast majority of instances he will not push his *casus belli* unless he feels that he has a just and fair case. All litigants are not honest and all are not dishonest, and just at this point we come to an item that is of vast importance to the integrity and honesty of those legal actions in which malingery is likely to occur and that is the medical man himself, for the lawyer, under such circumstances is perforce compelled to depend upon the statement of the findings of the physician. Let us then consider some of the probable defects in the action and methods of the medical man that if corrected would probably of themselves tend to correct some of the abuses. From careful observation, I think I can conservatively state, that as a rule, the attending physician when first called to see a case of trauma is extremely careless. He does not immediately and at the time make full and careful notes of the injury, and practically never, or rarely, makes a full and careful general and local examination of the injured party, nor does he at that time, or subsequently keep notes of the course and progress of the case. It is a dishonest doctor who advises, aids and abets lawsuits and it might be here said of our own profession that there are among them men, whom current report would seem to indicate, that they need money, hence their attitude. On the contrary, medical men must honestly protect, stand up for, and maintain the real status of the injured. At all times during the handling of traumatic, medicolegal, and all other cases medical or surgical, be careful that your words be not carelessly spoken or your actions so thoughtlessly made, that they may cause disapproval, or lead to the involvement of your brother practitioner, or bring upon him opprobrium or a threatened or actual malpractice suit. In the defense from a medical point of view of many such cases, I have come to the conclusion that one must keep a clear head and a close mouth on such occasions.

Can malingering be detected? I answer most positively that it can. Where I have been fooled and they have put one over, I have found that by going back and carefully studying the entire record, one could in most instances have detected the falsification, had they been alert to the possibility of its occurrence and not lulled into a sense of

security by a feeling of complete knowledge upon the subject.

It can be stated without fear of contradiction that the average injured person knows little, if anything, of the symptom complexes. When the physician is first called, let him take down in writing a statement of the case; do not ask questions or suggest a single symptom by manner, word or movement. The great advantage of careful history taking immediately after the injury has been well covered when we spoke of the danger that comes from the well meaning or otherwise efforts of friends. But this is not alone sufficient; give each patient a thorough physical, neurological and general examination, so that in this way you will detect the presence of disease, not caused by the trauma and this will at the same time teach you fully, the relation of the injured parts to the body as a whole. In my humble judgment the best equipment for the detection and prevention of malingering is a thorough and broad knowledge of medicine, a recognition of the weaknesses and frailties of human nature and the capability to make a successful physical and neurological examination. The man that possesses this knowledge and can practically apply it, will be able to detect a large proportion of malingerers. Certain suggestions, it seems to me, can be made here, in that the examiner should note carefully the patient's home, his surroundings, financial and other data, such as would be likely to influence the traumatic incident, at the same time paying due regard to the intellectual, educational, and mental training of the patient. Here in this first interview and examination is an opportunity to get close to the ego and personality of your patient; studying carefully the tendency to exaggeration and deception and to suggestion, never allowing yourself to forget that the primary object of your call is the relief of your patient, his *restitutio in integrum* and his return at the earliest possible moment to efficiency. You should inculcate into your patient that usefulness and efficiency are far above any monetary consideration. Do not mar your work by suggestion of suits, damages, and easy money; take the higher ground that an early recovery and the efficient usefulness of a human being should rise above every other consideration. Successful malingering means that either the physician is ignorant or incapable and I would not hesitate for a moment to apply this remark to myself and I consider my failures to have been the direct result of one or both of these horns of the dilemma. We all make mistakes but a study of your cases in which you have failed will as a rule show where the error lies. The constant watchfulness of the physician, his knowledge of disease, his capacity to check up physical conditions, the value of laboratory investigation, should give him practically absolute control of the situation.

Do not yourself be guilty of conscious or unconscious malingering. Let me make myself clear. Swift (1) tells of many psychological facts that should make us very cautious about giving testimony. He says "It is a well known principle of psychology that if you tell a man something often enough he finally accepts it; and as he continually

repeats it, even as a possible fact, it ends by becoming firmly fixed. Then he believes that he saw or heard it." This is especially true if it was an exciting occurrence. In view of the advice to keep careful records and make full notes let us take cognizance of this fact, nothing can be worse than defective or imperfect observation and a position of bias. Swift again says (p. 289): "Unfortunately, abundant proof of the waywardness of memory has not altered the practice of trial courts. The attorneys for one side endeavor to nurse remembrances and those opposed to confuse them. Honest witnesses are subjected to the same cross questioning as is applied to those under suspicion. Suggestion, so far as court rules and decisions permit are given, and every effort is made to confuse the memory instead of to assist it in recalling. Then the task of separating truth from error or falsehood is left to the jury, which is too often composed of men who are inexperienced in making distinctions and in drawing inferences. The writer is aware that, in American practice, obtaining and producing evidence is the duty of the parties' attorneys; the judge is merely to decide on its admissibility. Theoretically the purpose of the trial is to lay the facts before the jury. Unfortunately, however, the attorneys too often try to confuse the truth. Their aim is acquit or convict. It would seem as if the time had come when it should be some one's duty to discover the truth rather than obscure it—to promote justice rather than to win cases."

When we fully realize the danger of inadequate observation, the defects of memory, the weakening influence of the passage of time, the power of suggestion filling memory blanks by imagination, we can truly say that the chances of a reasonably accurate narration from memory are small. We can therefore see that the suggestions herein mentioned of careful and honest history taking, examination and notes, with testimony based upon these records gives the best possible chance of fair and honest testimony.

Let me again caution you to be careful of hurried and incomplete methods, hasty and half baked opinions, but take your time, study your case carefully, and reach a mature opinion. Remember there is rarely if ever any cause for haste, for the ponderous machinery of legal technic moves slowly. Reduce your opinion to writing. It is astonishing how a situation clears when we are forced to reduce it to plain English and do not follow the lead of the witty Frenchman who said of words that they were to hide meaning. Take this from me; that the most indigestible diet in the whole range of gastronomics is the swallowing and digesting of your own words. I finally recommend to your consideration the well known advice of the sage of Avon, that

"To thine own self be true;
And it must follow as the night the day,
Thou canst not then be false to any man."

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THE ROLE OF THE WANDERING CELLS.

*Erythrocytes and Leucocytes During
Health and Disease.*BY ALBERT C. GEYSER, M. D.,
New York.

When we speak of the blood in general, we mean the plasma and its formed constituents, the wandering cells. The blood as a whole contains all the histogenetic substances destined to nourish and to renew the tissues, and all the histolytic products of catabolism. The first, nutrient elements which filter through the living walls of the capillaries, pass in the form of lymph into the interstitial plasma spaces of the tissues; the second, waste material secreted by the tissue cells, passes into the blood by the way of the lymph vessels, and is eliminated by the kidneys, lungs, skin, liver, and bowels. The blood, from a histological viewpoint, may be regarded as any other tissue of the system as a whole. The corpuscles, red and white, represent the formed elements, while the plasma is the intercellular substance. The plasma is essentially a product elaborated and secreted by all the cells which take part in hematopoiesis and hemolysis. The blood when viewed as a tissue, is distinguished from the other tissues by the fact that it is fluid and that it circulates, and is therefore capable of exerting its action on all the fixed tissues, bringing them into relation and binding them together. We see by this that it thus is enabled to function as the centre of the vegetative system, and is the agent of metabolism, anabolism, catabolism, reparative system, i. e., of the material exchanges of the entire body.

ANATOMY AND PHYSIOLOGY.

It can not be too strongly urged that every physician should personally make the examination of his patient's blood. Of late it has become the fashion to refer all examinations to the laboratory, then accepting a laboratory made diagnosis instead of the clinical one as the physician sees it and as the patient expresses it. This is much to be deprecated. Let a physician once get into the habit of doing these more simple examinations directly in the presence of his patients and he will never go back to the routine laboratory method. It is, at the same time, understood that tissue and bacteriological work should not be attempted by any one not having the entire laboratory equipment at his disposal, to say nothing of his ability. There is certainly nothing more simple than the reading of the hemoglobin index. The small outlay of one dollar and a half secures a reliable hemoglobin scale as arranged by Tallquist. A fresh drop of blood is taken from the lobe of the patient's ear, transferred to the absorbing paper and at once compared with the percentage scale. If the hemoglobin percentage is low, the patient seeing the whole process, takes an active interest in his case and willingly submits to the necessary expense of intravenous medication of iron and arsenic. A more potent reason why the physician should make the immediate examination lies in the fact that the blood rapidly undergoes changes incident to atmospheric effects. A drop of blood taken, allowed to dry in a warm room for ten

minutes, will give a variation from five to twenty per cent. from the freshly examined specimen.

Counting the erythrocytes.—This procedure, while not quite so simple, is nevertheless not complicated when done with a Lietz hemocytometer, which is a marked improvement over the German apparatus and the task is but the work of a few well spent minutes. This again should be done by the physician himself. No two laboratory workers will arrive at the same conclusions in repeating the count on the same specimen; even the same laboratory worker will vary in his recount from five to twenty per cent. on the same specimen.

Counting the leucocytes.—This is made easy by adding one third of one per cent. of acetic acid (one drop of acid to 300 of water, to the blood.) The acetic acid dissolves all the erythrocytes leaving the leucocytes easily discernible in the squares of the Leitz instrument.

The differential count.—A good thin, even smear is the most essential part. The staining is made simple by using the Nocht Jenner blood stain modified by Hastings. Only this one fluid is necessary, because it contains the various stains required. It is of the utmost importance to know early and correctly the proportion between the polynuclear and the mononuclear leucocytes, to the general blood count. A marked increase of the polynuclears means a severe form of infection; an increase in the mononuclear lymphocytes denotes a good recuperative reaction on the part of the system.

Normal blood.—As an average it may be taken that one cubic millimetre contains 5,500,000 red blood corpuscles in the male, about 4,500,000 in the female; that the reds are more abundant in venous than in arterial blood; less abundant in adolescents than in adults; more numerous in the newborn infant than in the mother; that all the influences that induce a marked loss of water in the body increase their number, while with a high intake of water there is a decrease, that they multiply with every improvement in the external and internal conditions of life while poor food, insufficient fresh air and a number of morbid conditions tend to reduce them (Luciani). It is remarkable that the lowering of atmospheric pressure on high mountains produces a considerable increase in the number of erythrocytes (Viault). The less oxygen present, the greater is the number of cells required to absorb the necessary systemic amount at or during each inspiration. The same effect has been observed in mice on rubbing their skin with croton oil, and on prolonged exposure to strong electric light (Kronecker). Counterirritation, whether produced by chemical or mechanical means, increases necessary oxidation, hence an increase in the oxygen carrying bodies. It should also be noted that not merely scanty nutrition, but even an absolute fast of thirty or more days, as proved by Doctor Tanner in his forty day fast, produces no marked variation in the number of erythrocytes.

The pigment.—The substance which colors the erythrocytes is a compound of a highly complex chemical structure known as hemoglobin. Under physiological conditions it is entirely absent from the plasma, and exclusively saturates the colorless

spongy mass of the corpuscles, termed the stroma. This fact suggests that it may be in chemical combination with one of the constituents of the stroma, perhaps with the lecithin (Hopps-Sailer).

But the most certain and the most important property of the pigment, and that on which the principal function of the erythrocytes depends, is its affinity for oxygen, with which it combines as soon as the partial pressure of the gas reaches a certain value, forming oxyhemoglobin, which, with a fall of the partial pressure is again reduced to hemoglobin. It prevails in the form of oxyhemoglobin in arterial, as hemoglobin and oxyhemoglobin in venous, exclusively as hemoglobin in asphyxiated blood. In proportion as the pigment separates out from the stroma, the corpuscles grow pale, and finally change into roundish, colorless, almost transparent bodies, which have been termed ghosts, because they are almost invisible. They stain brown with iodine and can thus be detected.

THE RED AND WHITE CELLS IN THERAPEUTICS.

We are today in the midst of a most intensive effort to evolve scientific knowledge of infection and immunity. Enormous progress has been made in establishing well proved facts concerning tissue and blood cells and their functions in health and disease. It is evident, however, that the rôle of the red blood corpuscles in infection and immunity has not been fully considered in the search among the body cells and leucocytes, their enzymes and antibodies. Much light has been shed upon the physiological function of the red blood corpuscle since the advent of the diathermic phase of the high frequency current. For academic reasons we must be content with the assumption that the red corpuscles are produced from the marrow of the long bones. Therapeutically this assumption seems to be borne out as a fact. When the diathermic phase is applied in such a manner as to heat the long bones, physiological function of this tissue is stimulated into activity. Almost at once there is an increase in the number of corpuscles. When to this treatment is added the intravenous injection of iron and arsenic we have not merely an increase in number, but the hemoglobin index is immediately raised. We have then at least the possibility of a hematological specific in the true sense of the word.

To the great body of practical medical men the red corpuscle has long been a gauge of favorable or unfavorable prognosis—even more—an actual instrument to fight infection. The academician has delivered tirade after tirade on the fallacy of iron administration and the futility of stimulating the number and quality of the red blood cells. The practical medical man continued to take into account obvious results, many of them administering iron and arsenic as a matter of routine, believing that in a high blood cell count there existed a favorable barrier to infection and a positive means to hastening convalescence. Are these men justified in their belief in the value of a full red blood count and hemoglobin index? Who will deny that every infection and every lesion of traumatic origin leaves its mark on the red blood cells? Convalescence may be termed a period in which the blood emerges from anemia to normal. Convalescence marks the point

where anemia ceases to progress. Let us trace its starting point.

This leads us (in infection) invariably to the point at which the body cells begin their contest against the invading organism. Here also we meet the first manifestation of increased temperature—fever. What is taking place to increase temperature and destroy red blood cells in such quantities? It is logical to believe that the red blood cell is exerting its oxidizing qualities to such an extent as to bring about its own destruction. This increased oxidation results in increased temperature. A foreign protein injected into the blood is followed by anaphylaxis. Fever—increased temperature—is the most prominent feature of this phenomenon. Overeating or indigestion causing an absorption of foreign proteins in the blood stream is accompanied by what has been termed physiological leucocytosis and if extreme is accompanied by a rise in temperature. Foreign proteins in addition to promoting leucocytosis increase the number of red corpuscles in the peripheral blood. These are examples of a rise in temperature due to activity of the red blood cells as a result of the presence of exogenous proteins. The absorption of endogenous proteins from lesions of traumatic origin causes a rise of temperature without infection. In each instance there is an increase of uric acid excretion.

Retention of nitrogenous material, purins and products of disturbed metabolism are found accompanying nephritis, pneumonia, various respiratory diseases, acute yellow atrophy of the liver, Graves's disease, cancer, syphilis, diabetes, the toxemia of pregnancy, septicemia, streptococcic meningitis, arthritis, gout, and practically all conditions classed as chronic mixed infections. In all those conditions accompanied by increased metabolism and temperature the presence of purin products are demonstrated. The conditions are invariably accompanied by anemia in some degree. The activity of the various leucocytes in absorbing organized and disorganized proteins does not account for the complete disposal of these substances and the increased temperature accompanying their disposal leave but one conclusion, that the red corpuscle exerts a complementary action. In every form of digestion, whether enteral or parenteral we encounter that feature of duality, amboceptor and complement, enzyme and acid, enzyme and alkaline. We are justified in recognizing the oxidizing power of the red cell in the disposal of exogenous and endogenous proteins including the toxins of bacterial origin.

To produce antitoxin we inject the toxin into the blood. Later experience has indicated that bacterins are far more effective when injected intravenously than by the intramuscular method. Granted, that proteases are present in the serum, in the production of specific antibodies from antigens, should we ignore entirely so powerful an agent as the oxidizing power of the red corpuscle? There is much evidence that this activity frequently results in the destruction of great numbers of red cells, and in extreme cases this destruction is occasionally manifested by the symptoms of jaundice. The more active the process of combustion, the greater the

destruction of corpuscles as in acute infections. Where the combat is slower, as in intermittent and remittent fevers the anemia manifests itself more gradually but with the same degree of persistence.

It is evident that the red cells play an important rôle in infection and immunity. Its effect in the disposal of the debris of metabolism is demonstratable and it is an open question whether oxidation may not even extend to the splitting of uric acid into urea. For the reason that purin excretion accompanies leucemia, it has been stated that the purins are formed from the destruction of the leucocyte. Some authorities claim the excretion of purins as a result of the destruction of the red blood cell. It matters not whether these products are a result of the destruction of either of these two types of cells, the persistence of these bodies in stimulated metabolism makes it certain that the activity of the red cell is responsible for their presence.

We have been treating fevers with the so-called antipyretics. Acetanilid, for example, lowers the temperature in fever and reduces metabolism. It is probable that this class of antipyretics reduce temperature by affecting the oxidizing power of the red cell. This is made evident by the tendency of these remedies to produce cyanosis in overdoses and in cases where circulatory insufficiency exists. Caffeine is a true purin closely related to urea and uric acid. The action of caffeine counteracts cyanosis produced by this antipyretic. Caffeine causes an increase of respiration of oxygen inhaled, the carbon dioxide given off and the alveolar ventilation, and increases metabolism. The diuresis caused by caffeine is equally interesting for it is evident that the presence of purins produced in the blood is employed by the body to induce diuresis. The action of caffeine as cited is a result of moderate doses in the normal individual. Consider the symptoms of chronic retention of purins as in some of the conditions cited and what would occur from the persistent overdosing with caffeine. In other words, whereas caffeine increases the oxidizing qualities of the red cells in moderate doses, it may result in a condition of exhaustion, disintegration and anemia which is practically ever present in some of its modification in all the conditions cited, including practically every condition associated with chronic mixed infection.

It is extremely interesting to consider the products of oxidation purins as stimulating the activity of the red blood cells and acting as a diuretic and the tendency of the toxins of a number of infections toward reducing oxidation and increase of carbon dioxide and the production of cyanosis. In acute infections ending fatally, cyanosis is pronounced except in a few instances where the central nervous system is directly involved. In the slower acting infections the exhausted conditions of the red cells is indicated by a high concentration of carbon dioxide and acidosis with its accompanying symptoms. It has been definitely determined that the respiratory centre is stimulated whenever a high concentration of carbon dioxide existed in the blood, the accompanying lactic acid is considered as acting as a hormone. In brief we find that in in-

fection, immunity depends on the activity of the phagocytes and the oxidizing power of the red cells to break up the protein molecules to products that stimulate respiration and elimination of the debris of parenteral digestion. To the practical man the question arises as to what means are at his disposal to stimulate immunity, the activity of the leucocyte and red cell. Just to the extent as the progress of the study of immunity has been concentrated on the body cells, leucocytes, enzymes, and antibodies, so the medical world has concentrated attention to the use of serums, bacterins, and antibodies.

There is a tendency to neglect chemotherapy. That the tendency is a natural one is not to be denied but a recent development, the Loeser method of intravenous medication is destined to revolutionize our ideas of chemotherapy. We are destined to revise our entire knowledge of pharmacology and therapeutics as we find not only more certain, rapid, and uniform results from well known remedies, but new results and we are able to acquire ultimate therapeutic facts at the bedside. After all, our aim is to develop knowledge of therapeutics as demonstrated in pathological conditions. The intravenous method, now a safe practical procedure, offers the opportunity of learning the pharmacology and the therapeutic value of our remedies and places their study on a basis of fixed science. By employing the intravenous method of administering our remedies I have been able to justify by laboratory findings and clinical results some exceedingly interesting facts relative to stimulating the leucocytes and red cells. Beyond doubt, when iodides are administered intravenously there occurs a hyperleucocytosis associated in pathological conditions indicating infection, with a relative increase of the polynuclear cells. This is most interesting when we consider the empirical use of iodides in the past in conditions where results can only be accounted for by increased phagocytic action, and the resolvent action on round cell infiltration. The action of a combination of iron and arsenic (iron cacodylate) as a result of intravenous administration is positive proof these agents increase the number and quality of the red cell. It is possible to demonstrate a positive increase of red cells after each infection and results occur with a certainty and rapidity that all our efforts heretofore have failed to bring about.

That positive clinical results can be obtained by stimulating the white and red cells can be demonstrated with great uniformity, providing a remedy, the pharmacological action of which is known, is administered by this direct method into the blood stream.

The following cases, taken from my records of 1918 received the usual diathemic treatment as well as the indicated intravenous injections.

CASE I.—Mrs. G. aged thirty-one, weight 119 pounds. Hyperthyroid, anemia, excitable, easily exhausted, painful menstruation, slight hyperplasia of glands, bad odor to the breath. Iron and arsenic five c. c. intravenously February 2d, 7th, 15th, 21st, 25th, March 3d; sodium iodide two grams twenty c. c. intravenously February 5th, 10th, 23d, 28th, March 6th, 9th, 15th, 21st. Menstruation February 13th, less cramps than in years. February 25th, de-

cided improvement of subjective symptoms, weight 123 pounds. March 3d, noticeable improvement in appearance, feels better. Thyroid glands almost normal. Weight 126 pounds. March 21st, patient well and stronger. Weight 130 pounds.

CASE II.—Mr. R., aged forty-two, chemist, weight 132 pounds. Refused additional insurance on account of heart murmur. No subjective symptoms, except excitability, easily exhausted, extremely tired at night. Anemia evident, but not extreme. Murmur (diastolic). Blood pressure 130. No evident sign of infection. Iron and arsenic five c. c. February 4th, 10th, 16th, 21st, 26th, March 3d, 9th, 14th. February 16th, patient says he feels stimulated, not as tired at night. February 26th, weight 138 pounds. Feels stronger; asserts aphrodisiac action of treatment. March 3d, visible improvement positive; heart murmur unnoticeable, blood pressure 135. March 9th, improvement continued, weight 140 pounds. No murmur noticeable. No longer exhausted after muscular effort. This is evidently a case of hemic murmur corrected by increased volume and viscosity of blood.

CASE III.—Mr. G., aged twenty-seven. History of gonorrheal infection five years previously, slow response to treatment extending over four months. Arthritis, left knee swollen, extremely painful. First indication five months previously. Had received vaccine treatment with slight recession of pain at beginning of treatment. Asserts loss of twenty-eight pounds. Present weight 138 pounds. Anemic, neurasthenic, uses crutch and cane. February 8th. Iron and arsenic five c. c. intravenously February 10th, 16th, 22d, 28th, March 6th, 12th, sodium iodide two grams, twenty c. c. intravenously February 13th, 19th, 25th, March 3d, 9th, 15th, 20th, 24th, 28th, and 31st. February 25th, noticeable improvement, says he feels stronger, pains less severe. March 20th, patient walks with aid of cane. Shows decided improvement, swelling reduced. March 20th, patient better, pain gone, knee little stiff. March 28th, practically well, weight 151 pounds. Slight stiffness of knee in morning. April 5th, complete recovery. Weighs 155 pounds.

CASE IV.—Miss McD., aged twenty-six, weight 119 pounds, teacher. History of tonsillitis, two abscesses treated by dentist. Three affected molars extracted six months previously. Steady loss of weight, neuralgic pains right shoulder to elbow, attacks of fever, sweating, difficult breathing. Anemic, cardiac murmur. Endocarditis. Put patient to bed. Iron and arsenic five c. c. intravenously March 24th, 29th, April 5th, 10th, 15th, 20th, 25th. Sodium iodide two grams, twenty c. c. intravenously April 2d, 7th, 12th, 16th, 22d, 27th, May 1st, 6th. April 15th, patient up feeling better, pains gone, murmur not so pronounced. April 27th, patient about, feels stronger, weight 125 pounds. May 6th, patient is well. Murmur not evident, weight 129 pounds. Eager to leave city to take up new position.

CASE V.—Mr. W., aged thirty-nine, broker, weight 126 pounds, five feet nine inches in height. April 5th, history for two years has refused operation for gastric ulcer. No question as to diagnosis.

Profound cachexia. No condition for operation. Iron and arsenic five c. c. intravenously April 7th, 11th, 15th, 20th, 26th, May 1st, 6th, 12th, 18th, 25th, June 1st, 8th. April 20th, says he feels better. April 26th, looks better, weight 129 pounds. Has less distress and sleeps better. May 6th, weight 132 pounds. Remarkable improvement in appearance. Operation urged, still refuses. June 1st, weight 140 pounds. June 15th, says he feels better than any time during past two years. Weight 144 pounds. Optimistic, going on vacation of three months.

CASE VI.—Mr. W. J., aged thirty-one, printer. Confined to bed. Empyema following influenza and bronchopneumonia. Drainage during past three weeks. Discharge still profuse. No noticeable improvement during past two weeks. Fever 101° to 102° F. Patient just holding his own. No response to bacterin treatment. Iron and arsenic five c. c. intravenously October 23d, 28th, November 3d, 9th, 15th, 21st, 27th. Sodium iodide twenty c. c. intravenously November 1st, 6th, 12th, 18th. October 28th, tonic effect of iron and arsenic very evident, discharge slightly reduced. November 2d, result of iodides remarkable. Volume slightly increased but less purulent. November 6th, drainage removed. Patient better. Fever 101° F. at night, 100° F. during day. November 15th, steady improvement. No discharge, scar formed. Night temperature 100.5° F. November 21st, patient sitting up. November 27th, improved appearance, no abnormal temperature.

CASE VII.—Mr. J., aged forty-five, butcher, stout, weight 178, height five feet six inches. Had three attacks of asthma during last week. Pains in back and legs, frequent attacks of shortness of breath. Blood pressure 170. Urinalysis shows albumin, leucocytes, specific gravity 1,030. Saphrophytes, epithelial cells. Nephritis, heavy meat eater, ravenous appetite. Cut down diet and gave sodium iodide two grams twenty c. c. intravenously March 3d, 6th, 10th, 14th, 20th, 24th, 28th, April 2d, 6th, 10th. March 6th reports one attack of asthma since first injection. March 10th, feels better, no shortness of breath, albuminuria still present. March 20th, continued to improve. Blood pressure 150, pains gone. Albumin lessened. March 28th, no difficulty in breathing. Blood pressure 145. Trace albumin. April 6th, all symptoms gone, no periodical breathing. Blood pressure 145. No albumin in urine. April 10th, patient well. Moderate exercise without hard breathing. Blood pressure 145, urine free of albumin, weighs 168 pounds.

CASE VIII.—Mr. K., aged thirty-eight, professional man, weight 134, five feet ten inches. History of furunculosis two years previously, loss of weight, tachycardia, excitable, easily exhausted, anemic, neurasthenic, decidedly morbid psychosis at times. March 25th, red blood cells 3,500,000. Hemoglobin sixty. Iron and arsenic intravenously March 28th, April 2d, 7th, 12th, 18th, 24th, 29th, May 3d. Sodium iodide two grams intravenously April 10th, 15th, 21st, 26th. April 7th, patient says he feels better. April 18th, mental condition remarkably improved, tachycardia less frequent. April 26th, breathing normal during last week, no

tachycardia, weight 142 pounds. May 3d, feels well, no symptoms, mental condition normal as indicated by ability to handle office details efficiently. Blood count shows red blood corpuscles 4,700,000, hemoglobin ninety. May 20th, reports steady gain in weight and no indication of late symptoms.

CASE IX.—Miss A., aged eighteen, weight 170, five feet six inches. Hypothyroid, left school unable to keep up with class. Weight increasing, apathetic, drowsy. Menstruation irregular. Thyroid glands firm to touch, prominent. Sodium iodide intravenously August 10th, 15th, 20th, 24th, 28th, September 2d, 6th, 10th. April 20th, decided improvement in mental condition, facial expression better, down to 160 pounds. September 20th, mother reports complete change physically and mentally. Menstruation regular for two months, weight 148 pounds.

CASE X.—Miss M., aged nineteen, weight 136. History of bronchitis three months previously followed by attacks of asthma, attacks coming on three times a week during the past two weeks. Nose and throat show no lesions. Bronchial râles. Bronchial asthma. Sodium iodide twenty c. c. intravenously April 15th, 21st, 28th, May 6th, 11th, 16th, 21st, 27th, June 2d. April 15th, paroxysm relieved within half hour after injection. April 21st, relieved as rapidly as previously. April 28th, relief in twenty minutes after injection. May 6th, attacks reduced from three to about one a week, decided to make injection every fifth day. June 1st, no attacks since May 6th.

301 WEST NINETY-FIRST STREET.

A STUDY OF CHRONIC APPENDICITIS WITH SPECIAL REFERENCE TO AN OBSCURE BUT CONSTANT SYNDROME.*

BY P. G. SKILLERN, JR., M. D., F. A. C. S.,
Philadelphia.

Suppose you as medical men had been consulted by patients presenting the following histories, would you not have made the same diagnoses and drawn the same conclusions as the writer?

CASE I.—P. F. B., aged twenty-eight, single, sergeant of marines, consulted the writer in January, 1918. He had been constipated for five years and during all that time had pains beginning in right iliac fossa and radiating down to the right testicle and right thigh, with cramps through the intestines. These cramps were followed by nausea and twice by vomiting. One year ago for the first time the patient began to complain of pain around the heart. There were frequent belching and constant passage of flatus and mucus from the bowels.

Present examination.—The patient complains of pains about the heart radiating down the left arm and through the back. His hands are usually cold. He gets cold chills even though seated in a warm place and at times feels feverish. He has dull headaches. There is loss of ambition, of energy, and of initiative. He suffers readily from fatigue. He is depressed at times—cannot get his mind

working on anything. He is forgetful at times. There is frequently palpitation of the heart. He sleeps poorly—a few hours in the morning—and this sleep is disturbed by unpleasant dreams. He has to drag himself out of bed in the morning. His appetite is very poor. He has a bad taste; his tongue is heavily coated every morning. The patient feels that he has lost out in efficiency.

Physical examination reveals no evidence of organic disease elsewhere than in the right iliac fossa, where tenderness is elicited by deep pressure with the finger tips.

The appendix was removed on January 16, 1918: it was the seat of marked chronic inflammation; there were, however, no adhesions, nor any membranes.

When seen two weeks after operation the sergeant felt that seventy-five per cent. of his troubles had disappeared and that the remaining twenty-five per cent. were gradually leaving. The pain in his heart was gone. The bad taste was gone. He ate without discomfort. His bowels moved much better. There was no more pain in his abdomen. He had more ambition and was reviving an interest in things. He read the daily papers, and altogether his mind was clearer and brighter.

When seen two months after operation the sergeant felt quite well. His bowels moved every day. The radiating pains were gone. There were no cramps through the intestines. There was no nausea. The pain around the heart had not returned. There was no belching, no flatus. His hands were no longer cold; there were no more cold chills; he no longer felt feverish. There were no more sick headaches. He had gained about fifteen pounds in weight. He was more ambitious, had more energy, more initiative. There was no more fatigue. He was no longer depressed. His memory was better. The heart no longer palpitated. He slept better and had no more dreams. His appetite was good. The bad taste had disappeared; the tongue was no longer coated. On the whole the patient not only looked better but was, indeed, immeasurably better. This sergeant of marines had been facing a veritable gale of symptoms. Now let us take a case where the same wind was blowing, but had not yet assumed gale proportions.

CASE II.—W. J. W., aged thirty-two, single, lieutenant commander United States Naval Reserve Force, frequently talked over his troubles with the writer at sea during the summer of 1918. It seems that since childhood he had been suffering from the following train of symptoms: bad taste, which was constant; restless, disturbed sleep, with indisposition to arise at the usual time in the morning; a tired feeling throughout the day; and frequent accumulation of gas in the bowel, expulsion of which brought relief from the symptoms of his tired feeling. There was also some confusion of ideas.

On September 24, 1918, the patient was seized with pain in right iliac fossa. Physical examination revealed tenderness on deep palpation at McBurney's point.

On September 25, 1918, while at sea the appendix was removed through a McArthur-McBurney

*Presented before the Philadelphia County Medical Society, March 26, 1919.

incision. The organ was free from adhesions and apparently not kinked. The vessels of the subserosa were acutely injected. Longitudinal section of the appendix revealed, as the most marked feature, thickening of the mucosa. There were no strictures or fecal concretions. There were no stercoraceous ulcers of macroscopic size.

On September 28, 1918, three days after operation, the patient felt much better; the bad taste was gone; sleep was more refreshing at night, and he awoke without the dog tired feeling; he was no longer troubled with gas in the bowel.

When seen a month later the patient had just returned from sick leave, after sojourning at his old home in Indiana. He had not felt so well for two years, and was a new man in every way. Soon after this he made a transcontinental trip to the west coast to assume command of a new ship and bring it through the Canal.

CASE III.—Lieutenant W. C. P., attaché of the American Legation in Denmark, who consulted the writer in Copenhagen on December 25, 1918. He suffered from essentially the same symptoms as Case II, namely, bad taste, restlessness, disturbed sleep, with indisposition to arise at the usual time in the morning; a tired feeling throughout the day, and gas in the bowel, the expulsion of which, however, did not necessarily bring relief. This patient had, in addition, a backward displacement of the ensiform cartilage, which, however, had no bearing on the symptoms of which he complained.

CASE IV.—Young hospital apprentice on duty in the sick bay of the U. S. S. *Orizaba*. As he might be termed a near doctor I shall let him tell his story in his own words. As you read along you will note the clear cut story of appendicitis, to which you will with the greatest ease be able to connect what the title of the paper specifies as the obscure but constant syndrome.

"About four years ago I was suddenly attacked by severe pains in the abdomen which in the course of twenty-four hours localized in the right iliac fossa. My physician told me it was a slight attack of appendicitis. It passed away in about three days, half of which time I had been in bed with an ice bag applied. Since that time I have had numerous slight attacks, which—although uncomfortable—never troubled me greatly.

"Before the present attack I had for a period of one year not only the localized pains, but also very irregular bowel movements, wind in bowel, and troubled sleep with fantastic dreams. I also have been troubled with a tired out feeling—no matter how much sleep I got.

"For some time I have had numerous severe frontal headaches; aspirin, migraine, and other headache remedies gave no relief. I had my glasses changed three times in one year by a prominent Philadelphia oculist, who said that although there was a slight error of refraction yet it was not enough to account for the headaches, and that in his opinion the headaches were caused by gastrointestinal trouble.

"About one week ago, while walking along the dock to which our ship was moored, I was suddenly seized with a pain so severe that I had to sit down

on a lumber pile and flex my right leg for relief. While the pain abated in intensity it still remained in short, sharp stabs. I then made up my mind to have the appendix removed.

"Since the operation my appetite has been steadily increasing and I have enjoyed sound sleep, free from dreams. My bowels have been moving regularly. I have been free from headache. The tired, doxy feeling has disappeared. I am steadily growing stronger and feeling much more like a human being."

That this syndrome of chronic appendicitis is obscure is shown by the manner in which the appendix as the causative factor is masked by a smoke screen of functional complaints of the neurological type. And that the syndrome is constant is shown by the similarity of symptoms in these cases: they vary chiefly in a numerical way, and I am sure you will agree that this variance may be attributed to the various stages of progress of the disease as encountered in the several cases. Now let us see if we can establish this syndrome upon the basis of pathological physiology.

In the first instance the outstanding feature of this syndrome is constipation. Constipation here is obviously due to retarded motor activity of the bowel, fatigued peristalsis, or intestinal stasis, if you please. The ascending colon becomes fagged out. Is this fagging out of the ascending colon due to the octopus grip of pericecal or pericolonic adhesions? No adhesions were present in this series, the appendix was not even kinked, and the patients recovered after simple removal of the appendix. Robert Morris says that when a chronic, irritative appendicitis has registered its nerve impulses on certain sympathetic ganglia for a fairly long time, the muscular coat of the ascending colon becomes wearied. Whatever the mechanics of constipation may be, the effect of such long continued constipation is unmistakable in the appearance of autointoxication with its slow poisoning of the tissues of the body, above all the fragile nerve tissues, including the central nervous system, the outlying sympathetic system, and the endocrine organs that they control. The noxious elements all cause histological changes in the brain, the suprarenals and the liver, which is wholly in keeping with Crile's kinetic theory of shock and anociassociation. Thus, in one of his experiments Crile gave an animal intravenously extract of feces, killed the animal and examined microscopically the cells of the brain, the suprarenals, and the liver. He found precisely the same changes as were seen under traumatic injury and emotional injury, first a stage of hyperchromatism, followed by a stage of chromatolysis and, in a small proportion, a final stage of disintegration. Do you wonder these patients become shackled in their local and general, physical and mental activities? Are we justified in our peremptory labeling them as neurological and passing them along to the specialist as such?

Now I do not wish to inculcate the formula: Neurasthenic, appendectomy, presto! cure. You as medical men know that in your experience the basic factor of neurasthenia varies with the sex, and especially with the age of that sex. Thus, in wom-

en we have the climacteric and Glénard's disease. In men beyond middle age, business cares and overwork may cause this syndrome. But in relatively young men—as were those in my series—the appearance of even a few of the neurological symptoms is unusual, extraordinary, and causes particular attention. And there is great satisfaction in gathering up these obscure but constant symptoms, pouring them in the diagnostic funnel, and having them come out in the appendix jar.

241 SOUTH THIRTEENTH STREET.

CONTROL OF SYPHILIS.*

BY R. C. JAMIESON, M. D.,
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It will be my endeavor in this paper to bring to your attention the ever recurring subject of the control of syphilis especially with regard to the effects upon the civil population, and the prevention of infection through those returning who had been infected before joining the army. In spite of the fact that syphilis is always prevalent even to such a degree as to be called the third great plague (1) many of us are apt to forget its existence and to shut our eyes to the fact that its transmission goes on daily in a multiplicity of ways and its destructive forces are ever at work—in many instances unhindered by any effort on the part of the physician.

A few years ago a general investigation was made in order to discover if possible the prevalence of tuberculosis. The number of cases brought to light in which the tuberculous process was either latent or active was astounding and I believe that in the case of syphilis the proportion of active and latent disease would far exceed that of tuberculosis. In dealing with syphilis as with tuberculosis the fact is lost sight of, that there is a great tendency to a latent state and many do not consider a person infected unless he has discoverable symptoms. The latent syphilitic is, however, a potential source of infection, especially in women, who are more liable to have the infection in a mild form which early develops latency. The same is true to a lesser degree in men as the spirochete has a predilection for the testicles and many wives are seminally infected by their husbands although their husbands may have no external evidence of lues (2). Warthin states that the proportion of luetics in the ailing class is very high. He also believes that the frequently stated percentages of five to fifteen is too low and that thirty per cent. is more nearly correct, as ten per cent. of all deaths in the United States are attributed to syphilis, particularly between the ages of forty and sixty.

Until the State Board of Health instituted its quarantine regulations for active luetics who would not take proper treatment, we had no way of protecting others against infection in spite of the fact that syphilis was more widespread and had far more serious sequelæ than the other diseases which were quarantined, namely, smallpox, diphtheria,

scarlet fever and to a less degree typhoid fever and tuberculosis. Taking Detroit as an average we find the following proportion for these diseases in a recent health report for one year (3)—smallpox 365; diphtheria 2,491; scarlet fever, 1,345; typhoid fever 463; tuberculosis 1,600; a total of 6,264. Syphilis, conservatively estimated at twenty per cent. would give in Detroit on the basis of 900,000 population, 180,000 people affected with active or latent syphilis. Deaths during that year amounted to 1,087 for the first five diseases, syphilis was given as the cause in 100 deaths (of which fifty-three per cent. were in children under one year of age), but if Warthin's statement is true, that syphilis causes ten per cent. of all deaths, there would have been over 1,000 deaths due to lues instead of 100.

The quarantinable diseases (excepting diphtheria) have no specific treatment, are selflimited, leave a lasting immunity, are more or less short lived (excepting tuberculosis), and the proportion of fatalities is low even when untreated. When we compare this with syphilis for which we have specifics, which is not selflimited, will last a life time when untreated, and is responsible for a host of sequelæ any of which may cause death, it seems to me that we have been putting forth mighty efforts to combat diseases of minor importance.

The laity, however, will strain at a gnat and swallow a camel, but when their eyes are opened the discussion of the control of syphilis will not be tabooed and as it is the most serious of all communicable diseases it should receive the greatest efforts to limit its spread. In a recent perusal of the Wassermann records at Harper Hospital it was found that in 2,770 examinations during the past year twenty-six per cent. were positive. This test was made, with few exceptions, on individuals who were of the ailing class and would therefore seem a trifle high, but it would be at least equalized by the number of those who are in apparently good health, but whose blood would show a positive Wassermann. It is the great army of latent syphilitics, those who have had no treatment or insufficient and ignorant treatment, that brings the proportion to such enormous figures as to constitute a syphilitic American army of at least fifteen to twenty millions out of one hundred million American people.

What can we truthfully tell luetics of the possibility of a cure? In speaking of the cure of syphilis we should qualify by the adjectives, clinical, serological, or pathological, depending upon whether we refer to symptoms, Wassermann or entire freedom from spirochetes. From a clinical point of view all cases, excepting the cerebrospinal, are curable and the patients should be able to live their lives without further manifestations, provided they take sufficient treatment and the spirochete has not produced irreparable damage. Serologically the number of cured cases is much less—in fact quite small—as it is not always possible to change a positive Wassermann to negative and have it remain so continuously without treatment. Long standing infections and congenital cases previously untreated will maintain a positive Wassermann practically un-

*Read before the Wayne County Medical Society, February 17, 1919.

changed for life in spite of most vigorous treatment, but the patient may remain clinically cured and have apparently healthy children.

Pathologically there are few cases which can be rendered spirochete free, Warthin stating that he has never seen a case of pathologically cured syphilis. I believe that only those cases which begin vigorous treatment in the primary stage before the Wassermann becomes positive can be rendered spirochete free, but not enough time has yet elapsed to bring those cases to the autopsy table to definitely prove this. After the spirochete has become generally circulated by the blood it is practically impossible to destroy every organism, as many become incorporated in the body and live in a harmless state of symbiosis as do the organisms of typhoid fever, pneumonia and tuberculosis. In considering Warthin's statement it should be remembered that practically all his cases were either congenital or of long standing and had been treated by the older methods.

In a communication (4) recently received from a Detroit physician in one of the British genito-urinary services the following statement is made:

"We know at the hospital here that syphilis treated, when only the primary sore shows and the Wassermann is still negative, means 100 per cent. of cures; when the chancre has some induration, Wassermann slightly positive before salvarsan but negative afterward, ninety-five per cent. cured; when the chancre is indurated, inguinal adenitis, Wassermann positive before and after the first salvarsan, eighty-five per cent. cured."

These cases are treated practically in the same manner as our own, the method of treatment being discussed later. The optimism shown is I think justified by the cases we have personally had the opportunity of following and the same proportion of cures could be obtained in all cases with primary lesions provided the physician seeing the patient would make a positive diagnosis at the earliest possible moment. This does not mean treating lesions with cautery and dismissing the patients as cured without a Wassermann test, but should include repeated darkfield examinations and repeated Wassermann's after the third week until the presence or absence of the spirochete is proved beyond question.

Vedder (5) takes as his standard for cure the following points which are rather difficult to attain after the spirochete has been in the body for any great length of time: One year without treatment, without any suspicious clinical signs, several negative Wassermann reactions and no positive ones, with a negative provocative Wassermann reaction and luetin test at the end of the year. These qualifications can be obtained in all early cases with intensive treatment, a goodly proportion of secondary cases could probably be brought to that state, but in tertiary and hereditary syphilis it would practically be an impossibility.

At the Harper Hospital out patient department and night clinic as well as the quarantined cases at the William Booth Memorial Hospital a routine treatment has been adopted consisting of the following: All open cases whether primary, secondary

or tertiary receive six salvarsan injections at weekly intervals, alternating with weekly mercury injections during that period, after which mercury is continued for six more injections and is followed by the iodides for two weeks and a complete rest for one month. Treatment is then resumed with perhaps slightly less salvarsan but the same amount of mercury, constituting a course of treatment which is continued at two month intervals for at least two years except in very early cases, in which one or two courses of treatment may be sufficient to totally eradicate the disease. The amount of salvarsan is always controlled by the condition of the patient and a Wassermann test is made before each course of treatment. At Camp Travis (6) the same general plan is followed except that one injection of salvarsan and one of mercury are given for ten weeks, a rest for five weeks, and then a repetition until the Wassermann is negative and remains negative. (7)

With very few exceptionsluetics do not receive a sufficient amount of treatment and it is a good rule to have syphilitics take all they can be urged to take for as long a period as possible, as it is safe to say that they will never receive any excess of treatment. In questioning patients who had previously received treatment one is at once struck by the fact that it is extremely rare for the patient to admit that his former physician had impressed upon him the nature of his infection, the serious results of the sequelæ, and the utmost importance of taking treatment in a definite manner for a definite length of time. This is even more evident in primary cases where even one day without treatment may make a difference, as intensive treatment should be started as soon as the diagnosis is made. These patients frequently state that they had had a penile sore which was treated with local applications for several days or weeks, but that no darkfield examination or Wassermann test had yet been done to establish the presence or absence of the spirochete. They had, consequently, lost every opportunity for a complete cure with intensive treatment during a short time and would be obliged to take the usual two or three year course.

Surgeons are liable to malpractice suits for faulty reduction of fractures or for operations in which a sponge or instrument is left in the abdominal cavity. I believe the time will come when it will be a justifiable cause for malpractice suit to fail to use all the diagnostic aids early in any case of a suspicious lesion which may be a chancre. It is due the patient and is his unquestionable right to have an early diagnosis made in syphilis as it is in any acute surgical or medical condition, as faulty or delayed diagnosis may have just as serious consequences even though they may be delayed in making themselves manifest.

About one year ago the State Board of Health decided to make syphilis a reportable disease with quarantine measures for those who would not observe proper precautionary measures to prevent the spread to others. That measure alone with compulsory treatment at various institutions has prevented an incalculable number of infections as it has rendered many women incapable of infecting

men for a variable period of time. Some may have a recurrence after discharge from quarantine, but many will be symptom free for years and will not infect others even though they again take up their livelihood of prostitution. One needs but to see the class and type of girl that is being treated in quarantine to realize the immense amount of harm she could do if allowed to go untreated and ply her trade with active syphilitic lesions.

In a recent letter from the board of health they state that in eight institutions 224 syphilitic women have been treated of which 184 have been discharged. These cases have all had vigorous salvarsan and mercury treatment and are symptomatically free—some have a negative Wassermann.

These women are expected to report for further observation and treatment at stated times, but it is extremely difficult to get them to do so as they are of a wandering disposition and there is no adequate means of tracing them. If the followup system could be perfected in order to control patients after leaving the hospital the whole plan would be as nearly ideal as possible, but that will be extremely difficult on account of the mental capacity of most of the women. The state report says that "of 247 women examined, forty-five were found to be feebleminded to such a degree that they should be confined in institutions; 128 women were subnormal, thus leaving only about twenty-five per cent. of the women examined normal." They have no accurate record of those reporting for further treatment and if the general experience is the same as we have had, the proportion of returns would be very low indeed.

The one weak point in the whole system for the treatment and cure of syphilis in clinic as well as private practice is the difficulty experienced in getting patients to return for treatment as long as they should. That is not difficult to account for in private work as the treatments cover a long period of time and become burdensome and expensive, but in clinic work it is next to impossible to have patients return for treatment until symptoms develop, even though the treatment is free. The constantly shifting population is a partial explanation for the cessation of treatment, but until some means is devised for a continuation of the control of venereal patients the results of treatment are going to continue to be inadequate and unsatisfactory.

REPORT IN DETAIL OF PATIENTS EXAMINED BY PSYCHIATRIST AT
HARPER HOSPITAL.

Diagnosis:	
Feebleminded	41
Dull normal	3
Subnormal	30
Retarded psychopathic personality.....	8
No psychiatric condition.....	10
Retarded paranoid trend.....	1
Mild paranoid trend.....	1
Normal retarded	2
Epilepsy (mild dementia).....	1
Epilepsy	3
Insane	4
Recommendation:	
Release	57
Michigan Home and Training School.....	27
State Hospital, Pontiac	4
Release with supervision.....	5

Release on trial.....	3
Social nursing	4
Deport	3
House of Correction	1
Disposition:	
Eloise (insane)	1
Michigan Home & Training School at Lapeer	6
Deported	1
Colony for Epileptics, Toledo.....	1
House of Correction	1
State Hospital, Pontiac.....	2

A brief examination of the patients interned and treated will partly explain the difficulty encountered in controlling patients of the prostitute class.

The following figures were kindly furnished me by Miss Alice Walker, of the Harper Hospital Social Service Department (10):

Of 303 patients treated, 145 were released to social workers for supervision with the following result:

Unable to locate.....	11
Left town	23
Living immorally	38
Common law wives	6
Housewives ..	12
With parents	2
Employed	38
130	

These women are practically out of control and are all potential prostitutes—thirty-eight openly so and thirty-four are entirely lost and are probably prostitutes.

In county jail.....	2
In House of Correction	2
In House of Good Shepherd.....	3
Reinterned	8
15	

These are the only ones out of 145 released who can be said to be under control and beyond the possibility of infecting others at present. Of the thirty-eight employed they are distributed as follows: Clerks, two; clerical, one; cook, two; conductor, one; housemaid, two; restaurant, five; rooming house, four; sewing, one; typist, one; telephone operator, one; timekeeper, one; usher, one; factory, sixteen.

An effort is being made at present to teach the interned girls a useful factory employment and for the purpose a large Detroit concern has installed some machines at Harper Hospital where the girls can be taught and also receive wages while learning to operate the machines. It still remains to be seen whether they will continue in their useful occupations and lead moral lives after they are released.

Control of patients and cooperation in continuance of treatment would be far more easily accomplished if those individuals possessed sufficient mentality, but a survey of Doctor Perkin's report on the psychiatric condition in 300 cases will present the most important reason for continued observation and control. She examined 300 patients interned in Detroit hospitals with the following results: Forty-eight patients, or sixteen per cent., were found to be normal mentally, the remaining 252 (eighty-four per cent.) being divided in these

proportions—forty-three per cent. (129 patients) were found to be feeble-minded to such a degree as to test ten years or less; twenty-four per cent. (seventy-two patients) were subnormal and tested from eleven to thirteen years; six were epileptics; six were insane, while the remaining twenty-six showed some psychiatric condition. Of the 252 abnormal women, 161 were recommended for institutional care, only ten of whom were actually committed, while the remaining 151 were left to dispose of themselves in various communities.

With this exposition of the mental instability of these women is there any question that they should have supervision at all times to prevent their spreading venereal disease in all communities or having offspring who will also be mentally deficient and who will continue to do what their mothers have done?

The situation could be met at least for the abnormal patients by having institutions where they could be kept under constant supervision, doing work enough to make them self-supporting with recreation to keep up health and spirits. Prophylaxis in the control of syphilis does not mean merely the use of preventives by those who expose themselves to infection, but should include a number of measures to reach all classes and conditions of people, male and female alike. Segregation, regulation, or suppression of prostitution may each have merits depending upon the efficiency displayed in carrying it out, but it reaches only the known or public prostitute and allows the great army of clandestine prostitutes to go unrestrained. The measures adopted by the American Commander-in-Chief in France were admirable and accomplished their purpose, but it would be absolutely impossible to keep men in control in private life as they are in the army. While the knowledge the soldiers have gained of venereal diseases during their service has been invaluable, nevertheless a great deal of their wisdom is going to be forgotten when they are released from the army and resume their former mode of living.

Major McKean has recently stated here that there is less venereal disease among American soldiers in France than among those at home, and the reason for this is well stated by Fosdick in *The New Republic*. (11)

The chief features of the Government program were education of the men; repression of disorderly resorts; provision of healthful, interesting, and constructive recreation; prophylaxis, or early treatment, for men who had exposed themselves; punishment for those exposed who failed to take prophylaxis, and finally, expert treatment for those who either came into the army already infected or broke through all the barriers set up by the military authorities.

Due to the methods employed the Americans by a given date had only 300 hospitalized cases instead of 3,000 which the French had provided for. Brothels were placed out of bounds for the soldiers who were urged to sexual continence and the maintenance of high moral standards of living. During August, September, and October, 1917, while the houses were open to soldiers the rate of disease to the 1,000 was about sixteen; the following three

months the houses were closed with a consequent disease rate which dropped from ten in November to two in January.

The control of syphilis should include first of all education of the general public to enable them to know what to avoid to prevent infection. A large proportion of the laity still thinks that syphilis can be contracted only through illicit intercourse. It is quite obvious that not knowing the different modes of contagion they are unable to protect themselves from it, but one can hardly blame the public when we realize that most physicians are as negligent and culpable as laymen.

A nonsuppurative, mildly inflammatory lesion which is of slow growth, appearing in any part of the body with accompanying neighboring adenitis, which resists all the usual methods of treatment and slowly disappears should be further investigated. Aside from the usual location of the chancre on the genitals, the primary sore has been reported extragenitally in the following locations: (7) (8) Lips, tongue, gums, corners of the mouth, tonsil, cheek, eye, neck, abdomen, breast, nates, anus, fingers, wrist, forearm, hand, eustachian tube by catheterization, in fact in almost any part of the body a chancre may develop. These chancres were inoculated in the following ways: By kissing, drinking glasses, pipes, bottles, biting, sucking wounds, moistening court plaster, barber shop use of razor and towels, digital examinations, vaginal douche, manicure stick and catheter. These innocent infections total in general at a minimum of over five per cent. and judging from the variety of methods of contagion it is difficult to understand why the profession so frequently overlooks the possibility of syphilis. This applies as well to the later manifestations of syphilis which are as numerous and varied as there are organs in the body.

I believe also that personal prophylaxis should be taught both men and women, showing that infection can be prevented after exposure and that the health of prostitutes—public or clandestine—should be taken on trust. Too many men have had such confidence in their partners only to realize too late that they had become infected. Physicians who are themselves infected are notoriously negligent regarding their own treatment, but nevertheless they all should either arrange to treat syphilitics thoroughly or else cause them to receive treatment in the hands of those competent to do so. They should also be more thoroughly versed in the interpretation of Wassermann readings, as far too many cases receive treatment on the strength of a weak positive reaction without history or symptoms. While this test is an efficient aid, it is only dependable in ninety per cent. of the cases (9) through all stages and the diagnosis should not be made on the Wassermann only.

Physicians should have the right to protect others in the family if the patient refuses to take proper precautions even though this means divulging to a husband or wife that either is infected. The dangers existing in venereal infections could be shown adolescents either by the family physician, their parents or even by motion pictures, as fear of disease and its consequences will keep them free

far more than fear of the Lord or eternal damnation.

So convincing is the evidence that the present quarantine and compulsory treatment system is preventing a large number of infections that I believe it should continue to be elaborated on, especially with regard to the social service department for instruction and followup of those who are discharged. This plan could be further aided by the establishment of night clinics such as we already have here at the board of health where the service is free and at Harper Hospital where a nominal sum is paid for services. (12) These clinics can be advertised in the factories by means of placards which could warn syphilitics against quacks and further state that honest and reliable treatment could be obtained at these clinics free or for a small sum for all those who were unable to pay the usual charges for such service. These clinics can also be advertised by the board of health bulletins in the daily papers similar to those recently issued during the recent influenza epidemic. The public could also be warned by this means of the many ways in which syphilis can be contracted as well as the dangers incident to the disease unless proper treatment is instituted at once after infection and followed implicitly during the required length of time.

Under our present marriage laws syphilis is no bar to matrimony, although some churches require a signed card which is only a snare and a delusion, as it states that, "John Doe to the best of my knowledge and belief is free from active syphilis, gonorrhea, and tuberculosis." This is just as bad as no certificate at all as we know that in most cases of infected wives or husbands the disease is in a latent state. To give such a certificate any value it should be signed by a State official after adequate examinations had been made by a State laboratory and no marriage should be performed by a clergyman, justice of the peace, or any other unless such certificate of health could be presented by each party. Such a requirement would undoubtedly cause a protest, but if the individual is free from disease he has nothing to fear from such examination. The prevention of marriage of infected persons would without question prevent thousands of innocent infections and tens of thousands of congenital syphilitics, while it would also do away with a prolific source of divorce. It is true that there are some cases in which it would be unjust to the matrimonial applicant to be guided by the Wassermann only, but those cases are very few and in case of doubt other tests could be used and the decision passed on by a committee for that purpose.

In conclusion let me again emphasize the supreme importance of the early diagnosis of syphilis no matter what the manifestation may be, whether genital, dermal, internal, for the best results of treatment can only be obtained if treatment can be instituted at once. This applies not only to the general practitioner, but also to all the specialists, the genitourinary man, the gynecologist, obstetrician, dermatologist, ophthalmologist, rhinologist, internist, surgeon, and neurologist. Lesions may be encountered by any of these specialists and it is strictly up to them to make a prompt diagnosis—

not a diagnosis that is satisfied to call a person free of syphilis with one negative Wassermann, in spite of positive evidence, but one which definitely proves or disproves the presence of syphilis.

The second point deserving emphasis is prophylaxis—a point which speaks for itself when we remember that the incidence of venereal disease in the army in France was less than it was at home on account of the prophylactic measures being strictly enforced as well as the other reasons mentioned above. Prophylaxis actually protects in ninety per cent. of the cases if used early enough. Scrupulous observance of prophylactic measures as well as cleanliness together with a more rational understanding by the laity of the modes of contagion will go a long way to curb the spirochete. Prohibition has also helped, as a man who is not under the influence of alcohol will be far more likely to take proper precautions.

I do not believe that prostitution, broadly speaking, can ever be eradicated, but of the two, clandestine and public, while both are dangerous the recognized prostitute can be kept under more strict surveillance than the occasional prostitute.

A final word regarding treatment. Give your patients all they can be persuaded to take. Even that will not be enough, but when you think you have given enough, give more.

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HOOKWORM.*

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The celebrated naturalist Cuvier said that from the study of the structure of a tooth a competent zoologist can easily reconstruct the dimensions and character of that animal. What the tooth is in the hands of the zoologist, disease is to a sociologist. It may even serve as a far more reaching criterion in unraveling the social structure of a country or nation and the habits and customs of the people. It is but necessary to take a bird's eye retrospective view of the Hebrew religious, Talmudic rule, which requires that before eating food the hands must be washed, or the Hindoo habit of washing their hands after defecation, to see that the habit instinctively sprung from the necessity of protection against parasitic infections, particularly hookworm. Of

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similar interest, to a sociologist, is the interpretation of the backwardness, poverty, and indolence of the South as compared with the prosperity, energy, and vigor of the people of the east of the United States, due largely to the problem of hookworm. For it must be remembered that hookworm secured its first foothold in the South with the importation of the negro slave and if every sin is said to be accompanied with its corresponding punishment, it will be no exaggeration if we say that slavery proved the greatest curse the South ever suffered, viewed from the panorama of its present social, economic, and health status. •

Hookworm or uncinariasis is a parasitic disease due to a round worm (nematode) belonging to the subfamily uncinariasis. The disease is protean in nature and is widely spread in the tropical and semi-tropical climes and diminishes toward the temperate regions. To give an idea of how widespread is the infection with hookworm, it is sufficient to mention some rough statistical estimates in various countries. In China it is estimated that about seventy-five per cent. of the entire population is infected, Ceylon sixty to eighty per cent., Egypt fifty per cent., and Porto Rico ninety per cent. It is especially prevalent on plantations and in mines. In the United States, hookworm constitutes a serious problem in the South. Some States like Alabama and Mississippi have districts with an infected population amounting to from thirty to forty per cent.

Almost all mammals have hookworm, but each host species has a different kind of worm, which is peculiar for that species. Thus we find in the dog, fox, and horse specific hookworm infections which will infect the host for which it is biologically adapted and no other. The hookworm of man does not develop to maturity in lower animals. The species of hookworm found in men are two: the old variety, *Ankylostoma duodenalis*, and the new world type, *Necatur americanus*. The distinction between the two forms of worms has a zoological rather than practical bearing, for both produce the same symptoms, respond to the same treatment, and call for the same preventive measures.

The chief difference between these two worms consists in that the Old World worm has one pair of ventral hooks, two conical dorsal teeth, and the posterior ray of the caudal bursa divides two thirds its way from the base. The New World worm has ventral lips, a dorsal median tooth, and one pair of dorsal and one pair of ventral lancets deep in the buccal capsule. The posterior ray of the caudal bursa divides at its base and each subdivision has two tips. The adult hookworm is about half an inch long and has the diameter of a pin. It lives in the intestinal tract, preferably the upper part of the jejunum and lower part of the duodenum, it attaches itself to the intestinal mucous membrane and after wounding it, sucks the blood, destroys the epithelium and produces a toxic substance which is responsible for the constitutional derangement of the host.

The worm microscopically represents an enormous animate mass of a sexual gland. This gland produces great quantities of eggs which are

discharged in the feces. The embryo does not mature within the egg except in the presence of oxygen. When conditions are favorable, the embryo escapes from the egg and becomes a larva in about twenty-four hours. This free moving larva crawls in the moist soil, feeds itself on organic matter and in a few days sheds its first skin and is converted into a sporelike resistant form, which causes the infection. It is in this stage that the hookworm larva seeks a host to complete its cycle of maturity and does its pernicious parasitic work. The way the larva attacks the host is as a rule by piercing the skin, passing through the lymph stream into the thoracic duct, then to the inferior vena cava, from there into the heart, and then into the lungs. It does not, however, pass through the lung capillaries and it is believed that it pierces the lung tissue and by a circuitous route works its way finally into the intestines. It is quite possible that the attraction for the intestinal mucosa is based upon a biological chemiotactic tissue reaction. The larvæ may pierce any exposed skin, but in the infected regions where the people are in the habit of walking barefooted, the soft skin between the toes is usually most frequently pierced. And in its passage through the skin the larva causes an irritation of the skin, setting up an annoying dermatitis, from which fact the disease was vulgarly named ground itch. The skin route of infection is not the only one. The embryo may be taken in the intestines by the mouth in drinking water, solid food or from dirty fingers. There are some who claim that dust and flies should be included as agents of mechanical transmission of the infection.

SYMPTOMS.

Very few people who suffer from hookworm can clearly relate the first symptoms and the date upon which they were first noted. It is generally conceded that if they can fix the time of the initial dermatitis this is to be considered as the first onset of the disease. The constitutional symptoms are insidious in their onset and vary from light and moderate to severe in degree. The clinical picture of a light case presents the following history: A previously vigorous and energetic individual, finds himself gradually losing strength and complains of frequent attacks of dyspepsia. There is a distinct reduction in mental activity, distaste for laborious undertakings, a tendency to abstraction and forgetfulness is manifest, the whole symptom complex presenting a picture of laziness. The facial expression bears out the condition mentioned. There may be a tendency to sleep at odd moments. Often a faint pallor can be observed. The hemoglobin of such people generally lies between sixty per cent. and normal, the former sometimes in spite of fairly good color. The severe cases present these symptoms in the extreme with a resulting severe anemia and its concomitant train of symptoms. The ultimate picture is that of degeneration of vital organs, leading to chronic invalidism and sometimes death. The blood picture shows a marked eosinophilia which is helpful in the diagnosis of any worm infection. As many as fifty-three per cent. of eosinophiles have been found.

When the chapter of medicine of the United States Army will be compiled, the handling and observations made on hookworm among the soldiers of the Southern States will be a great credit to the medical department. Every man drafted from the suspected Southern States was carefully examined for the presence of hookworm infection and it was found that the men from the rural districts, especially the States of Mississippi and Alabama were largely infected and depending upon the locality from which they were drafted, the percentage of infection varied from forty per cent. to seventy-five per cent. An interesting observation has been made, which illustrates the influence of hookworm as a predisposing factor to other infections. Mild or severe epidemics of measles frequently break out in army camps. And it was clearly noticed that in regiments drafted from hookworm States, the men who had been found to have hookworm were infected three times as often with measles as compared with the men who were free from hookworm. The pulmonary complications following the measles were also with far greater frequency among those that suffered from hookworm. Furthermore, comparing the sick book of the daily morbidity in regiments from hookworm States and the Northern regiments which were free of the disease, it was evident from a superficial glance that the morbidity in the hookworm regiments was far in excess. This is very important, as it throws light on the fact, that individuals suffering from hookworm are subnormal in physical resistance, more prone to infection and in a more general way explains the question of net morbid influence of hookworm existing as it does everywhere concurrently with tuberculosis, syphilis, and other parasitic infections. Even from these cursory remarks about hookworm, one can clearly see, what a serious, social, economic, and public health reconstruction problem the disease constitutes and the necessity for the extermination of this absolutely preventable, easily to be identified, and completely curable disease.

IDENTIFICATION.

The prevalence of hookworm infection made the necessity of an accurate method of stool examination especially important. The examination of the fecal smear, the sieve sedimentation method, the culture, and centrifuge method each and all do not detect many infections and the time required is considerable. Major Charles A. Kofoed, of Fort Sam Houston, and Major Marshal A. Barber, at Camp Jackson, Columbia, S. C., have developed the salt brine flotation method, which is very simple, exceedingly accurate and is applicable in a big camp as well as in the doctor's private office. The method consists in stirring well the feces, or a part of the specimen for examination with concentrated brine (saturated salt solution). Let it stand from fifteen to thirty minutes, the ova rise to the surface. Loop off the surface film, preferably at the circumference, to slides and examine for ova. It is so easy to find and identify the ova using this method that one can easily train the nurse or attendant to examine the specimen after little instruction.

TREATMENT.

Preventive.—This is purely social and economic and belongs to the domain of State and federal government.

Medicinal.—By thymol or chenopodium. Both are equally efficient. The procedure is simple. A dose of epsom salt the night before and one or two or three doses of one and a half to two grams of the chenopodium in a capsule the following morning at intervals of several hours. Thereafter examine stools regularly to tally up the results. It was found that after the first treatment ninety per cent. of cures were effected. Five per cent. require a second or third treatment, while five per cent. for some reason or other, are frequently obstinate and resistant to multiple and vigorous treatment.

Caution.—As oil of chenopodium as well as thymol are of some toxicity when absorbed in the system, anything which increases the absorption should be carefully avoided. Thus oil, fats, and alcohol should be eliminated from the diet for a day or two prior to treat the individual. The urine should be examined after the first treatment, and if albuminuria is found as result of it, a second treatment should be gauged with extreme care.

NEW HYPODERMIC SYRINGE AND NEEDLES.

BY ALFRED KAHN, M. D.,
New York.

The inventions herein discussed cover so many points that, in order to bring these points firmly to mind and for the purpose of description, this article should be variously entitled under the following headings:

First—A new idea for the modification of the ordinary glass syringe, so that it can be used for the purpose of injecting fluids into the human body. This modification is shown in Fig. 1B. It will be noted here that we have a cut of the ordinary glass urethral syringe which can be purchased at almost any drug store for a small sum. The idea of the modification described was to reduce the cost of syringes used for the purpose of injections. The syringes now on the market, such as the recording, Luer, and others, are all comparatively expensive. By using the modification herein mentioned, the cost is reduced from several dollars to a very low figure. It will be noted in the figure that with this modification the urethral syringe, for example, can be used with a needle and consists in placing a hard rubber or cork stopper with a hole through its centre in the lower tip of the syringe. The stopper must fit the diameter of the syringe firmly. By using the form of needle described and shown in the illustration, the common ordinary glass urethral syringe is equal to the most expensive recording syringe.

If it is desired to use the ordinary needles on the market and sold by the various manufacturers, it is only necessary to have the glass urethral syringe made with a larger tip opening. Then it is necessary to use a stopper in the same way as the stopper

described, the only difference being that the stopper has an extension through the enlarged tip opening. This modification is shown in Fig. 1A. The extension is arranged to receive the belly of the needle.

Second—A new idea for reducing the cost of needles in syringes, used for the purpose of injecting fluids into the human body. The needle which is described as shown in Fig. 1B, C, and D. The needles on the market used with the ordinary hypodermic syringe, with the recording or with the Luer

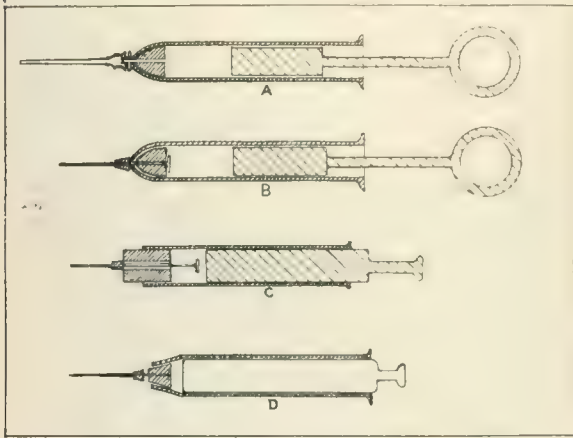


FIG. 1.—New military hypodermic syringes.

syringe and others, have a round belly which is screwed on to the various syringes. The needle described has a flat head and runs entirely through a stopper tip which is inserted into the body of the syringe, as shown in Fig. 1B, C, and D. The needle is held firmly in position by a small lock nut just outside the tip of the syringe (lock nut shown in Fig. 1B, C, and D). By screwing the lock nut up toward the syringe the needle can be fastened firmly or loosened so that it can be pushed up into the syringe, the syringe acting as a receptacle for the needle, and in this way the needle is protected when not in use. It is never necessary to detach the needle from the syringe. Should it become necessary to change needles, the needle or the cork can be pushed out with a hat pin and a new needle inserted. The needle is protected, and considerable time is saved by the needle always being ready for use. The cost of these needles is so small compared to the ordinary needle now in use that if only one injection were used with each needle, the cost would be very much less. However, this needle will last as long if not longer than any needle now on the market.

Third—A new idea having in mind the cleansing and sterilization of the syringe used for the purpose of injecting fluids into the human body. This idea is illustrated in Fig. 1C. The same principles are brought into effect as described, except that the body of the syringe is simply a tube and the tip is entirely plugged by a close, firmly fitting stopper with a hole through the centre. The needle described is used with this syringe, or the ordinary needle as now used can be employed with this syringe by using the modification described.

Fourth—A new idea for a new form of hypodermic syringe. This is the syringe used with the hypodermic case described below. The same prin-

ciples are brought into play except that the shape of the tip of the syringe has been changed.

A NEW MILITARY HYPODERMIC SYRINGE.

On the field of battle—or anywhere, for that matter—where a hypodermic is to be given, the procedure as now practised is, to say the least, slow and cumbersome. First, the difficulty of having a sterile solution; second, the difficulty of having a sterile needle and syringe; third, the technic of the hypodermic injection. This technic is usually as follows:

First, a tablet is taken from an extremely small vial, often with difficulty, lack of surgical cleanliness, and the expense of time; second, the tablet is usually placed in a teaspoon to which water is added, in order to dissolve the tablet; third, the syringe is taken from its case; fourth, the needle is taken from the case and screwed into a syringe, and if the syringe does not leak, the hypodermic is satisfactorily given.

With the object in mind of eliminating and improving the above procedure, I have devised a syringe whereby a sterile solution can always be carried, whereby the tablet can be easily removed from its case, and whereby the tablet can be dissolved in the syringe itself. It will be necessary only to pull the piston of the syringe and the hypodermic is ready for injection.

The hypodermic case is made of one piece of solid glass about one half inch thick, four inches long by three inches in width. It is arranged in two main compartments (see Fig. 2). One compartment is divided for the purpose of holding the hypodermic tablets, a pair of small forceps, and extra needles. The tablets are packed in a little drawer that can be slid out from the case, and the desired tablet thereby picked out of the compartment by means of the forceps. The other

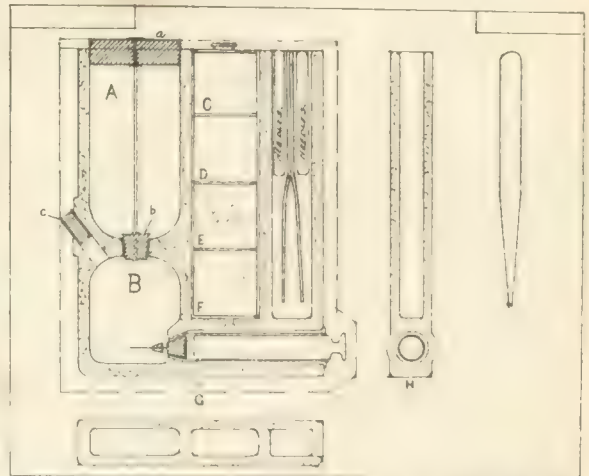


FIG. 2. Case of new military hypodermic syringe. A and B, communicating cavities; a, stopper for cavity; b, stopper between cavities A and B, raised simultaneously with stopper a, making open channel between A and B; c, outlet for cavity B.

compartment is divided into two communicating cavities, A. and B, Fig. 2, and a communicating hall for housing the hypodermic syringe. Cavity A is closed by a screwed stopper, a. This stopper is in contact by means of a small rod with a smaller stopper, the latter acting as a stopper between cavity

A and B, so that when stopper *a* is raised, stopper *b* is also raised, making an open channel between A and B. Cavity B communicates with the outside through an opening, *c*, and is occluded at its lower right hand corner by the nose of the hypodermic syringe which acts as a stopper at this point.

Technic.—Cavity A is filled with sterile water, sufficient for several hypodermic injections, and is then placed in the pocket. It is now necessary to give a hypodermic injection. The drawer is pulled out, and the proper tablet selected and grasped between the teeth of the forceps. It is dropped into cavity B through the opening at C. Stopper, *a*, is then unscrewed thereby allowing water sufficient for a hypodermic injection to flow into the cavity B; the tablet here having become dissolved, is drawn into the already needed hypodermic syringe. Opening between cavity A and cavity B has already been closed by the screwing down of tap, *a*. The case is now tilted, the syringe withdrawn, and the hypodermic given. The syringe is now replaced into its housing and the case replaced in pocket.

To clean and sterilize this case, unscrew the tap, *a*; this automatically releases tap *b*; withdraw rod, wash and place in sterilizer; withdraw hypodermic syringe; withdraw drawer containing tablets, needles, and forceps; withdraw stopper from *c*. Now the case can be placed under a running tap and the water will run through and thoroughly clean out the passageway, A and B, through hypodermic housing and out. The case then can be dropped into a sterilizer and boiled, after which it will soon be ready for use again.

50 EAST FORTY-SECOND STREET.

RECENT GLEANINGS RELATIVE TO THE PROPHYLAXIS AND TREATMENT OF INFLUENZA.

BY LOUIS T. DE M. SAJOUS, B. S., M. D.,
Philadelphia.

(Continued from page 945.)

Recently, results more convincing than those of the preceding authors have been reported by H. Michel, 1919, who combines, however, certain other agents with the hexamethylenamine. His plan of treatment consists in giving an intravenous injection of 1.5 gram of hexamethylenamine with 0.25 or 0.5 gram of theobromine. Wet cups are also applied, abstracting half a litre of blood, and an injection of normal saline solution immediately follows. This combination of measures had already been employed for four years in all severe cases of acute delirium and insanity in an asylum, with a consequent "reduction in the mortality from forty-five to five per cent." During the fall epidemic the procedure was tried in over 300 cases of rather severe influenza, many with pulmonary or intestinal complications. The mortality in this series was barely three per cent., and at the autopsies in the few fatal cases pathological changes resulting from alcoholism or tuberculosis were found. A constant effect of the first injection was, within about twenty-four hours, to reduce the temperature by 2° C., to increase the urinary output from 500 or 600 to

1,500 or 1,800 mls, and to improve the general condition, pulse, and physical signs. The injection was repeated after a day or two if the temperature began to rise again, but more than two injections were seldom required. When the patients were out of danger, the drugs were continued for a few days by mouth to keep up the diuresis. On the whole, the results seemed so striking as to warrant strong recommendation of the treatment not only in influenza but also in other infections as a means of eliminating toxic products from the system.

In some of the most severe and acute influenza cases, a special indication for intravenous medication may arise through the uncertainty attending absorption of remedies from the alimentary tract owing to pronounced impairment of the circulation in such cases. This would appear especially to apply in the type of case stressed by Loeper and Fumouze, 1918, in which the patient is suddenly stricken with fever and, independently of an actual pneumonia, exhibits marked pallor or cyanosis, severe dyspnea, widespread râles suggesting congestion and edema, feeble and very rapid heart action, and a scantiness of the expectoration not due, as a rule, to absence of secretion, but to inability of the patient to bring it up. Such patients, when untreated, were found regularly to succumb in two or three days, the condition as a whole suggesting some form of violent toxemia with particular reaction upon the central nervous system. Autopsies in seven cases regularly revealed infarcts, congestion, and edema of the lungs, without actual pneumonic lesions. In such patients Loeper and Fumouze undertook venesection, followed by intravenous infusion of camphorated oil—two mls of a ten per cent. solution of camphor daily throughout the disease. Saline solution with adrenin was also administered. Under this treatment, what appeared to these observers a very satisfactory result in the type of case referred to was obtained, viz., out of thirty-eight patients, twenty recovered. The ultimate benefit seemed foreshadowed by the immediate effects of the successive treatments, the entire condition improving markedly and promptly after the injections.

To complete our consideration of the chief remedies upon which reports or discussions have lately appeared, following experience with them in recent epidemics, brief mention may be made of salicin and of alcohol. The former has been especially recommended by E. B. Turner, a British observer, 1918, but is doubtless merely a variant of the treatment by salicylates and acetyl salicylic acid, now somewhat less in vogue than formerly. Turner gives twenty grains of salicin every hour for three or four hours, as a result of which, he asserts, all discomfort and pain will pass off, the patient be rendered noninfective, and recovery occur within twenty-four hours. Over 2,000 cases of influenza, he states, were treated in this way without a complication or a single death. It is important to note, however, that none of these cases belonged to the second, more severe outburst of the influenza epidemic in Europe; had cases of the fall epidemic been treated, such results would doubtless not have been secured. (*To be continued.*)

Abstracts and Reviews.

WAR NEUROSES AND THEIR LESSON.*

BY THOMAS W. SALMON, M. D.,
New York.

Colonel, Medical Corps, U. S. Army.

The lecturer stated that probably no medical phase of the war had caused more wonder or given rise to more apprehension than those curious phenomena to which the term "shell shock" has been applied. This was because of the popular attitude toward anything mental. In mental disorders we clothed all manifestations with mysticism, a kind of curious distrust, which made it quite impossible for us to apply to them the same logical processes applied to other diseases.

Colonel Salmon said he was convinced that by far the greater part of the misunderstanding regarding this type of military casualty was due to the unfortunate introduction early in the war of the term shell shock, which was used apparently to describe the mental phenomena observed in men under shell fire. Men who had received no wounds were paralyzed. Some with apparently normal organs were deaf, dumb, and blind. Mental symptoms which had always been associated with grave forms of mental disease appeared in profusion. Nothing was more natural than to attribute all these symptoms to the long continued use of high explosives. Had more time been devoted before the war to the study of nervous phenomena, we would not have been so hasty in saying that these symptoms had been produced by shell fire.

The French were the first to see that the effects on mental life were becoming alarming. Then followed the experience in the camps. Men who had not been exposed to shell fire developed the same symptoms. Soldiers who had not been under fire became paralyzed, mute, lost flesh, developed fears and curious insanities. Then it became apparent that if we were dealing with injury to the nervous system, we were also dealing with a disease familiar and widespread in civil life.

The theory of the neuroses most commonly held was that they constituted a means of escape from or a solution of intolerable circumstances. If the subject had no means of escape at his disposal, the neuroses provided him a solution. Of course the intolerable situation was not a condition due to the situation itself; much may have been due to the person's own incapacity for making adjustments. This related to the theory of the development of neuroses in general.

The speaker cited as an example the case of his little nine year old son, who on coming downstairs recently told his mother he did not think he would go to school that day, that he would stay at home and help her. This altruistic spirit was a little unusual and gave rise to a suspicion of motives, and the mother said she did not have any work in which he could help her. He then lost his hat and coat, both of which were recovered. When he had no further reason for staying at home, he then said he felt very sick. That was received with incredulity

until his mother observed that he did turn pale and put his hands over the pit of the stomach. He was put to bed, his temperature taken and probable symptoms looked for. In about an hour he was all right. It was learned a few days later that he and some other boys had broken some windows and that on this particular morning they were going to have an opportunity to explain to the principal just how it happened.

This little boy had a situation which he was not adequate to face. He tried a few altruistic sentiments, finally coming to the end of his resources. Then a diseased condition came to his assistance, producing a temporary hysterical nausea and solving for him the situation which he was incapable of solving alone. The speaker also recalled the case of a nurse who, after passing through a great tragedy, became unconscious and remained so during the greater part of the night. When she recovered consciousness she had a complete loss of memory and this persisted as long as he knew her. She could recall nothing from the time she left her home to take up nursing. This also was an illustration of an intolerable situation which the hysterical amnesia enabled her to meet. Another instance was that of a young aviator who was flying with a nurse. The plane fell and the nurse was killed. This young aviator developed a complete amnesia. He thus disposed of those elements of his life which might recall the painful situation, a common hysterical mechanism.

In each of these cases in an individual not always a bad neurotic there developed a neurosis to meet a situation he was incapable of meeting. Of course the first intolerable situation which the soldier encountered was the choice between self preservation and duty. The soldier had a great many factors which he might impose to the reaction of fear. Among the lower group of opposing forces he had compulsion, which in the army of democracy is a small factor but which in a few instances must have helped somewhat. On a higher level he had love of country, desire to retain the respect of the people at home, and all those circumstances bound up in our patriotism which are among the great controlling factors of life. No one needed to apologize for feeling fear in this war. All the soldiers the speaker met felt fear, but they did their duty. As an illustration, a French soldier found that his knees knocked together so that he had to sit down, and he said to them: "You tremble, but if you knew where I am going to take you before you are through, you would tremble more."

Fear was not the only reaction which made the life of the soldier intolerable. For some, not many, horror had a greater influence than fear. Many illustrations of this came to those dealing with the nervous cases among soldiers in France. The lecturer remembered particularly one case of a soldier in the Twenty-sixth Division whom he saw in one of the field hospitals. A shell had killed or wounded everybody in the dugout but himself. He suffered no immediate effects, but later while speaking about this to a young officer of whom everybody in the company was fond, a shell came along and killed the officer in a particularly horri-

*Abstract of the second Mary Scott Newbold Lecture, delivered before the College of Physicians of Philadelphia, April 3, 1919.

ble way. This soldier, who had not suffered any immediate effect from the previous accident, became mute. Another illustration was shown in the instance of three men who volunteered to take food up to a detachment. One went ahead and got there safely. The other two were killed. When the boy who reached the detachment safely learned that the other two had been killed he developed severe psychoneurotic symptoms, became weak and was evacuated to a hospital. That boy who had volunteered was not suffering from fear, nevertheless there developed a war neurosis.

Sometimes the situation in military life was intolerable because of personal difficulties of adaptation. Some had difficulty in getting on, and many of these were inclined to retreat into a psychoneurosis to escape the intolerable situation. There had been striking instances of this since the signing of the armistice. In the army of occupation men who had no difficulty in adapting themselves during the war found themselves incapable of adaptation to life in Germany after the war.

With this explanation of the mechanism of the war neuroses, Colonel Salmon believed it could justifiably be said that essentially they do not seem to differ from the neuroses of civil life. People in civil life who had great personal difficulties retreated to the neuroses as a means of solution. All these soldiers, who had been civilians, had carried over into the army the mechanisms and with the new material produced these disorders. The enormous number of men incapable of adaptation made this an important military problem.

Another reason for the importance of war neuroses was that they threatened morale. There was no loss of morale in seeing large numbers of wounded going to the rear, as every soldier felt that the same experience might come to him. But it did threaten morale to see men who had not been wounded or gassed exhibiting neuroses, going to the base and being evacuated home.

In inaugurating the neurological service this country had the great advantage of the English and French experience. They met the problem in the first few weeks of war, and for at least a year the prevailing impression was that some minute damage had been done to the central nervous system and that the more quickly the men were sent home, the better. That opinion still prevailed but only among a few, because after a short time the real nature of these disorders became apparent. By the time the United States entered the war opinion in Europe had changed. The real nature of war neuroses was recognized and every effort was made to cure the patients and send them back into the army as an example to others and a help in maintaining the man force. The French established army neurological centres a short distance behind the lines and treated the men with great success. We had this demonstration to help us when we came into the war.

Another point to be mentioned was carelessness in recruiting. It was found in England that many men broke down in the camps long before meeting the enemy through constitutional nervous disorders which could have been easily recognized. We

profited also by that experience. A neuropsychiatric service was organized in this country and during the first six months those nervously unstable were weeded out.

Nothing could be more striking than the comparison between the cases treated near the front and those treated far behind the lines. As soon as treatment near the front became possible, symptoms disappeared with the slightest amount of treatment. During the Argonne offensive American doctors were given permission to do what they had wanted to do at Chateau Thierry—establish a neurological hospital on the same level as the army hospitals. That hospital showed what could be done in the period of a week. No man went to the rear until he had been examined there, with the result that sixty-five per cent. of the 7,500 men with a diagnosis of confusion or psychoneuroses were returned to duty from the field hospital.

It would be of interest and might throw a little light on the nature of war neuroses to consider for a moment just what sort of cases came to the field hospitals. Some of the men suffered only from exhaustion, with no psychiatric symptoms whatever. Their cure was not a medical matter. They were encouraged, given hot food and ample opportunity to rest, and were returned in a short time. In the beginning of the war almost every one of these would have found their way to the base and ultimately to the United States. Others suffered from psychoneurotic symptoms alone—mutism, loss of speech, hysterical twitching, and uncontrollable jerkings of arms and legs. A high degree of skill was developed in treating these and they also contributed to the sixty-five per cent. returned. The cases were observed by disinterested and impartial men who were highly trained experts, and a great service had been performed both for the army and for the soldiers themselves. Had the offensive continued the neurological hospital would have become mobile and followed the troops.

The speaker said he had tried to point out that war neuroses were curable and could be controlled by scientific management rather than by allowing nature to take its course. There were some lessons which we might apply to civil affairs. Everybody was asking what we had learned in this war which could be applied to the upbuilding of the country. This must be true in commerce and also in medicine. As one physician said recently, the most gigantic series of human experiments had been conducted by shrapnel. There had been opportunity to learn in every field of medicine things which could not have been learned and which would aid in the future treatment of the sick. This was true in the field of mental disease. Certainly no one could conceive of a greater experiment than to take 2,000,000 men, exposed to the stress of a world war, and have them observed by men competent to make scientific observations and record results. Colonel Salmon considered that we had here at home fewer facilities for treating in as adequate a manner the poor of the city at a time when disease could be modified by treatment and that there was no field in which we could better apply the lessons of the war than in the fields of neuroses.

Editorial Notes and Comments

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NEW YORK, SATURDAY, JUNE 7, 1919.

THE VICTORY MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

For many reasons the coming meeting of the American Medical Association, to be held in Atlantic City next week, will be notable. It will be a red letter meeting because of the fact that it will take place at the end of the greatest war in history, a war distinguished by wonderful performances in the realms of surgery, medicine, and preventive medicine, all of which will be described by men who have taken an active part in the drama unfolded. Not only will American and Canadian surgeons and physicians, who have borne their share of the burden and the heat of the day in this country and in Europe, relate their experiences, but there will also be present a strong contingent of European surgeons and medical men. Among these may be mentioned the names of Doctor Depage, the eminent Belgian surgeon, of Sir Arbuthnot Lane, who is almost as well known in this country as in England, of Sir St. Clair Thomson, the nose and throat specialist, who attended the late President Theodore Roosevelt when in England, and of Mr. Hey Groves, the Bristol surgeon. In all, there will be in the neighborhood of fifty well known representatives of the European medical profession present at the meeting in Atlantic City, each of whom will have something of value and interest to tell.

It is in a high degree fitting that the meeting should be termed the Victory Meeting. It will

typify victories over disease and wounds as well as victory over an inhuman foe and the triumph of right. It is idle and superfluous to state that no better place for the meeting could have been chosen than Atlantic City. This famous seaside resort is peculiarly suitable for such a gathering. It is healthful, invigorating, and is as well adapted for the pursuit of wholesome amusement as for the work of so important a meeting as that which will be in progress during the coming week. Its facilities for holding big meetings are unexcelled on this continent, while its situation and means for transportation are unique. The program of the meeting is at one and the same time exhaustive and of great scientific and practical interest and, of course, includes military as well as civilian surgery and medicine. A feature of the proceedings will be discussions of industrial medicine and surgery. It is of the first importance to readers of medical journals that the happenings at the big meetings should be described clearly and at sufficient length; that is, that the salient points should be well brought out and that the really valuable information given should be succinctly set down. Our readers may rest assured that at the meeting so soon to be held no pains will be spared to obtain the gist of the principal papers read, and that our reports of the Victory Meeting will be in keeping with the importance of the occasion.

LABYRINTHINE SYNDROME FOLLOWING CRANIAL TRAUMA.

In addition to the well known symptoms belonging to the labyrinthine syndrome, namely, vertigo and disturbances of the hearing and equilibrium which are directly related to the lesions of the labyrinth, there are other phenomena provoked by excitation of the central nuclei near the vestibular nucleus with which they are in relation. The most important are those resulting from involvement of the nucleus of the pneumogastric and those of the motor nerves of the eye. Stimulation of the pneumogastric nucleus produces laryngeal phenomena, tachycardia, or nausea and vomiting, while that of the nuclei of the motor nerves of the eye produces nystagmus. Spontaneous nystagmus is an index of the state of equilibrium and indicates either a lesion from excitation when the contracture occurs on the side of the lesion, or a paralytic lesion when the nystagmus is on the opposite side.

Nystagmus may be produced in various ways. If the subject with a lesion of the semicircular

canal is rotated on a revolving platform the vertigo will disappear and the nystagmus will not occur, but when these centres are disturbed in these patients both of these phenomena will be more intense than in a normal subject when rotated. If the external auditory canal is irrigated with cold water with the subject looking away from the ear examined nystagmus and vertigo should normally appear at the end of forty seconds, but in vestibular irritation they occur sooner and are absent or come on tardily when the labyrinth is functionally injured. Nystagmus can also be provoked by Purkinje's test and has been described by Babinski under the name of voltaic vertigo. When both electrodes of a galvanic current are symmetrically placed over the tragus on each side and the current progressively increased, a sensation of vertigo occurs, then a lateral inclination of the head, and finally nystagmus. These phenomena take place in a healthy subject when the intensity of the current varies from three to five milliamperes, and the inclination of the head always occurs on the side of the positive pole.

If there is total destruction of both labyrinths no phenomenon will occur in spite of an intensity of fifteen to twenty milliamperes. In less serious lesions of the vestibule the resistance to vertigo is increased and the head inclines to the side of the diseased ear, or, if both are injured, to the side on which the lesion is the more severe. Finally, when the vestibule is hyperexcitable, the reaction of vertigo and nystagmus appears with a current of one to two milliamperes. The labyrinthine syndrome offers itself clinically under very different aspects, but when all is said two distinct clinical types may be defined, one being related to irritation of the labyrinth, the other to destructive lesions of this organ. The first is the well known Ménière's syndrome, the second has been described by Raymond under the term of the vestibular syndrome. Ménière's syndrome due to irritation and excitation of the semicircular canals is derived by the grouping of the three primordial symptoms, vertigo, subjective noises, and hypoacusia or deafness. To these are added the accessory symptoms, among which nausea, vomiting, and nystagmus are the most important.

Launois and Chavanne have described apoplectic forms of this syndrome, with or without traumatism, having an acute or chronic evolution. The vestibular syndrome results from paralysis or a deficiency of the vestibular apparatus. It is characterized by a complete absence of the sense of orientation, mild vertigo, and marked

disturbance of the equilibrium. Rotation on the injured side is not perceived by the patient, but a sudden arrest of the rotary movement causes vertigo and nystagmus. On the contrary, rotation on the healthy side is perceived and gives rise to no phenomena.

THE INCREASE OF RESPIRATORY DISEASE.

Scientific equanimity has been greatly disturbed by last winter's epidemic of influenza, the aftermath of which is still with us, sometimes in disastrous fashion, and recurrences of which will seriously heighten the death rate in our cities for several years to come. We had about come to the conclusion that great epidemics were well under control, and indeed one journal interested in sociology ventured to say that anything like the medieval epidemics which carried off so many thousands of people was a thing of the past. The epidemic of influenza, however, caused the death of many millions throughout the world and will probably carry off millions more before it subsides in virulence. It has passed over the entire world, probably starting somewhere in the East and invading Spain first because Spain was the only European nation not at war which had opportunities for free intercourse with the Eastern countries. Some few weeks ago influenza was raging in Australia. It will probably be in India this summer, since climate and season do not prevent its ravages, and will thus have completed the usual round of the globe in the common time of a little more than a year.

This epidemic has followed the history of influenza epidemics for twenty-five hundred years, except that it has been probably the most virulent epidemic the world has ever known. Just when we thought we had protected mankind against such plagues, the visitation was worse than ever! It must not be forgotten that there was some warning of the possibility of such an epidemic if we had only realized it. The death rate from pneumonia during the past generation has been going up with alarming rapidity. As Professor Osler said some years ago, pneumonia has now replaced tuberculosis. De Foe strikingly referred to it as "the captain of the men of death." Not our severe winter months, not January and February, but March, April, November, and early December see the most deaths from pneumonia.

The crusade of information with regard to tuberculosis has served to lessen somewhat the death rate from that affection, but in recent years authorities on tuberculosis have been rather dis-

heartened by the slowness of improvement in mortality and probably also by the morbidity. The war showed clearly how many young people all over the world had latent foci of tuberculosis which proceeded to develop into active conditions as soon as they were placed in trying circumstances.

In a word, all the respiratory affections appear to be more serious than a generation ago, in spite of the fact that our homes are more comfortably heated. Indeed, this is so true that many authorities are inclined to suspect that our heating arrangements have made people generally more susceptible to respiratory diseases and the death rates higher. The old impression that these diseases are due to cold has, of course, disappeared entirely from the minds of hygienists and sanitarians, though it is still current in the popular view; and even some members of the medical profession continue to cherish this belief. Perhaps the best demonstration that cold even when extreme and under unusual conditions is not dangerous to humanity, is to be found in the vital statistics of New York city for the past year. Winter before last we had the coldest weather that New York has known in the history of its weather bureau, the worst months being January and February. On account of the war and harbor conditions, the supply of coal gave out and many people had to be satisfied with lower temperatures and less comfortable living conditions than they were accustomed to. In spite of this fact, the death rate in New York for those two months was lower than it had been in corresponding months for years. There were actually 2,600 fewer deaths in New York city during the months of January and February than there had been in the same months of the preceding year, though the temperature of that winter had been almost the mildest in the history of the weather bureau.

Respiratory diseases, then, are not predisposed to by cold, but on the contrary the reaction produced by cold creates protection against them. Is it possible that the real cause for the greater virulence of the latest—one does not dare to call it the last—epidemic of influenza is that pulmonary tissues have been rendered more susceptible to the action of certain germs by the artificial conditions under which city dwellers live at the present time? An investigation of office buildings made by the United States Public Health Service a few years ago showed that the lack of humidity in such a building heated to a temperature of 70° in winter was equal to that of Death Valley in Arizona in the middle of July. Death Valley is usually considered the most unhealthy desert region in this country, and it was rather startling to be told that

the aridity of Death Valley was no greater than that of a modern office building supposedly to represent the most modern ideas for comfort and health as regards heating and ventilation.

We are beginning the season of the year when outdoor air will be given free access to all parts of buildings. Is it not possible to form the habit now of admitting more direct outdoor air than we have been doing? Perhaps an investigation may show in the near future that for every square inch of the upper portion of heating apparatus a corresponding square inch of water should be heated so that evaporation is constantly taking place and normal humidity being maintained. Something like this must be done if we are not to see further inroads on humanity made by respiratory diseases and further susceptibility to these affections created. The situation is serious and deserves consideration.

ROMAN RURAL HYGIENE.

The modern agriculturist is likely to forget the debt we owe the Romans for introducing to the Western world scientific methods in farm management. Not only were they skilled in the cultivation and proper care of the land itself, but they fully recognized the importance of rural health. Marcus Terentius Varro (B. C. 116-28), whom Quintilian called "the most learned of the Romans," was not only a scholar but also a naval officer of great distinction. In his treatise *Rerum Rusticarum*, written in his eightieth year, this intimate of Cicero and Virgil gives utterance to a philosophy which might be well taken to heart by every modern rural dweller.

"The farm which is the healthiest is the most valuable, for there the profit is certain. On the other hand, on an unhealthy farm, however fertile it may be, misfortune dogs the steps of the farmer. For where the struggle is against death, there not only is the profit uncertain, but one's very existence is constantly at risk and so agriculture becomes a gamble in which the farmer hazards both his life and his fortune. And yet this risk can be diminished by forethought, for, when health depends upon climate, we can do much to control nature and by diligence improve evil conditions. If the farm is unhealthy by reason of the plight of the land itself, or of the water supply, or is exposed to the miasma which breeds in some localities, or if the farm is too hot on account of the climate, or is exposed to mischievous winds, these discomforts can be mitigated by one who knows what to do and is willing to spend some money. What is of the greatest importance

in this respect is the situation of the farm buildings, their plan and convenience, and what is the aspect of their doors and gates and windows. During the great plague, Hippocrates the physician saved not merely one farm but many cities because he knew this. But why should I summon him as a witness; for when the army and the fleet lay at Corcyra and all the houses were crowded with sick and dying, did not our Varro here contrive to open new windows to the healthy North wind and close those which gave entrance to the infected breezes of the South, to change doors and to do other such things, and so succeed in restoring his comrades safe and sound to their native land?"

In the light of modern knowledge we can "control nature and by diligence improve evil conditions" far better than could the Romans. No one is in a better position to apply this knowledge than is the rural physician—yet how many have ever given a thought to farmhouse ventilation, cleanliness or freedom from dangerous insects? Is this not a duty we owe our patients and the general public?

HOFFMAN'S DROPS AS A BEVERAGE.

The advent of prohibition will bring with it many interesting phases of the question, What is an intoxicating beverage? Most of the statutes refer to alcoholic intoxication specifically and in the popular speech intoxication is construed as meaning inebriation produced by alcohol. But a very similar form of intoxication is produced by many other drugs of a similar nature. Occasionally the ether addict is met with and even the lighter petroleum distillates have been used as an intoxicant. A case was recently tried before a police judge in Missouri where compound spirit of ether, or Hoffman's drops, were used producing profound intoxication. In this case it appears that a Swede purchased from a druggist and drank two ounces of Hoffman's drops, becoming intoxicated as a result. The dose of this preparation is half a teaspoonful. The authorities state that an overdose is likely to produce vomiting and death. Two ounces is certainly an overdose and might cause death in one not habituated to its use.

The result was ethereal, not alcoholic, intoxication and the druggist who had been charged with the sale of alcohol "so adulterated or compounded as to make it potable as a beverage" was discharged. The judge, however, gave notice that further sales of Hoffman's drops without a physician's prescription would be looked upon by him as illegal. If the principle is adopted that the sale of any substance that produces intoxication is forbidden under the prohibition laws it will be necessary for the authorities to issue more definite instructions for the guidance of the public as to what is an intoxicating substance.

Obituary.

FREDERICK P. HENRY, A. M., M. D.,
of Philadelphia.

Dr. Frederick Porteous Henry, a prominent clinician, teacher, and writer in medicine, died in Philadelphia on Saturday, May 24th, in his seventy-fifth year. He was born in 1844 at Cranbury, Middlesex County, N. J., and his preparatory education was received in New York, Tours, and Dresden. He then studied at Princeton University, from which he later received the honorary degree of A. M., and took his medical course at the College of Physicians and Surgeons, New York, graduating in 1868. Settling in Philadelphia, he was physician to the Philadelphia General Hospital for approximately thirty years, and to the Episcopal Hospital for fifteen years. In 1891 he became professor of the principles and practice of medicine in the Women's Medical College, Philadelphia, which chair he held until shortly before his death. Doctor Henry was one of the original members of the Association of American Physicians. He was at one time president of the Philadelphia County Medical Society and of the Philadelphia Pathological Society. He was also a member of the American Medical Association, a fellow of the College of Physicians of Philadelphia, of which he was for many years honorary librarian, and a corresponding member of the Royal Academy of Medicine of Rome. Doctor Henry was the author of an important work on *Anemia*, which first appeared in 1887. He was also the editor of the seventh edition of Austin Flint's *Principles and Practice of Medicine*, and a frequent contributor to various medical periodicals. He is survived by his son, Dr. J. Norman Henry, a well known and highly respected member of the Philadelphia medical brotherhood.

News Items.

Stop Medical Shipments to A. E. F.—Cables have been received ordering cancellation of all shipments of medical supplies to the American Expeditionary Forces. Supplies now on hand in Europe are considered sufficient to meet requirements until evacuation is completed.

Smallpox and Typhoid Vaccination of Troops.—Precautionary methods to prevent the spread of smallpox and typhoid fever are to be taken by the Medical Department of the Army with respect to the new troops now being enlisted. All men upon reenlistment are to be vaccinated so that these diseases may not spread.

Colonel Hart Honored by City of Langres.—Lieutenant Colonel William L. Hart, Medical Corps, United States Army, and his associates, the personnel of hospital fifty-three, were given authorization by the municipal council of Langres, France, to wear the arms of the city as insignia. The mayor in his address paid tribute to the American doctors and nurses. Lieutenant Colonel Hart is the organizer of all the American hospitals which were sent overseas.

Physician Builds His Own Hospital.—Dr. Gedney Jenks, of Hastings-on-Hudson, has built a two story hospital building, according to published reports. Except for occasional aid from a laborer when beams and joists were too heavy for one man to handle, no one but Doctor Jenks has had a hand in the construction of the building. The doctor attempted to raise funds in Hastings for a hospital and when that failed he tried to get the town to build one. Finally, he built it himself. The building has wards on the upper floor and reception and operating rooms on the lower, and it will have all modern appliances including an ambulance, which Doctor Jenks threatens to drive himself.

Flight Surgeons Needed in the Army.—Owing to the discharge of a large number of temporary medical officers, the Army Air Service needs a number of medical officers of the permanent establishment as flight surgeons. Flight surgeons have full charge of everything connected with the physical condition and care of the flyer. The Air Service requires that a flight surgeon be detailed at each of its fifteen active fields. Medical officers below the grade of lieutenant colonel who desire duty of this character should communicate with the chief surgeon, Air Service, Washington, D. C.

A. M. A. Foreign Delegates Entertained in New York.—Thirty-two foreign delegates to the American Medical Association convention have been entertained in New York during the past week by the New York members of the association. The distinguished guests were received at the City Hall Monday by the mayor and various city officials, after which they were taken for a trip of inspection to Willard Parker and Bellevue Hospitals, the Blackwell's Island, Randall's Island, and North Brother's Island Institutions, Riverside Hospital and the Hospital for Drug Addicts. Health Commissioner Copeland and Commissioner Bird S. Coler accompanied the expedition. On Tuesday the visitors were taken to West Point and Tarrytown, and Wednesday was devoted to a series of complimentary clinics. A dinner to the guests was given Thursday evening at Hotel Commodore. Dr. W. C. Phillips is chairman of the reception committee. The following are in the delegation:

From Belgium—General Melis, Professor Duesberg, Colonel Depage, Dr. F. Nolf, and Captain Vande Velde.

Cuba—Dr. Juan Guiteras, Dr. Emilio Martinez, Dr. Julio Carrera and Dr. Francisco M. Fernandez.

England—Dr. Ernest W. Hey Groves, Sir St. Clair Thomson, Major General Sir Bertrand Dawson, Lieutenant Colonel Sir Shirley Murphy, Sir William Arbuthnot Lane, Sir Arthur Newsholme, and Mrs. Eleanor Barton.

Japan—Dr. Asajiro Kamimura, Dr. Senichi Uchino, Dr. Ryuzo Kodama.

Greece—Dr. John Constas, Dr. G. Gavaris, Dr. Caroussos, Dr. Alex Alexiou.

Peru—Dr. Alejandro Acho.

Argentina—Dr. Pedro Chutro.

Sweden—Dr. Israel Holgren, Dr. Sven Ingvar.

Norway—Dr. Peter F. Holst.

France—Colonel W. T. Lister, Dr. C. Mullon, Dr. Heitz-Bower, Dr. Arthur F. Hurst.

Army Hospitals to Exhibit at A. M. A. Convention.—Among the exhibits which will be assembled at Atlantic City during the American Medical Association convention will be exhibits from army hospitals carrying on physical reconstruction activities. These will consist of articles, pictures, and descriptions showing the continuous progress of patients' recovery, education, social and vocational history, and the progress made from the diversionary bed work to ward and shop activities.

Typhus in Eastern Europe.—The danger of typhus in Eastern Europe is emphasized by Dr. Livingston Farrand, chairman of the central and executive committees of the American Red Cross, who has returned from the Cannes Allied Medical Conference. Poland, Lithuania, the Balkans, and all the countries east of the former Central Empires are suffering the aftereffects of the war. The ravages of typhus have been terrible in these countries, and while it has been checked in some places the danger of an epidemic remains very great. Doctor Farrand believes that conditions will become aggravated during the next year and that there will be a greater demand for relief work. One of the first steps of the newly formed League of Red Cross Societies will be the coordination of effort to bring the disease to a halt.

Europe a "Nervous Wreck."—Europe, besides being decimated and ruined, suffers from a kind of universal nervous breakdown which it will take years to cure, according to Dr. René Sand, medical adviser of the Belgian Ministry of Labor. In an address made at the national headquarters of the American Red Cross, Doctor Sand said that the United States and England have achieved prosperity on a solid foundation but that in Continental Europe, especially in Latin countries, health had been altogether neglected. Education had been pure learning and recreation either intellectual or sensual. Sports were not practised, hygiene was considered a bother, contact with nature was lost. Doctor Sand emphasized the need of a world wide health program, with private enterprise helping public agencies in a coordinated movement.

New York City School Children Undernourished.—The New York City Health Department reports that undernourishment among school children has shown a distinct increase in the last three years and ascribes this to the changed economic conditions in the country resulting from the war. In 1914, when the war began, five per cent. of the children of this city were undernourished; in 1915 the rate was six per cent., in 1916 eleven per cent.; in 1917 ten per cent.; in 1918 nineteen per cent. Investigations have shown that this undernourishment is traceable to insufficient or wrong feeding. Reports of the United States Bureau of Labor show that the average increase in wages since the war began has been about eighteen per cent., while the average increase in the cost of food has been nearly 100 per cent. At the present time, one child out of every five in New York city is so seriously undernourished as to demand immediate attention while at least two additional children out of every five are on the border line between good health and undernourishment.

Civil Service Examinations.—The New York State Civil Service Commission will hold examinations on June 28th for positions several of which may be of interest to readers. They are: Psychiatrist, State Commission for Feeble-minded; veterinarian, Division of Agriculture; laboratory assistant in bacteriology, State Department of Health; county or visiting nurse, County Tuberculosis Hospital Service; dentist, State and county institutions; assistant physician, regular or homeopathic, State Hospitals.

Croix de Guerre for American Doctors.—The following is the list of members of the Medical Corps of the United States Army who have been awarded the French Croix de Guerre with palm: Major General John A. Lejeune, Brigadier General Albertus W. Catlin, Colonel Wendell C. Nevill; Lieutenant Colonels Thomas Holcomb, Julius S. Turrill, Frederick M. Wise; Majors Frederick A. Barker, Alphonse Decarre, George Hamilton, Henry Larsen, Robert J. Lawler, Donald Miner, Georges K. Schuler, Ernest C. Williams; Captains David Bellamy, Henry F. Chandler, Charles Dunbeck, Hugh MacFarland, Albert Sautter, George E. Stowell, Wendell Westever; First Lieutenants Victor F. Bleasdale, Elliott Cook, Charles B. Maynard, James A. Nelms; Second Lieutenants Harold G. Barthel, Benjamin L. Berry, Daniel B. Brewster, Terrence J. Callen, Charles W. Confor, Edward C. Fowler, Earl W. Garvin, Jacob A. Heckman, Henry L. Hulbert, William B. Jackson, Charles N. May, Victor May, Willis H. Prather, Richard H. Schubert, Charles H. Ulmer, William Joltowski.

Fordham Medical School to Close.—The medical school of Fordham University, New York, will not reopen in September, on account of lack of funds necessary in the operation of a first class medical school, according to announcement made by the Rev. Edward P. Tivnan, president of the university. President Tivnan stated that the expenditure necessary in the operation of a medical school of the class to which Fordham belonged was prohibitive except in the case of institutions having an endowment running up to several millions of dollars. The Fordham Medical School has been dependent upon the tuition fees of students, and in the fifteen years since its organization it has shown an annual deficit which had to be met out of the general funds of the university. Due to conditions brought about by the war the general funds have been greatly reduced. President Tivnan stated that an effort would be made to secure funds and, if successful, the medical school would be reopened.

The Fordham Medical School is ranked as a Class A institution by the American Medical Association. Since its organization 377 students have been graduated with the degree of Doctor of Medicine, and there are at present 297 students. Of this number sixty-eight will receive their degrees in June, provided they pass their examinations. Of the remaining 229, those who successfully pass the annual examinations will be transferred, under the authority of the State Board of Regents, to other Class A medical schools in New York and vicinity.

Special Meeting of County Medical Society to Discuss Narcotic Drug Situation.—The following letter has been addressed to the president of the Medical Society of the County of New York by members of the society who consider it advisable to hold a special meeting for the purpose of discussing the narcotic drug situation in New York:

May 28, 1919.

To the President, Medical Society of the County of New York:

We, the undersigned members of the Medical Society of the County of New York, in accordance with the provisions in the laws of that society concerning the calling of special meetings of the society, hereby request a special meeting of the Medical Society of the County of New York, to be called at once for the earliest possible evening, for the purpose of discussing the narcotic drug situation, and especially the amendment to the Sanitary Code of the City of New York which is proposed by the Commissioner of Health.

We ask this special meeting and express the need for its immediate calling at the earliest possible date, in view of the fact that the proposed amendment to the Sanitary Code is said to be scheduled for consideration and probably passage before June 15, 1919.

Although the text of this proposed amendment has never been submitted to the medical profession either by the Commissioner of Health nor by the Public Health Committee of the county society, its reported provisions as gathered from the newspapers and from public utterances of the Commissioner of Health, constitute a radical and serious extension of the executive and administrative powers of the Department of Health over the treatment of private patients by the practitioners of this city, and over the hitherto legally protected confidential relations between them and their patients.

Whatever may be the arguments in favor of this proposed amendment relating to control of narcotic addiction by the Board of Health, its adoption should be very carefully and exhaustively considered in the light of its constituting a precedent for extension of Department of Health control over the personal and private affairs and illnesses of citizens, at present and in the past lying without its jurisdiction over communicable and contagious disease.

It is a matter for serious thought whether or not the department should extend its jurisdiction to conditions not communicable nor contagious, and where such extension if permitted in this case might terminate. We regard this proposed amendment as a matter of serious potential danger, not only in the present but as a precedent for the future, and as something not to be allowed to be enacted without exhaustive medical consideration.

We ask that a report from the Committee of Public Health of the society be given on this matter at this special meeting, and also that the exact text of the proposed amendment be printed and circulated among the members present at the meeting or if possible mailed to the members previous to it.

We also ask that the Commissioner of Health be asked to attend this meeting of the county society, and be prepared to state his plans under this amendment, and to justify the giving of such extreme powers over practitioners of medicine and sick people in their care to his department, and to present assurances of competency and intent to wisely and competently exert the power that such amendment gives.

We also request that the secretary of the Medical Society of the County of New York be requested or directed to write to the board of health and to the board of aldermen of the city of New York, requesting them to take no definite action upon this proposed amendment without a previous open hearing upon the merits and objections concerning it, and that previous to this open hearing, its date and place be conspicuously announced in the public press several days in advance.

This proposed amendment is a matter too seriously concerning the public health of the city of New York to be adopted without every possible consideration and open discussion.

Miscellany from Home and Foreign Journals

Watery Accumulations in the Fetal Abdomen Obstructing Labor.—W. A. Newman Dorland (*American Journal of Obstetrics*, April, 1919) reports a case of true fetal ascites and presents a study of the following distinct conditions formerly classed together as dropsy of the fetus or fetal ascites: Accumulation of serum in the peritoneal cavity; distention of the bladder, ureters, and renal pelves with fluid; general anasarca of the fetus; congenital polycystic kidneys; cystic degeneration of the fetal liver, and fluid distention of the fetal vagina, uterus, and tubes. The last three of these conditions are rare. As regards the treatment in cases of labor blocked by fluid in the fetal abdomen, the author deems it proper in cases presenting by the head or feet to make more or less powerful traction with the hope that sufficient molding of the cystic tumor may result to permit of delivery. Avulsion of the head or limbs may result, especially if the fetus has become macerated. If traction fails, or the presentation is transverse, aseptic puncture of the fetal abdomen—or thorax, if the abdomen is not accessible—with the ordinary obstetric perforator will nearly always afford rapid delivery. Where there are cystic changes in the liver or kidneys some form of embryotomy is usually required, the morbid tissue being morcellated until delivery is possible. Use of forceps is deprecated in all these cases. Where avulsion of the head has occurred, immediate use of the perforator is indicated. One observer has suggested version, but usually the bulk of the fetal body will not permit it, while puncture involves much less danger of sepsis.

Intensive Galvanotherapy in Hysterical Paralysis of the Extremities.—L. Moreau (*Bulletins et mémoires de la Société médicale des hôpitaux de Paris*, January 23, 1919) asserts that for prompt results in hysterical paralysis intensive galvanic treatment—*torpillage* or torpedo treatment—cannot be excelled. By this method an effort of the will, or defensive automatism, is immediately brought into play. The author generally used the monopolar method, with the indifferent electrode placed over the patient's back, thus obviating distraction of the patient's attention by a change in the electrodes after completion of the electrodiagnostic examination. The currents used did not exceed forty-five to fifty milliamperes, at eighty volts. Three illustrative cases of immediate cure by the method are presented—the first, one of monoplegia of the left upper extremity following injury to the chest; the second, a right sided radial paralysis following superficial burns of the hand, and the third, a spontaneous hysterical contracture of the right lower extremity. In the first case, a forty-five milliamperè current was used. The patient having seen his paralyzed arm fly upward as a result of powerful contraction of the deltoid, the active electrode was quickly taken off and the patient commanded to move his arm. He immediately did so, to his great astonishment, and the motor functions were permanently restored.

Rapid Anesthesia.—Arthur E. Guedel (*American Journal of Surgery*, April, 1919) presents an ethyl chloride, chloroform, ether sequence by the closed method. It is a modification of the Depage mixture as used in the French clinics. It is of special value as an anesthetic for short operations or for dressing painful wounds. From the initial application a period of operative anesthesia lasting from twelve to twenty minutes was obtained. Induction for operation was completed in twenty minutes. The modified formula is as follows:

Ether,	24 c. c.
Chloroform,	7 c. c.
Ethyl chloride,	5½ c. c.
Oil of orange,	⅓ c. c.

One ounce of the mixture was the usual dose. Debilitated soldiers required three quarter ounce while a robust individual needed one and a quarter ounces. The mixture was stable for three or four days if kept tightly corked. The ethyl chloride leaves the mixture very rapidly. It should be stored in a cool place. A mask made in the shape of a large rubber bathing cap and containing a gauze covered cotton pad was used in applying the mixture. An ounce of the mixture is poured over the pad at once and the hood placed on the patient's face. The pad is then removed from its proximity to the patient's face by its being grasped through the rubber sheeting and held a slight distance away to lessen the pungency of the concentrated vapor. The ethyl chloride first leaves the pad filling the space in the hood. This produces ethyl chloride narcosis. As the ether vapor will not leave the uplifted pad in sufficient concentration to produce ether anesthesia before the effects of the ethyl chloride have vanished, the pad is lowered so that the mixture is directly over the nose and mouth of the patient, forcing the patient to breathe through the saturated area, drawing out the ether vapor in sufficient concentration to produce ether anesthesia before the effects of the ethyl chloride wear off. The hood is maintained in this position throughout the operation. The slight amount of chloroform in the mixture tends to bridge the gap between the ethyl chloride and the ether. If the chloroform is omitted the results are not so good. The patient should be instructed to take short breaths so as to avoid the disagreeable effects from the pungent mixture. After the primary anesthesia there is no excitement stage in following administration. Patients have been given this mixture for fifteen consecutive days without any untoward effects. Progressive depression of respiration is readily detected because of its progressive character and there is ample time to remove the hood. Pharyngolaryngeal spasm seldom occurs, only three cases being noted in over 2,000 administrations. Cyanosis may be avoided by slightly lifting the hood. If the operation continues for over six or eight minutes ether anesthesia is substituted at the end of this time. The patient should be watched closely the first three minutes of the anesthesia for at this time the ethyl chloride is most active.

Substitute Operations for Excision of the Eyeball.—Four papers on this subject are presented in the *Archives of Ophthalmology* for May, 1919. In the first William M. Sweet describes his method of implanting a metal ball in Tenon's capsule, the advantages of which he asserts are a more movable artificial eye than that usually obtained after simple enucleation, less marked depression of the tissues immediately beneath the brow and tendency to enophthalmos, and a floor of the orbit less liable to retain secretion. After dissecting the conjunctiva from the limbus, each of the four straight muscles is picked up on the hook and stitched to the conjunctiva in the normal position, or brought forward to the edge of the cut conjunctiva, and is then severed from the globe. After the optic nerve has been cut the oblique muscles and remaining tissues are severed, hemorrhage is checked, and a gold ball is inserted into Tenon's capsule. The centre of the upper border of the cut Tenon's capsule is seized with forceps, a suture inserted from without inward about one or two mm. from the edge, then passed similarly from within outward through the lower capsule border at a corresponding point, tied, and one end of the thread cut off. At the extreme nasal end of the capsular opening the edges of the capsule are brought together by another suture, one end of which is cut off, and a third suture is similarly placed at the extreme temporal side. An assistant grasps the central and one of the peripheral sutures, raises the edges of the cut capsule, which are then brought together by interrupted sutures. In the 146 cases in which this operation has been performed the ball has shown no appreciable change of position, while the tying of the ends of the four recti over the ball appears to favor displacement, probably from contraction of the tissues and the forcing of the ball obliquely out between the muscles. In no case has there been a sign of sympathetic disease.

A. N. Alling advocates the transplantation of fat into Tenon's capsule after enucleation. After the eye has been enucleated he takes a mass of fat about the size of the eyeball from the abdominal wall and forces it into the socket. A purse string suture previously passed well back around the cut edge of the conjunctiva is then drawn tight so as to cover the fat. He used to tie the muscles across the mass of fat before closing the purse string suture, but no longer does so, and cannot see that the motility of the stump is decreased appreciably. The only contraindications are the presence of a malignant tumor, or of acute infection.

Harvey J. Howard describes Verhoeff's method of implantation of a glass ball within Tenon's capsule. As soon as the conjunctiva is freed from the limbus it is separated with scissors for several millimetres back from the underlying Tenon's capsule. The muscles are cut at their insertions and allowed to retract as they will. Enucleation is performed with care not to buttonhole Tenon's capsule. A large glass ball is then inserted and a double armed heavy silk thread is used to suture the capsule. The two needles are put in, three or four mm. apart, from the inside and back several millimetres from the margin, beginning, let us say, from the left side.

They are then inserted in the same manner successively at three other places in Tenon's capsule, above, at the right, and below, each so inserted that there is no crossing of the thread when the latter is drawn up. This should result in a fairly smooth overlapping of each sector of Tenon's capsule upon the one previously sutured so as to bring four thicknesses in front of the ball. The two ends of the suture are then brought through the conjunctiva, passed through a pearl button and tied. The conjunctiva is then sutured horizontally.

Pierre Gougellmann, from the viewpoint of the artificial eye maker, describes the difficulties met with in fitting artificial eyes and says that the introduction of a gold or glass ball into the socket has given gratifying results in overcoming some of the difficulties. Unfortunately, the ball sometimes works out, leaving the condition that of an ordinary enucleation. The fat implantation seems to contain the perfect solution of the problem from his viewpoint, that of cosmetic effect.

The Physics of the Chest.—James Barr (*British Medical Journal*, April 19, 1919) discusses at length the physics of the chest with reference to their relation to diseases and injuries of the intrathoracic organs. In health the intrathoracic pressure is usually negative but it can be made positive under varying conditions, and in the Valsalva experiment the positive pressure can be raised to 100 mm. of mercury above the atmospheric pressure. The negative intrathoracic pressure is due to the elasticity of the lungs and the slight tendency of the chest walls to recoil beyond their greatest capacity in inspiration. The intrathoracic negative pressure is constantly varying, is usually slight, and aids materially both in the intrapulmonary gaseous changes and in the pulmonary circulation. The author gives a table of the ranges of negative and positive intrathoracic pressure as determined upon himself in the various types and intensities of respiration. The table shows that the more active the respiratory pump the greater are the variations in pressure at different phases of respiration. Neither surface tension nor molecular cohesion plays any part in the maintenance of the negative intrapleural pressure, but the latter is produced solely by the lung elasticity and the atmospheric pressure. Since no air can get between the layers of the pleura, they are kept pressed together by the atmospheric pressure within the lungs. In hemothorax the intrapleural pressure may remain negative, the negative pressure may be increased by collapse of the lung, or it may be changed to positive at first and then back to negative. In exudative pleurisy there is a gradual reduction of the negative pressure until it may become positive, and as a result the heart and mediastinum are drawn, or pushed, over toward the side of greater negative pressure. In many wasting diseases where the demand for oxygen is low the negative tension within the pleura may fall or become positive, especially at the bases and behind, and areas of atelectasis then develop. Massive atelectasis may be confused with pleural exudate, but it can be recognized by the persistence of the lung reflexes in atelectasis. Thus brisk rubbing of the chest wall on the affected side leads to

a prompt expansion of the collapsed lung and a corresponding alteration in the physical signs. Early treatment gives excellent results in cases of atelectasis, except when due to severe mitral stenosis. Pleural effusions, so long as they do not cause collapse of portions of the lung, usually undergo absorption and in most cases of effusion the fluid should be left until the inflammation which caused it has subsided, especially in cases due to tuberculosis. If this is not done its removal should be accompanied by the introduction of filtered air to prevent producing an increased turgescence of the lung and an activation of the tuberculous process. Common salt should be eliminated from the diet as far as possible in all cases with pleural effusion, and where there is much fibrin decalcifying agents such as the fruit acids or their salts should be administered. A small amount of trypsin may be introduced into the chest cavity to hasten the solution of the fibrinous exudate, and liquid petrolatum is useful to lessen the liability to the formation of adhesions. Empyema should be treated by a free incision in the most dependent spot to permit the escape of the pus, and this should then be closed by a valve of oil silk which will permit the further escape of pus but prevent the entrance of air between the layers of the pleura. Various other conditions are also dealt with by the author in the light of the physics of the chest.

Appendicitis Complicating Pregnancy.—Aimé Paul Heineck (*American Journal of Surgery*, April, 1919) in reviewing the foreign literature and his clinical experiences arrives at the following conclusions:

1. Appendicitis occurs at all ages and in both sexes, presenting important diagnostic, prognostic, and therapeutic features.

2. Appendicitis, acute or chronic, initial, relapsing, or recurrent, primary or secondary, complicates pregnancy with greater frequency than is believed. It is frequently overlooked or wrongly diagnosed and therefore improperly treated. It is the most important complication of pregnancy.

3. It occurs in single and twin gestations; in early and late pregnancies; in primipara, deultipara, and multipara.

4. It occurs at all periods of the child bearing age and at all periods of gestation. It complicates intrauterine and extrauterine pregnancies and can coexist with other disease processes to which it may be primary, secondary or coincidental.

5. Gestation exerts no untoward influence on the normal appendix. It frequently aggravates existing disturbances in appendices deviating from the normal in form, length, mobility or location.

6. Appendicitis and tubal pregnancy are frequently mistaken for each other. They may occur simultaneously or consecutively, may be primary or secondary or independent of each other. Appendicitis may hasten tubal abortion through infection, through general intoxication, may lead to suppuration of hematoceles or fetal cysts.

7. In appendicitis, in ectopic pregnancy and in combined appendicitis and ectopic pregnancy, of obscure symptomatology, it does not matter whether one is certain or in doubt as to the real

diagnosis. Early operative interference is indicated. Certain cases of appendicitis in which extrauterine pregnancy was thought to coexist proved to be cases of appendicitis complicating uterine pregnancy.

8. During gestation, every type of appendicitis may occur; adhesive, catarrhal, gangrenous, ulcerative, obliterative, perforative and suppurative. Pus may be present in the appendix, in its wall or around it. An appendiceal abscess may rupture spontaneously into the uterus, vagina or rectum through the abdominal wall and the peritoneal cavity.

9. Adhesions of inflammatory origin can: a, Incarcerate the pregnant uterus in the pelvis and hinder the enlargement of the uterus; b, impair the contractibility of the uterus; c, interfere with uterine labor contractions; d, entail subinvolution; e, induce sterility; f, disturb tubal and ovarian integrity; g, determine ileus; h, produce abortion; and i, lead to extrauterine pregnancy.

10. Infection may spread to the genital organs by way of: a, the peritoneum, b, the appendiculoovarian ligament, c, adhesions existing between the uterus and the perityphilitic pus focus, or d, the Fallopian tube.

11. Simultaneous, consecutive or coincidental inflammatory processes of the uterus, tubes, or other pelvic organs may coexist with appendicitis.

12. Appendicitis has a higher mortality in the pregnant than in the nonpregnant, whether operated upon or not.

13. Appendicitis may or may not terminate pregnancy. The prognosis is good as to noninterruption of pregnancy: a, when the appendix does not hang in a small pelvis; b, when the inflammation is limited to the appendiceal mucosa; c, when it does not extend beyond the appendiceal wall; d, when the appendiceal abscess or periappendiceal abscess is small.

14. Pregnancy is a serious complication of appendicitis: a, When the appendix is adherent to the uterus; b, when it is the seat of a perforative, gangrenous or suppurative inflammation; c, when the inflammation leads to abscess formation; d, when the uterus forms part of the appendicular, periappendicular or paraappendicular abscess.

15. The symptomatology of appendicitis in the pregnant is the same as in the nonpregnant. The clinical picture is blurred by the coexisting symptoms of pregnancy.

16. The morbidity and mortality of appendicitis complicating pregnancy and the puerperium are the morbidity and mortality of delay in applying efficient surgical treatment.

17. The type and acuity of the inflammation influence the prognosis.

18. Prognosis is better for the mother if there is no interruption of pregnancy, spontaneous or otherwise.

19. The results for the mother and fetus are better, the less advanced the gestation, the less virulent and widespread the inflammation, the earlier the operation.

20. As far as the child is concerned, prognosis is good when the patients are operated upon early in

the course of the appendicitis. Severe maternal appendicitis is grave for the fetus, who succumbs either through the infection or through interruption of pregnancy.

21. The following prophylactic measures are recommended: a, The ablation of the appendix during the child bearing age where certain objective symptoms are manifested; b, examination of the appendix in all laparotomies and removal in cases of deviation from the normal; c, removal of the appendix in all women of the child bearing age who have received nonoperative treatment for attacks of appendicitis.

22. Every pregnant woman who is subject to appendicitis should be operated upon as soon as the diagnosis is made.

23. The ideal operation for inflammatory disease of the appendix is appendectomy, but at times incision, evacuation, and drainage alone are practicable.

24. The median incision for appendectomy is contraindicated in the later months of pregnancy.

25. When there is a doubt as to whether the patient is suffering from appendicitis, salpingitis, tubal pregnancy or other pathological conditions the suprapubic incision is indicated.

The Cystic Duct in Recurring Cholecystitis.—J. Earl Else (*Surgery, Gynecology, and Obstetrics*, May, 1919) divides the clinical pathological processes involving the cystic duct which are factors in recurring cholecystitis into those that interfere with the lumen of the duct causing stagnation in the gallbladder and forming a culture media for bacteria and those that harbor infective organisms passing upward with the flowing bile. The obstructions he divides as: a, intrinsic, or those lying or extending into the lumen; b, intramural, or those involving the wall of the duct; c, extrinsic, or those lying outside the duct, producing obstruction by pressure of angulation by pulling the duct out of its normal position. The processes which harbor infection are classified: a, Intrinsic or those in which the organisms grow in the lumen; b, intramural or those processes in which the organisms are harbored within the wall of the duct and then discharged in the lumen. Clinically the obstructive lesions are classified according to the obstruction they produce, viz., permanent complete obstruction, transitory complete obstruction, permanent partial obstruction, or transitory partial obstruction. The primary clinical importance of the glands of the cystic duct is when they become infected, 1. By discharging organisms into the duct which may pass upward with the bile into the gallbladder or downward into the common duct, and then ascend into the liver. 2. By acting as a focus from which the organisms are sent into the blood stream. 3. By perforation into the lesser omentum or peritoneal cavity, causing abscess formation in the former case or local or general peritonitis in the latter. 4. Through the action of absorbed toxins the positive diagnosis of lesions of the cystic duct were rarely made clinically by gross examination except in the case of stones or other large masses. In the majority of cases the use of the microscope was required.

Variety and Latency of Organisms on Missiles in the Tissues.—F. C. Pybus, H. J. Slade and P. C. W. Laws (*British Medical Journal*, April 19, 1919) made careful cultural examinations of missiles removed at operation from patients in whom they were giving no indication of infection. Of forty-four specimens examined twenty-one were sterile and twenty-three yielded cultures. A variety of organisms was found, staphylococci being present in ten per cent.; streptococci in two per cent., but never in pure culture, *Bacillus perforans* in one per cent.; tetanus bacilli in two per cent.; putrefactive organisms in six per cent.; etc. Fifteen bullets were examined and only four were found sterile, as contrasted with sixteen sterile shell fragments out of a total of twenty-seven examined. The missiles examined had remained in the tissues for periods of time varying from one to thirty months.

Amebic and Bacillary Dysentery.—J. C. Watt (*Journal of Tropical Medicine and Hygiene*, March 15, 1919) notes that there has lately been much controversy as to the relative frequency of occurrence of amebic and bacillary dysentery. From personal observations in West Africa and East Africa, as well as from a study of reports of observers elsewhere, he has become convinced that the ratio of amebic dysentery is actually much greater than has been supposed. Examining microscopically the dejecta of white men just attacked by dysentery within a few moments or hours of their leaving trenches or falling out of column, he found by far the greater proportion of cases to be amebic. He was often able to observe the process of ingestion of erythrocytes by entamebæ. The parasites showed a surprising degree of erythrocyte consuming ability. In one instance a single ameba was observed to ingest red cells at the rate of six a minute, and continued to feed at intervals, for half an hour. So quickly, sometimes, were pseudopodia thrown out to seize a corpuscle that the eye could not follow completely the act of ingestion. In less acute cases the ratio of parasites still feeding or showing recently ingested red cells was much smaller. The findings in base hospitals, on the other hand, did not seem to show that the entameba was the prevailing cause of dysentery. As a matter of fact, the chance of finding the ameba or its cysts in chronic or subacute cases is slight. The author presents evidence to the effect that in the tropics infection with *Bacillus dysenteriae* is frequently added to amebic infection. A mistaken opinion may thus easily arise that the bacillus is the primary cause in most cases. In the true acute attack initiated by the ameba there is at first a fluid, fecal stool, followed by a small stool of clear, glassy mucus streaked with blood, this becoming whiter and denser as the cellular exudate increases. The remarkable effects of emetine in the recent tropical cases definitely indicated that their condition was due wholly or mainly to the ameba. As regards treatment, Watt protests against the prevailing inclination to shorten the period of emetine administration. A minimum of fifteen days' treatment with one grain of emetine subcutaneously each day is advised as a routine method.

Inunction of Creosote in Pneumonia and Influenza.—John E. B. Wells (*British Medical Journal*, April 19, 1919) strongly recommends the administration of creosote by inunction in cases of influenza pneumonia. The dose is ten minims and is rubbed into the axilla. The patient is then dressed in wool and placed between blankets to avoid a chill after the profuse sweating which the inunction produces. It is seldom necessary to make a second application. In children the doses are smaller and are usually best diluted with soap liniment to diminish the chances of blistering. In uncomplicated cases of influenza patients should be treated by rest in bed, plenty of fresh air, and the administration of half minim doses of creosote in water, made more palatable by the addition of an equal amount of oil of peppermint. Pneumonia seldom develops in patients treated in this way. The treatment by inunction has also proved of value in cases of meningitis caused by the *Micrococcus catarrhalis*, and in one due to the *meningococcus*. The author believes that creosote is peculiarly detrimental to the *pneumococcus* and *Micrococcus catarrhalis*, and also to the unknown germ of influenza. He thinks that when administered through the axilla the drug enters the blood through the lymphatics and is carried directly to the lungs, either by the pulmonary circulation or through the thoracic duct, and thence through the blood. The diaphoresis it causes reduces the pulmonary congestion and it exerts an antiseptic action directly on the infecting organisms. When administered orally its action is chiefly antiseptic and sedative and is largely confined to the fauces.

Air or Oxygen Injections in Pleural Disorders.—A. Challamel (*Bulletins et mémoires de la Société médicale des hôpitaux de Paris*, January 23, 1919) states that injections of air or oxygen into the pleural cavity give excellent results in hydrothorax and recurring pleural effusion. They can readily be administered by any practitioner by means of a simple device which he describes. The trocar inserted for paracentesis is also used for the subsequent injection of air or oxygen. The special device consists merely of a short glass tube containing a little absorbent cotton and connected with a piece of rubber tubing six centimetres long and of such size that it will slip readily over the shank of the trocar. The filtering tube may conveniently be sterilized in a test tube stopped with cotton, or, in an emergency, may be prepared extemporaneously with a little sterile cotton and a boiled tube. At the free end of the glass tube a rubber thermocautery bulb is slipped on, or, if oxygen is to be used, the outlet tube from a bag of oxygen gas. The amount of air or oxygen to be injected varies according to the amount of fluid withdrawn and the degree of chronicity of the effusion. Generally the volume of gas used is much less than the quantity of fluid recovered. The fact should be borne in mind that if pure oxygen is used it will soon be absorbed, while if air is injected, its nitrogen component will remain in the pleura indefinitely. As most rubber bulbs hold about thirty mils of air, any desired amount of gas can be injected by compressing the bulb the required number of times.

Anisocoria Due to Apical Pleuritis in Syphilitics.—E. Sergent (*Bulletin de l'Académie de médecine*, March 11, 1919) notes that inequality of the pupils in a subject exhibiting definite indications of syphilis is generally accepted as an unfavorable prognostic sign, suggesting early involvement of the nerve centres and tabes or general paralysis. Yet anisocoria in the syphilitic may be completely independent of central nervous involvement; it is often caused by the apical pleuritis associated with a more or less torpid, fibrotic, sclerosing pulmonary tuberculosis. In such instances it is due to excitation or paralysis of the pupillodilator fibres which pass into the first dorsal and the third cervical ganglion through the *rami communicantes*. Not infrequently a stage of dilatation of the pupil on the same side, due to excitation, is succeeded by one of contraction resulting from destruction of the pupillodilator fibres. Lung tuberculosis is very frequent in syphilitics, and is especially likely in these patients to assume the fibrotic type. In fact, fibroid tuberculosis should be thought of as a definite diagnostic sign where indications of syphilis are being looked for. Fibroid pleural reactions at the apex occur in the majority of cases of tuberculosis in syphilitics. In most of these, again, there is enlargement of the supraclavicular lymphatics, symptomatic of the apical pleuritis or apical pleuropulmonary sclerosis. Finally, in some there is present in addition the unilateral pupillary dilatation or contraction referred to.

Influenza in Infants.—C. Achard (*Bulletin de l'Académie de médecine*, March 18, 1919) states that while an immunity to influenza has been considered as existing in infants, he has met with thirty cases in children below two years of age in the Hôpital Necker, Paris. Of these six were cases of simple influenza, and all the patients recovered. There were twelve patients with bronchitis or slight pulmonary congestion, all but one recovering. In thirteen cases with complicating bronchopneumonia there were seven deaths. In one additional case the issue was not known. In the few patients of the series who fell ill while in the maternity hospital the initial symptoms were uniformly, restlessness, peevishness, some vomiting or diarrhea, and unwillingness to take the breast. Coryza then appeared, frequently with lachrymation. In one case convulsions marked the onset. Cough seldom appeared before the third or fourth day. The temperature rose more promptly, at times to 39° or 40° C. In the six simple cases, defervescence took place on the third or fourth day. In none of the cases were there marked digestive disturbances. The temperature was as high in the simple cases as in those with lung complications, the latter being manifested in dyspnea, vibration of the *alæ nasi*, cyanosis, somnolence, and rather variable physical signs. The twelve bronchitic or congestive cases, in which the patients recovered, ran their course in five or six days. In bronchopneumonic cases death occurred usually on the thirteenth to the fifteenth day. Cough persisted for several weeks in the patients who recovered, and in one case tuberculosis set in. In most of these patients the mother was the source of infection.

Röntgen Ray Intoxication.—C. C. Hall and G. H. Whipple (*American Journal of the Medical Sciences*, April, 1919) give the following summary of the results of their experiments on dogs: The general constitutional reaction of dogs given a lethal dose of hard röntgen rays from the Coolidge tube is remarkably uniform and constant. A double lethal dose will not modify the clinical reaction. A latent period of twenty-four hours or longer is the rule and during this time the dog is normal except for an excreted urinary nitrogen. Vomiting and diarrhea then dominate the picture until death, which as a rule follows on the fourth day.

Response to Calcium in Maniacal States.—T. C. Graves (*British Medical Journal*, April 5, 1919) tried the administration of 0.6 gram of calcium lactate by mouth three times daily with food in a series of patients showing various degrees of excitement. He observed that there was a marked reduction in the excitement noticeable within the first twenty-four hours of treatment, the acute mental symptoms being alleviated without the production of stupor which is so common following the use of most of the sedatives. In the majority of patients the circulation has also been markedly improved and an intercurrent diarrhea promptly checked. No untoward effects have been observed.

Exophthalmos in Nephritis.—P. J. Rondopoulo (*Bulletins et mémoires de la Société médicale des hôpitaux de Paris*, January 23, 1919) reports, from Athens, Greece, a special study of the frequency of exophthalmos of the Graves type in a series of fifty-two cases of subacute or chronic nephritis. In two cases there were noted ophthalmoscopic signs of exophthalmos and a positive Graefe sign. In one of these patients, moreover, there was a positive Moebius sign and in the other a positive Stellwag's sign. In neither case was the thyroid gland enlarged. The frequency of exophthalmos in this series was thus only 3.8 per cent. The author thinks the symptom occurs oftenest in cases of nephritis with incipient or manifest uremia. True exophthalmos of the Graves type may easily be overlooked unless the examination is carefully made by one trained in ophthalmology.

Prevention of Paralytic Sequelæ in Operations on Carotid Aneurysm.—Barthélemy (*Presse médicale*, March 13, 1919) reports a case of quadruple ligation of a jugulocarotid aneurysm, operated in fifty-three days after the original wound. Semicoma for two days followed the operation, together with permanent impairment of speech and of the right eye and complete paralysis of the right upper extremity. These unfortunate results are ascribed, not to ischemia, but to embolism resulting from the first ligation of the carotid at a point proximal to the sac. Blood from the carotid of the sound side, passing in a reverse current into the affected area through the external carotid of the injured side, is believed to have caused detachment of the more feebly adherent stratified clots, and resulted in embolism. In any operation for aneurysm of the common carotid, a preparatory ligation should, if possible, be executed at a point distal to the portion of the artery affected, thus obviating serious results from embolism.

Colloid Antimony Sulphide Intravenously in Kala Azar.—Leonard Rogers (*Lancet*, March 29, 1919) has tried this new preparation of antimony in the treatment of kala azar with very marked success and he finds it to be much less toxic than tartar emetic or the corresponding sodium salt. Not only it is less toxic, but it is actually more efficient in ridding the body of the infecting parasites so that it can be given in smaller doses. Owing to the difficulty of administering solutions by vein in small children he has also tried the oral use of antimony oxide, but this had not proved very promising up to the time of writing.

Rôle of Microbic Infection in Traumatic Toxemia.—Vallée and Bazy (*Presse médicale*, February 13, 1919) refer to personal investigations which have led them to conclude that when, in wound cases, proteolysis of muscle tissue sets in solely under the influence of the endogenous ferments or endoproteases, the resulting products are formed but slowly and are always absolutely nontoxic. Where proteolysis of muscle tissue is the result of the action of an exogenous diastase of bacterial origin, the products formed are toxic only in accordance with the extent to which the microorganism giving rise to the proteolysis is itself possessed of toxic properties.

Methylene Blue in Purulent Discharge from the Eye Socket.—J. Hamilton McIlroy (*British Medical Journal*, April 5, 1919) records very favorable results from the use of methylene blue in the control of purulent discharge from the sockets left after enucleation of eyes for injuries, employing it in a 1:1,000 solution in saline. Its use is followed by prompt cessation of the discharge, but this will return very shortly unless the drug is continued for about two weeks after all macroscopic evidences of pus have disappeared. The favorable results from the use of this agent follow in those cases which have previously resisted all other measures. The prevailing organism in such cases is the *Staphylococcus aureus*. The mechanism of the action of the methylene blue is not known, for experimental work showed that the drug had relatively little bactericidal action toward the chief organism.

Malaria and the Bordet Wassermann Reaction.—S. I. de Jong (*Bulletins et mémoires de la Société médicale des hôpitaux de Paris*, January 23, 1919) controverts the conclusion previously reached by Aimé and Lochelongue that malaria causes a positive Wassermann reaction. On the basis of 300 tests, of which two thirds were made in malarial subjects, he maintains that the Bordet Wassermann reaction retains its usual diagnostic value in malarial subjects, unless the serum examined is obtained during an actual malarial paroxysm. At this time the natural hemolytic power of the serum is often absolutely nil, as is the case in any acute affection associated with violent febrile paroxysms, and there is an apparent positive reaction through absence of hemolysis. Furthermore, this false positive reaction during malarial paroxysms is not even constantly observed, for the author obtained some negative reactions with blood obtained at the very beginning or from twelve to thirty hours after a typical paroxysm.

Proceedings of National and Local Societies

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held April 17, 1919.

The Vice-President, Dr. JOHN A. HARTWELL, in the Chair.

The meeting was devoted to a discussion of the clinical significance of blood examinations, addresses on the cytology, bacteriology, chemistry, and serology being given respectively by the four speakers of the evening.

Cytology.—Dr. FRANCIS CARTER WOOD declared that there was in the morphology of the blood little that was strikingly interesting and also at the same time new, and he would therefore endeavor to make his discussion as short as possible because in the subjects to follow there was much that was new and important. In regard to the morphology of the red cells, the red cells were still usually considered as discs, though occasionally one found healthy people with a large proportion of oval cells. The morphological diagnosis of various diseases in the red blood cells was of great importance and had not changed. The old standards still existed in the diagnosis of pernicious anemia, which depended upon the examination of the blood and in the hands of a trained worker the diagnosis could be made with certainty. Doctor Wood believed that cases of so-called pernicious anemia with doubtful morphology which were reported as cured were not really cases of pernicious anemia. The usual diagnostic conditions in such blood consisted in the increase in size of the red cells, oval red cells, various types of nucleated cells, a lowered number of leucocytes and a higher proportion of lymphocytes. With early increase in the hemoglobin index this made a distinct picture that one never saw in any other disease except temporarily.

The question of transfusion was now of great importance. It was frequently done by various methods. An interesting point in the prognosis of transfusion in certain types of anemia was the appearance of certain vital granulations in the red cells after transfusion. If they increased after transfusion good results might be expected. If no granulated cells appeared the transfusion was simply a question of the feeding of blood and merely a matter of postponing the inevitable end. In leucocytosis there was almost nothing new. This test was now a matter of routine. The influenza epidemic had called attention to the fact that was observed in the epidemic of 1893 that there was a relative leucopenia present in this disease. At the conclusion of his address Doctor Wood showed lantern slides demonstrating the condition of the blood in myelogenous leukemia and the alterations which occurred in cases which were treated with radium or röntgen rays. He believed that in a certain number of cases radiation of the spleen and marrow was beneficial and prolonged life.

Bacteriology.—Dr. EMANUEL LIBMAN, of Mount Sinai Hospital, limited his discussion to the significance of the bacterial examination of the blood in certain conditions clinically known to be of

infectious origin. That there might be a clear understanding of the statements, a few moments were devoted to an explanation of the terminology to be used. The terms septicemia and pyemia had been dropped entirely; instead of the former, general infection or bacteriemia was used, and if the primary focus could not be found then the local infection was called cryptic and the general infection that occurred secondarily was a cryptogenetic bacteriemia. Instead of pyemia, the term metastatic infections was used. Such metastatic infections were generally due to a preceding bacteriemia, but it happened at times that the metastatic foci were developed because pieces of thrombus were broken off from a vein near the site of the primary infection. In such an instance there might be no free bacteria in the blood and cultures would remain negative. There was a distinction between a terminal local or general infection and that which was called terminating. Properly speaking, a terminal infection was one which occurred in a patient who was suffering from a disease which would within a period of a few weeks or months prove fatal; if such a patient happened to be exposed to an infection he might die considerably earlier. A terminating infection was one which occurred in a person who had a very short time to live and in whom, incidental to the end of the illness, there developed a pneumonia or erysipelas, or some other form of local or general infection. An agonal invasion was one which occurred when the patient was moribund.

Instances were cited to show that the question of general infection was a variable one depending on the type of primary focus. For instance, in erysipelas there was usually no general infection, positive blood cultures being obtained in fatal cases, or in cases accompanied by other conditions, or in instances of erysipelas of mucous membranes. Another disease in which there was rarely a positive blood culture was abscess of the lactating breast. In cases of liver abscess there was usually no general infection. In diabetes, considering the frequency of local infections, general infection was remarkably infrequent; it seemed that the general infections were less common when the local infection was in tissue containing a large amount of carbohydrate. Appendicitis did not usually give a positive result and the same held true of peritonitis of intestinal origin. General infections from pyelonephritis secondary to bladder infection were much more common than from the pyelitis of pregnancy. In cases of thrombosis of the pelvic veins positive blood cultures were relatively infrequent. In pylephlebitis general infections were very rare, whereas they were not unusual in cases of infection of the gallducts. All these remarks had relation to aerobic organisms. In cases of infection of the pelvic veins and of pylephlebitis anaerobic general infections had been found.

On previous occasions Doctor Libman had shown the frequency of general infections and the value

of positive tests for diagnosis. It had been discovered that one did not find general infection resulting from mastoiditis or otitis media, but did get positive blood cultures when the meninges were involved or the lateral sinuses. In rheumatic fever the blood cultures were generally negative except for the occasional finding of a hemolytic streptococcus; this streptococcus was not considered to be the cause of the disease because it was only present occasionally and because the complement fixation test proved uniformly negative. The negative results in cases of pyelophlebitis were of value in making a differential diagnosis between that condition and acute infections of the valves of the heart. In cases of acute infection of the valves of the heart the blood culture was practically always positive, but it was best to make two cultures. The gram negative organisms that caused general infections were then discussed and attention was drawn to the point that such organisms as the *Micrococcus flavus* and the *Micrococcus endocarditis rugatus* had been mistaken for gonococci.

After discussing the rôle of the *Bacillus proteus* and the *Friedlander bacillus* and the significance of bacteriemia in osteomyelitis, Doctor Libman took up the subject of bacteriemia in general. He pointed out that when bacteria were found in the blood, one should determine whether they represented the infection from which the patient was really suffering, or whether they represented an intercurrent, traumatic or terminal infection. By traumatic or operative bacteriemia was meant the general infection which arose after operative procedures, especially on bones, and after cystoscopic examination. Such infections usually disappeared within twenty-four to forty-eight hours. The difficulties of decision when there was more than one local infection present, each due to a different organism, was discussed. It was shown that in every case of bacteriemia it was important to find and eradicate the primary focus. Considerable evidence was presented to show that bacteria did not as a rule multiply in the blood; if they were not kept in the blood current by an endocarditis, they were being thrown into the blood from a primary focus. Figures were presented that had been obtained from cases of sinus thrombosis before and after the jugular vein was ligated; from these definite data had been obtained as to the rapidity with which bacteria disappeared from the blood after a local infection had been properly treated. In conclusion, Doctor Libman stated that positive or negative blood cultures were only of value if they were interpreted by those who had wide clinical knowledge, especially of infections.

Chemical Changes in the Blood in Disease.—Dr. VICTOR G. MYERS, by invitation, contributed an article on the chemistry of the blood and its clinical significance which he illustrated with a number of charts giving accurate data on the chemical composition of the blood in various forms of disease. These data were of comparatively recent origin and were primarily the result of American observations with American methods. The practical information which these methods had made available had been found to be especially helpful in giving very

valuable data on those conditions on which the older methods of blood examination gave little information, particularly in such constitutional conditions as nephritis, diabetes and gout. The primary observation of the present paper was to consider those observations which had served as guides to the diagnosis and treatment of disease and were gained by methods of broad scope including estimation of the blood volume, blood proteins, serum albumin and globulin, and hemoglobin; determination of nonprotein nitrogen and its individual components, urea, creatinine, uric acid, amino acid nitrogen, creatine and ammonia; for sugar and the lipid constituents, fat, lecithin cholesterol; for the mineral constituents, chlorides, phosphates, calcium, magnesium, potassium and iron; for blood gases, carbon dioxide and oxygen; and for the hydrogen ion, the acetone bodies, phenol and such enzymes as diastase and catalase. These methods had also yielded especially helpful information in renal diabetes, tetany and cyclic vomiting in infants, in eclampsia, malignancy, cholelithiasis, pernicious anemia, disorders of the ductless glands and various urological conditions. The tests furnished information of great value in diagnosis, prognosis and treatment. The practical value of the tests in the various conditions in which they applied was then summarized.

DIABETES.

The examination was primarily directed to the determination of the sugar, although in advanced cases the acidosis might assume greater significance. Here the condition of lipemia might develop and of this the cholesterol was a particularly good index. The real condition to which attention should be directed was the hyperglycemia. No extended medical treatment or surgical interference should be attempted in severe diabetes without a knowledge of the blood sugar and the alkali reserve of the body as indicated by the carbon dioxide of the blood.

RENAL DIABETES.

The diagnosis of this rather uncommon condition could be made only when a knowledge of the blood sugar content was at hand. Renal diabetes might be regarded as a condition of glycosuria not dependent upon a temporary increase of blood sugar in an individual free from symptoms of diabetes mellitus.

NEPHRITIS.

Early cases were accompanied by an appreciable rise in the blood uric acid, but a rise in the blood urea could be taken as a safer sign of impaired kidney function. Urea nitrogen measuring over twenty on a restricted protein diet would suggest impaired kidney function. When the blood urea doubled the normal there was a very appreciable increase in creatinine derived apparently from muscle metabolism and more than 3.5 mg. could be viewed with grave concern while figures over five mg. were almost invariably indicative of an early fatal termination, except where the retention was due to some acute renal condition. When the phosphate excretion was impaired, bringing about an increase in the acid phosphate of the blood and

tissues, an acidosis resulted which might be quite as severe as that resulting from diabetic ketosis, judging from the carbon dioxide combining power of the blood. Many advanced cases of malignancy, possibly as a result of the toxemia, gave the chemical blood picture of moderately severe nephritis. Facts regarding the nitrogen retention and acidosis of nephritis were worthy of consideration from a surgical as well as from a medical point of view, especially when considering the influence of anesthetics on acidosis.

UROLOGICAL CONDITIONS.

The blood urea was a very valuable preoperative prognostic test in cases of prostatic obstruction. When the urea nitrogen figures were found between twenty and thirty mg., and especially between the ages of twenty-five and thirty, operation should be approached with considerable caution, and preferably done after a period of preliminary treatment directed to the relief of the nitrogen retention. With urea nitrogen figures over thirty the operative prognosis was bad.

Serology.—Dr. JOSEPH GARDNER HOPKINS, recalling the many attempts that had been made to utilize the phenomena of serum immunity in the clinical diagnosis of infectious disease, commented on the usefulness of such methods in prolonged infections. In the acute infections, however, it had been found that the diagnosis must be made before serum antibodies were developed, and the bacteriological methods were relied on for diagnosis. Regarding agglutination in typhoid and paratyphoid fevers, if quantitative determinations of the vaccinated patient's serum agglutinins were made at intervals of three or four days, a diagnosis might be determined. Vaccination against typhoid or paratyphoid was followed by a rapid production of agglutinins. While the actual amount of agglutinin found in one determination was of little significance, a typical rise or fall in the titre on successive determinations was of aid in diagnosis. The test was of aid in diagnosis but could not be relied upon as absolutely as was the Widal in the unvaccinated. Agglutination reactions had also been used in the diagnosis of bacillary dysentery. The agglutinin test had also proved reliable in the diagnosis of Malta fever.

In deep seated infections by the gonococcus, complement fixing antibodies had been found fairly constantly in the blood. The reaction was therefore of especial value in such infections as arthritis and epididymitis, and also in prostatitis and chronic urethritis. It was also widely used to determine when cure had been obtained. Much interest had recently been aroused in the value of the complement fixation reaction in tuberculosis. The interpretation furnished additional evidence which might be brought to bear in doubtful cases. Among the rarer infections, there were two in which the complement fixation test seemed of definite value, namely glanders and echinococcus cyst. The clinical value of the Wassermann reaction had been attested by an immense amount of evidence. It was generally agreed that it appeared in from two to eight weeks after the development of the initial

lesion of syphilis, that it was present in nearly 100 per cent. of active secondary cases if uninfluenced by treatment, and in eighty to ninety per cent. of tertiary cases. About seventy per cent. of tabetics showed the reaction in the blood, and an additional twenty per cent. in the spinal fluid. It should be remembered, in discussing its specificity, that other spirochetal infections gave the reaction, as did a considerable proportion of cases of trypanosomiasis and of leprosy, and to these might be added malaria, scarlet fever during the febrile stage, and blood taken during ether anesthesia or postmortem. If these conditions were excluded, a repeatedly strongly positive Wassermann reaction meant syphilis. As for the negative reaction, if a patient was free of the symptoms of syphilis and his Wassermann remained negative for a year, this was the best evidence to be obtained of a cure. It should not, however, be forgotten that large amounts of alcohol taken by the patient may temporarily convert a positive into a negative reaction. There was one other serum reaction which had proven of great practical value, and that was the testing of the donor's and recipient's blood before transfusion for isoagglutinins. This guarded against the severe and sometimes fatal reactions due to the presence of antibodies in the recipient's serum for the red cells of the donor. There were two new developments along this line, one being a simplified method for making the tests, and the other the discovery that the success of isoskin grafts would not take if the donor's red cells were agglutinated by the patient's serum.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

One Hundred and Thirteenth Annual Meeting Held at Syracuse, May 6, 7, and 8, 1919.

The President, Dr. THOMAS H. HALSTED, of Syracuse, in the Chair.

(Concluded from page 877.)

Postoperative Shock Hemorrhage and Cardiac Dilatation.—Dr. JOHN OSBORN POLAK, of Brooklyn, said that from this study he found: 1. The preoperative index of the woman's cardiac strength was the pulse pressure. It made no difference, so far as the operative prognosis was concerned, whether the systolic blood pressure was 105 or 160 mm., so long as the diastolic pressure was not within thirty mm. of the systolic. In other words, provided the metabolism was near the normal the pulse pressure of the individual was the index of cardiac strength no matter what her systolic blood pressure might be. The only exception to this statement was the very high pulse pressure in aortic regurgitation. 2. The hemoglobin and leucocyte count were the next important factors for preoperative determination. 3. The blood coagulation time of the individual was of considerable significance as a preoperative consideration. These observations, together with a knowledge of the efficiency of the kidneys, as shown by the usual functional tests, were made as a preoperative routine. Their routine employment would give the

woman her greatest margin of safety, and afforded the surgeon a basis for his differential diagnosis in postoperative conditions. With these factors definitely known it was an easy matter, in any given case, to follow the postoperative course for the first twenty-four or forty-eight hours, and by the further aid of the laboratory to be able to make a strong presumptive diagnosis as to the complicating postoperative condition. The deductions which one might draw from these studies were: 1. There was a constant rise of from five to fifteen points in the hemoglobin readings following anesthesia with ether when such anesthesia occupied more than thirty minutes. Consequently, allowance must be made for this rise in using hemoglobin estimations as a diagnostic sign in internal bleeding. 2. The erythrocyte count was also increased, but its variation from the preoperative was so slight that it did not warrant any conclusions. 3. In the majority of cases there was a moderate fall in both the systolic and diastolic blood pressure following ether anesthesia. The blood pressure returned to normal—that is, to the preoperative reading—in from twelve to forty-eight hours. The inhalation of oxygen after the withdrawal of the ether vapor diminished this fall in blood pressure, but was only transient in its effect. 4. In cases of shock, especially when there had been much blood loss during the operation, the fall in blood pressure was greater than after long operation with blood loss, dropping from ten to fifty millimetres. 5. The pulse pressure was a better index of hemorrhage or cardiac failure than the systolic pressure. 6. There was a constant rise in the leucocyte count in hemorrhage while the leucocytes fell in shock.

President's Address.—Dr. THOMAS H. HALSTED, of Syracuse, stated that at the time of the signing of the armistice 30,591, or thirty-seven per cent. of the effective active practitioners of this country had given up their private practice and had left their homes in war service. In addition to these, 21,616 doctors were serving on medical examining boards and advisory boards, giving many hours daily or weekly to the important service of selecting and classifying the drafted men. If the war had continued another year, there would have been left at home to care for the civilian population less than a third of the usual number of doctors, and those doing this home work were either above sixty years of age or physically unable to stand the strain of military life.

The great causes of death among the wounded were infection and sepsis due to the streptococcus. Antitoxine against tetanus had saved the lives of thousands of wounded. The discovery of Dakin of the value of sodium hypochlorite for the killing of the organisms of sepsis and of Carrel's genius in devising the means of using Dakin's discovery marked a great advance in the treatment of septic wounds. The method, together with debridement, won the battle of medical science against sepsis, provided the wounded men were brought out of shell hole and "No Man's Land" in time. It was only toward the end of the war that a serum was discovered that was effective against that horrible complication of deeply infected wounds, gas gan-

grene. The marvelous advance in lung, brain, abdominal, and joint surgery made possible largely through the x ray, saved thousands of lives which would have been hopeless in any previous war. The wonderful surgery of the genius Morestin and of other surgeons skilled in plastic surgery of the face, saved from a living hell any number of the victims of those most frightfully disfiguring of all war wounds. The transplantation of living tissue by Carrel and the still more advanced work of Nageotte and Sencert, whereby dead but sterile connective tissue, nerve, artery, tendon, etc., was transplanted successfully from animal to the living subject, opened a field of surgery the end of which almost staggered the imagination. More than 18,000,000 wounded soldiers survived their wounds, many of whom would not have been saved but for the combined victory of the surgeon and the medical laboratory and research worker. It was probably no exaggeration to say that the new surgery employed in the treatment of the wounded reduced the numbers of those who would have died, under the conditions of any previous war, by seven and three-quarter millions, the estimated number of soldiers who lost their lives in this war.

Many other triumphs of medical science might be enumerated, but these served to show what surgical skill, sanitary science, and high grade medical personnel, coupled together and operating under marvelous organization, saved from what would have been certain death in any previous war, more wounded and sick soldiers than were killed in battle or died from their wounds and their diseases. It required little imagination to believe that 10,000,000 people, chiefly the best youth in the world, were alive today who would have been buried in the trenches in Europe but for the scientific progress in medical, surgical, and sanitary science of the past twenty-five years as applied to this war.

Doctor Halsted made a plea for the standardization of medical education in the United States and said that until there was standardization there could not be reciprocal exchange of license and privilege among the States as there should be. The first part of the medical student's course was spent in the so-called scientific branches, anatomy, physiology, chemistry, bacteriology, pathology, and laboratory subjects taught by full time professional teachers, trained pedagogues, men who were specialists in their lines, and the result was satisfactory alike to the student and teacher and the subjects taught. It was in these subjects and by these men that the marvelous advances in scientific medicine had occurred, and it was to them most largely that the huge saving in life in the present war was more or less directly due. It was in the latter half of the medical course that failure in the medical course was most apparent. This was because of the system of volunteers and unsalaried teaching in the clinical subjects by men actively engaged in practice and selected, not always, with regard to their peculiar fitness and qualification for the chair. This volunteer system was apparently a good way of getting clinical teaching by medical colleges and universities for nothing, because the best service

was not being given or received. This system was absolutely wrong. It was time for the medical profession to cease carrying the burden which had become too great for it with all the modern advances and requirements. The clinical half of a medical course should be put on the university basis, like the first half, and when that was done there would be as great progress made in clinical medicine as had been made in laboratory medicine. The hospital would become the clinical laboratory. Teachers would be chosen because of their special qualifications, and if their work was unsatisfactory or inefficient they would be replaced. It was within the truth to say that no man in this country, or perhaps in the world, had ever seen in his own lifetime such reward for money well invested as John D. Rockefeller, who through the scientific labors of medical scientists working in the Rockefeller Institute in New York, had made such discoveries in the causation and treatment of disease that literally millions of men in the world owed their lives and health to investigation conducted in that medical research laboratory.

Diagnostic Methods in the Anemias.—Dr. A. H. SANFORD, of Rochester, Minn., discussed the various laboratory tests and special examinations that might be used in differentiating pernicious anemia. The many forms of secondary anemia were not taken up in detail, and those only were mentioned that in their syndrome had something that resembled the severe hemolytic anemias, such as splenomegaly, or an icteric tinge to the skin. Besides the findings of the ordinary blood examinations, and the clinical history, the following methods were emphasized as being of help in diagnosis: 1. Analysis of gastric contents by means of the Ewald test meal with subsequent radiographic examination of the stomach. 2. A careful neurological examination and examination of the eye grounds. 3. Tests for fragility of the erythrocytes. 4. Detection of evidences of blood destruction by determination for urobilin and urobilinogen in the stool, or preferably in the duodenal contents (Schneider's method). 5. Serological tests for lues. 6. Examination of stools for parasites. 7. Inspection of the mouth, especially the tongue, and a thorough examination of the teeth and tonsils. The possibility of chronic sepsis originating here, and of foci of infection in other parts of the body should have general consideration.

The Doctor and the Changing Order.—Professor GEORGE B. VINCENT, president of the Rockefeller Foundation, said that the occurrence of the recent war was inevitable from the time Germany took Alsace-Lorraine. There was no unexplained sudden force through which society was developing, but a constant change of relationships; religious, social, economic changes had been going on for a long time and the war had only accelerated them. One of the great things the war had done was to reveal America to herself. We had been afraid that in case of war the foreign people that were here would side with the countries from which they had come. The war had shown us the solidarity of the American people. We had also discov-

ered much illiteracy. We found, too, that many people speaking foreign languages were isolated from those among whom they were living. As to the relation of the medical profession to the changing conditions of the present time, they should prepare to adapt themselves to these changed social conditions. There were three ways of looking at the present situation. The first of these was an attitude of alarm and a conviction that things were worse than they were in earlier years. A second way was to see a possible complete social transformation which was to be easily brought about. He could not quite sympathize with this view, but thought the third way of appraising the situation, namely, the Greek golden mean, was perhaps the most rational. We should go loyally and courageously forward meeting the new situation with a new philosophy and new phrases. The doctor faced an entirely new situation from that of ten years ago. New knowledge and new discoveries had accumulated so rapidly that it was impossible for any one man to keep up with them. Specialism was the only solution. The physician was becoming less and less able to perform his work efficiently, independently. The cooperative clinic was already being operated successfully. A maternity clinic in Boston was so conducted that the mother received prenatal care, medical service at the time of the birth of the child, and aftercare, all for an inclusive fee. There were also the infant welfare, tuberculosis and venereal clinics.

As to health insurance Doctor Vincent said that his mind was open. He spoke hopefully of the possibility of developing some plan that would protect the industrial population against pauperism and social dependence and which would preserve their dignity and enable them to maintain their status in the democracy. It would be necessary to learn to conform ourselves to new social ideals in order to perform our function to society and to be a part of the common life. In closing, he congratulated the medical profession on its achievements in the past and described in eloquent terms the vista of service that was opening up before them.

Hyperpyrexial Heat Stroke.—K. G. Hearne (*British Medical Journal*, April 26, 1919) says that the cause of heat stroke is the paralysis of the sweat glands and that the condition can be prevented by recognition of this paralysis before the actual heat stroke develops. Under conditions likely to cause heat stroke the person's skin should be watched and when it becomes dry his temperature should be taken. This will usually show a rise above normal and these two findings indicate the need for the immediate institution of preventive measures. Prevention is simple, consisting merely in providing artificial cooling of the surface by means of a wet sheet wrapped about the naked patient, or suspended above him on a cradle. When necessary evaporation can be accelerated by allowing an electric fan to blow over the sheet. This treatment should be continued until the patient's capacity to sweat returns. Large amounts of fluids should be given orally.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Papers on Psychoanalysis. By ERNEST JONES, M. D., M. R. C. P. (London); President of the London Psychoanalytical Society; Late Associate Professor of Psychiatry at the University of Toronto. Revised and Enlarged Edition. New York: William Wood and Company, 1919. Pp. x-715.

In its present form this revised and enlarged edition of Professor Jones's original book on analysis is one of the best books on the subject published in English. The additions are mainly devoted to psychoanalysis in the child, which has been found a most profitable field in tracing many of the infantile complexes of the adult in everyday life. One chapter of the first edition has been omitted, while twenty-one new ones have been added, eleven of these not having appeared in English before. Doctor Jones has been fortunate in having had access to the foreign publication which were not generally procurable during hostilities. While the war caused a hiatus in the study of psychoanalysis it also furnished types for practical application in the case of shell shocked individuals. Jung and his followers who have partially abandoned the original methods of psychoanalysis as set forth by Freud are severely criticized. It is stated that they have exploited analysis; appropriated such material as they could conveniently use, and then minimized the importance of the original work often substituting mysticism for the scientific studies which have been so carefully prepared. The original teachings and precepts as formulated by Freud, Forenczi, and their followers are closely adhered to and references to these authors are freely made. There is no hesitancy shown in giving ample credit to various workers in analysis no matter of what nationality. A tremendous amount of carefully compiled material is presented. This should prove a valuable text and reference book for those interested in psychoanalysis.

The Blind. Their Condition and the Work Being Done for Them in the United States. By HARRY BEST, Ph.D., Author of *The Deaf: Their Position in Society and the Provision for Their Education in the United States*. New York: The Macmillan Company, 1919. Pp. xxviii-760.

In writing about the blind, authors have generally resorted to sentiment instead of careful research, and the result has been a paucity of well grounded material on this important subject. During the war great strides have been made in scientific training and reconstruction work. Blinded men have in many instances been enabled to become selfsupporting and not a few of these have become skillful enough in some special occupation to earn more than when they had all their faculties.

Doctor Best in this valuable work does not make the sentimental plea the principal issue but takes up the study from the viewpoint of scientific economics and classifies these people as component parts of the population. He discusses frankly the

various methods which have been used in dealing with the blind and the obligations of society to this group, as well as the shortcomings of the treatment which they have received. He shows that the principal provisions for their care have been the education of blind children and the charitable donations which have been given by individuals. The State has done little to meet its obligation to these dependent members of society. The blind are not able to meet the economic situation with which they are confronted, and unless some organized effort is made to reeducate them they drift into a state of dependence. An important field which is completely covered by this book is the prevention of blindness caused either by heredity, disease, or industrial accidents.

Figures are given showing the number of blind in the United States, their economic status, means of support, and the cost to the individual and the State. Doctor Best describes the early attempts made in Europe and the culmination of the movement in the creation of special State institutions for the blind. He takes up the provisions which have been made for the teaching and care of the blind people, both adult and children, and the pension system with its benefits and shortcomings. Both private and public organizations for the welfare of the blind are analyzed. The author also considers the provision which the government has made for those blinded in warfare.

Births, Marriages, and Deaths.

Married.

SMITH-FARRAR.—In New York, N. Y., on Monday, June 2d, Dr. Goodrich Truman Smith, Captain, Medical Corps, U. S. Army, and Miss Amparito Farrar.

Died.

ADAMS.—in Paoli, Pa., on Sunday, May 25th, Dr. J. Howe Adams, aged fifty-three years.

BUSH.—In Philadelphia, Pa., on Tuesday, May 27th, Dr. Charles B. Bush, aged fifty-nine years.

COBLE.—In France, on Saturday, May 10th, Dr. Paul B. Coble, Major, Medical Corps, U. S. Army, of New York, aged thirty-six years.

COWAN.—In Hampden, Me., on Sunday, May 18th, Dr. Charles Fremont Cowan, aged sixty-three years.

DONOVAN.—In Lewiston, Me., on Thursday, May 22d, Dr. John A. Donovan, aged seventy-eight years.

HARRISON.—In Philadelphia, Pa., on Sunday, May 25th, Dr. J. Allen Harrison, aged forty-six years.

HENRY.—In Philadelphia, Pa., on Saturday, May 24th, Dr. Frederick P. Henry, aged seventy-five years.

HOLMES.—In Georgetown, Mass., on Monday, May 19th, Dr. Howard Fowler Holmes, aged forty-eight years.

KELLY.—In Tunkhannock, Pa., on Tuesday, May 20th, Dr. E. Sargent Kelly, aged ninety-two years.

LANIGAN.—In Niagara Falls, N. Y., on Wednesday, May 21st, Dr. John A. Lanigan, aged sixty-three years.

NEFF.—In Philadelphia, Pa., on Tuesday, May 27th, Dr. William H. C. Neff, aged forty-seven years.

SCHAEFFER.—in New York, N. Y., on Sunday, May 25th, Dr. Benjamin L. Schaeffer, aged forty years.

SCHWARTZ.—In Buffalo, N. Y., on Friday, May 23d, Dr. Edward B. Schwartz, aged fifty-two years.

VEEDER.—In Central Square, N. Y., on Tuesday, May 20th, Dr. Melzar B. Veeder, aged fifty-three years.

WARREN.—In Albany, N. Y., on Tuesday, May 27th, Dr. Henry P. Warren, aged seventy-three years.

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Original Communications

MEDICINE, A DETERMINING FACTOR IN WAR.*

Presidential Address.

BY ALEXANDER LAMBERT, M. D.,
New York.

No one can be elected president of the American Medical Association and fail to appreciate the great honor conferred, nor fail to realize the responsibilities which may rest on him. In the recent past these responsibilities have at times lain dormant, but at other times they have actively exerted their full force, and the influence wielded by the president of this association has had great possibilities for good or evil on the medical profession.

A year ago the problems before us were the great responsibilities of war, the conduct of that war, and the means whereby it could be pushed to a successful issue. Today, our problems still loom large, for they are those of rearrangement and reconstruction. It seems timely, therefore, to consider what the medical profession has done to fulfill its duty in the war, and what medical science has done to alleviate the dreadful horrors which, in the past, have followed in the wake of warring armies, hovering like terrible spectres over the civil populations, and which sooner or later would take their death toll through epidemics of disease. We have also to consider the problems of the future and to base our actions on the lessons we have learned by the experiences through which we have so recently passed.

RESPONSE OF MEDICAL PROFESSION TO CALL OF DUTY.

The medical profession of the United States needed no draft or conscription to answer the call to duty. About 20,000 of its members volunteered and thus expanded the small regular force of physicians in the army and the navy. At the outbreak of the war only 447 physicians as regulars, and about 1,600 of the Medical Reserve Corps comprised the entire commissioned personnel of the medical department in the regular army. In the navy, 329 surgeons, 161 naval reserve officers, and twenty-five contract surgeons comprised the medical staff. When the armistice was signed there were 35,000 medical officers in the army and 3,000 in the navy, practically twenty-six per cent. of the entire profession of the country.

This mobilization, added to those physicians who

were taken by the draft, could not occur without great sacrifices, both by individuals and by communities, as was specially evidenced when the influenza epidemic swept over the country. But this is part of the price for war that peoples have ever paid. This mobilization of physicians was accomplished by the Surgeon General's Office, aided by the Council of National Defense and the American Medical Association, both acting through the organized State and county societies of the American Medical Association. The wisdom and the necessity of these State organizations was never more completely demonstrated than in the last two years. Simultaneously, the justification of the necessity for the journal of the association, as a medium through which information could be quickly disseminated, and its great influence among physicians, was never shown more clearly. The men in the executive positions of the American Medical Association and the Council of National Defense deserve the greatest credit and deserve the acknowledgment of work well done. This tribute is but their just due, and it is with keen pleasure that I take the responsibility of speaking for the profession and publicly acknowledging it.

WORK OF THE LOCAL BOARDS.

In the work done by the medical profession in the war, one cannot pass by that accomplished in examining the young men drafted into the army. This work of the local boards was not done by picked specialists or by men previously trained for it. The physicians of the boards were at first usually the county and city physicians appointed by the local sheriff, and the figures form an interesting study. Of the 10,000,000 (9,952,735) called and registered, 6,750,000 (6,744,289) were not examined. Of the one third who were examined—that is, of the 3,208,448—70.4 per cent. were found to be fully qualified, while 29.6 per cent. were found physically to be totally or partially disqualified. Of the 2,124,293 who were sent by the local boards to the camps and were then subjected to the careful and minute examination of experts, 91.9 per cent. were accepted and only 8.1 per cent. rejected. It is interesting to note that in the draft of 1917 the local boards rejected 29.1 per cent., and in 1918 they rejected 29.6 per cent. The more this work is studied, the more one appreciates its extent, its far reaching influence, and the high value of the work performed.

*President's address before the American Medical Association at the seventieth annual session, Atlantic City, N. J., June, 1919.

SUCCESS OF PREVENTIVE MEDICINE.

Few realize how crucial has been the test of preventive medicine in the war just finished. Appalling as has been the number of battle casualties, the death rate from disease has been held down as never before. The statistics available show conclusively that the great scourges and plagues of former armies have been held in check: that is, typhus fever, cholera, recurrent fever, typhoid, scurvy, and malaria, and, not least important, smallpox. Influenza with pneumonia, occurring in an epidemic sweeping over the eastern and western hemispheres, has been the epidemic that has baffled medical science and stands out with startling distinctness as the one uncontrolled epidemic. The death toll of pneumonia has almost equalled the battle casualties of those killed and dying of wounds in the American army. In spite of the failure to control influenza and pneumonia, this is an extraordinary record of disease control, and never, in any previous war, has the knowledge of medical science and sanitation, and the application of this knowledge been able to accomplish so much. We saw typhoid start as an epidemic in Belgium, in 1914, spread with its old time fury among the troops at that point, and then we saw it conquered by sanitation and vaccination. We have seen typhus spread with terrible fury in Serbia and in Austria, we have seen typhus and recurrent fever break out in Russia, and again the knowledge that these diseases were carried by body lice was put into practical application and the epidemics controlled. Cholera has started and been controlled through sanitation and vaccination, by both the Russians and Italians. Tetanus has been practically eradicated among the wounded. Smallpox appearing among the recruits coming from civil life, has been so quickly controlled that there were, from January, 1917, to April, 1919, in the American army of over 2,000,000 men, but six deaths from this disease. To appreciate fully the meaning of this result of preventive medicine and what the American medical profession has accomplished, let us study the battle casualties and disease rates of former wars, and, by this contrast, appreciate the achievement.

EFFECTS OF DISEASE IN FORMER WARS.

Of course, any accurate and minute comparison requires carefully kept statistics, and such records are available only for the wars of the nineteenth century. Surgeons and physicians have been with the armies since antiquity, but they were as part of the retinue of some king, general or noble, and were not assigned to troops. Charles the Bold of Burgundy, in the last third of the fifteenth century, was the first one that definitely assigned surgeons to the troops as well as to the officers. This seems to be the isolated instance of a single ruler, for it was not till a hundred years later that the first surgeons were supplied to the British Army, in an expedition to St. Quentin. In the middle of the sixteenth century the armies of Charles V did not possess surgeons or medical corps, for it is reported as an extraordinary occurrence that, in the siege of Metz, when Charles V, beaten by disease

and famine, was forced to raise the siege of this town, his young opponent, the Duc de Guise, gathered the abandoned sick and wounded of the retreating imperial army and, contrary to the customs and traditions of the time, had them cared for by his own physician, the renowned Ambroise Paré.

However, it was not until the seventeenth century, in the time of Louis XIII of France, that surgeons were regularly appointed to the French armies, and not till 1660, when a standing army came into existence in England, were surgeons first regularly appointed to regiments in the English army. Not till the middle of the eighteenth century, however, was there a well organized medical service in any of the armies. Field hospitals were not thought necessary until Cardinal Richelieu installed them, in 1639, in villages behind the fighting lines.

It is not usually realized that some of the greatest wars of modern times were fought with practically no provision made for the care of the sick and wounded, that the decision of wars has at times depended more on the wastage of the armies by disease than on the valor of the soldiers or the genius of the generals. The Emperor Frederick Barbarossa, in the Middle Ages, saw one army in Italy annihilated by sunstroke. Ten years later, after he had succeeded in storming and conquering the city of Rome itself, a pestilence swept away another army, and he was forced to flee, a fugitive, to Germany. In the Thirty Years War, the Swedish Army under Torstenson fought its way from the Baltic Sea to the very gates of Vienna, where the bubonic plague so decimated his forces that he was compelled to withdraw and lose the campaign so brilliantly won. In the middle of the eighteenth century the bubonic plague again so raged, this time among the Austrian and Russian Armies, that these nations were forced to bring the war to an unexpected ending and to make an unfavorable peace with Turkey. In more modern times, the disorganization and discouragement produced by disease in the French forces before Sebastopol was not a small element in hurrying the government of France to conclude peace before the ultimate aims of the campaign were accomplished.

For a background of modern hygiene, let us consider the occurrence of disease in the Thirty Years War, 1618-1648, a war fought between Protestant Swedes and northern Germans, aided, toward the end, by the French, against the imperial Catholic armies of Spain, Bavaria, and Austria. This war had all the bitterness of other religious wars. The armies were often an unpaid rabble of mercenaries greedy for loot, who lived on the country, but who deliberately burned and destroyed all they could not use. They methodically wasted entire districts, thus adding famine to pestilence, for wherever these armies went they took with them and spread typhus fever. The numbers engaged, relative to modern times, were small, an entire army representing no more than one or two modern divisions, the strength of either side averaging from 20,000 to 30,000, occasionally more, often less. Bodart sums

up the battle casualties of the thirty greatest engagements of this war as averaging fifteen per cent. for the victors and thirty per cent. for the defeated antagonist. These losses were small indeed compared to loss by disease. The sick and wounded were uncared for except by their comrades or by the camp followers; or they were left in villages or cities to be aided by the civilians, and were universally the foci of infection from which typhus fever spread far and wide. Smallpox was ever present in the communities. Dysentery and scurvy added their toll of death in the armies; typhus fever never ceased its virulent devastation, and, after 1632, bubonic plague imposed its terrors on the armies and stricken peoples alike. Great as was the destruction of life among the soldiers, whether from battle or by disease, the loss of life was always greater among the noncombatants, not only because of famine and pestilence, but also because of the brutal and barbaric conduct of the war. Prinzing records that the population of the city of Wurtemberg lost by war, famine, and pestilence, in five years, 300,000 persons, or three quarters of its inhabitants. In the electorate of Saxony bubonic plague, typhus and dysentery, in two years, carried off 934,000 of the inhabitants. Three quarters of the entire population of Germany, over whose fields the war had chiefly been waged, were blotted out of existence, for the population dropped from 16,000,000 to 4,000,000, the logical consequences of barbarous warfare and no sanitation.

By the middle of the eighteenth century the armies of England and France had regularly organized medical corps. With its increased responsibilities the medical corps of England had been given an equivalent increased authority and independence, but the French medical service, from the eighteenth century even through the war of 1870, had neither independence nor authority, but was a subordinate part of the *intendance*, or quartermaster's department. In spite of the improved ideas of care of the sick and wounded in the armies of the eighteenth century, the mortality rate diminished but little. The hospitals were still only shelters for the very sick. Two, four, or even six patients were still crowded on a single bed. Overrun with vermin, with absolutely no ventilation, filthy beyond description, they still propagated typhus, plague and dysentery. Sir John Pringle, in discussing the causes of mortality in war, names hospitals as an important factor. And Turpin de Crisse declared that in the wars of the decade from 1731 to 1741 more men died in hospitals from lack of care than lost their lives in combat.

Typhus fever still raged as an epidemic among the armies in the Wars of the Spanish Succession, and in the Seven Years War of Frederick the Great. It was not till the nineteenth century, after the Napoleonic Wars, that the French hospitals showed any improvement. On the other hand, it was because of the experiences in the Napoleonic Wars that the English were able to improve the sanitary care of their wounded. This the historian Napier realizes, and he pays tribute to the success achieved:

"The extraordinary excellence of the medical of-

ficers may be said to have decided the day at Vittoria, for their exertions undoubtedly added a full division to the strength of Wellington's army, and without these 5,000 it is doubtful if his Lordship, with his unrivaled talent, could have carried the day."

Their efforts were directed more toward cure than prevention, although Jenner had, by the end of the eighteenth century, shown the first means of control, by preventive vaccination, of one of the decimating plagues, that of smallpox. In strange contrast to his habitual indifference to the fate of his sick and wounded, Napoleon seized on the discovery of Jenner, and by 1809 had succeeded in having his entire army vaccinated. There seems to be a general agreement that no man ever was more indifferent or cared less for the salvage of the sick and wounded of his armies than Napoleon. Duncan says that abandonment of the wounded was the rule by the French in the Napoleonic Wars. When not abandoned, they were huddled in buildings of every sort and left to die.

It is of more than passing interest that during Napoleon's war against Prussia, 1806-1807, typhoid seems to have been recognized. The French physicians at this period differentiated and accurately described its symptoms and lesions. From this time epidemics of typhoid are recognized and separated from the real typhus, which still ravaged both armies and population.

The retreat from Moscow and the Russian campaign of 1812 was probably the greatest military disaster of modern times. From recent authoritative French figures Bodart estimates that 680,000 crossed the frontier with Napoleon. Dysentery severely attacked the armies after they had crossed the Polish frontier, 80,000 men being down with it at one time. Of the 612,000 fighting strength, there returned to the frontier, according to Bodart, but 112,000 men. Lemazurier says that the great majority of the 30,000 French prisoners left at Vilna died. Faure claims that all of the French soldiers who fell into the hands of the Russians succumbed to typhus fever. It seems probable, therefore, that there were 100,000 men killed in battle, and at least 350,000 perished from starvation, cold, and disease. Prinzing says that the instinct of self preservation had kept the army together in a common line of march from Moscow to Vilna and on to Niemen. He adds:

"After crossing the river, however, at this point, the few unfortunate soldiers who had survived the awful misery of the march, hungry, alive with vermin, with clothes in rags, with torn shoes, with frozen and gangrenous limbs, scattered in all directions, some going home and others to strongholds that were in the hands of the French. Thus typhus fever, with which all parts of the army were infected, was spread in a comparatively short time over a large part of Germany." The pursuing Russians did not escape free from the scourge, for in the three months from October to December they lost 62,000 soldiers, most of whom died from typhus. It is stated that the Russian armies in this campaign lost 200,000 killed and 150,000 wounded. The total of death by disease is not recorded.

The German campaign, a year later, was no less disastrous, and among the French and their allies there seems to have been some 60,000 killed and 196,000 wounded during 1813. Duncan thus describes the result of this campaign:

"But a few fragmentary battalions followed the eagles of Napoleon across the Rhine in November. The army lay scattered amid the villages on the route from Germany, the men dying by thousands and spreading a pestilence among the inhabitants. Reliable observers say that the retreat from Leipzig was no less ruinous than the retreat from Moscow, although there was no cold nor famine. The utter ruin of the army was the legitimate fruit of utter neglect of the sick and wounded."

Prinzing, studying the epidemic of typhus fever of 1813 and 1814, following the Russian campaign, believes that between 2,000,000 and 3,000,000 people contracted this disease, spread broadcast by the scattered armies of Napoleon, over ten per cent. of whom died.

The Spanish War, in its six years' duration, 1808-1814, cost France over 90,000 killed. The deaths by disease are variously estimated as from 300,000 to 460,000 among the French Army. We know that typhus fever was widespread and virulent. We know that yellow fever, in 1810 and 1811, raged furiously in the southern portion of Spain. It is known that in the siege of Saragossa, for example, of the 100,000 inhabitants, 54,000 died of typhus; and of the 30,000 soldiers, 18,000 died of the same disease before the city was forced to capitulate.

In striking contrast to this was the work of the English in the peninsular campaign during 1808-1811, under Sir James MacGrigor. This surgeon had been in the Walcheren expedition on the coast of Holland in 1809, when the English attempted to take Antwerp from Napoleon. This ill fated expedition, of a strength of 42,000, lost 206 men killed and dying of wounds, but lost 8,000 through disease. Impressed by his experience on that expedition, MacGrigor made a most determined endeavor to rectify the conditions in the English Army in the peninsula, and especially to fight typhus fever in the hospitals. He insisted on accurate medical statistics, so that, for the first time, the relative loss from the different causes might be known. In the two and a half years under this surgeon there were 2,699 deaths from wounds, and 14,269 from disease, which gives a death rate of killed or dying of wounds of forty-two a thousand each year, and 118 dead of disease. Typhus fever was controlled, but dysentery and typhoid caused 11,000 of the 14,000 deaths.

The Medical Corps of the American Army, modeled more on English than on French lines, had not, in the Mexican War, 1846-1848, advanced far in the prevention of disease nor improved the waste of life of the Napoleonic era. The mortality from disease was 110 to the thousand a year, and the battle loss was fifteen to the thousand. Seven times as many men died of disease as were killed in action.

The Crimean War, 1854-1856, shows the highest loss from battle casualties among the Russians, and from disease among the French, of all wars of

which we possess accurate records. The battle death rate among the British was sixty-nine to the thousand a year, among the French seventy, and among the Russians 120. The disease death rate was 230 to the thousand among the English, 341 among the French, and 263 among the Russians. The medical and human lessons do not lie in these mere figures, extraordinary as they are. They can be brought out only by a comparison between the mortality from disease in the English and French armies.

In the beginning of the Crimean War, the English were sent out unprepared. They had forgotten their lessons of the Peninsular War, they had discarded the knowledge so obtained, and they were absolutely unprepared for the war and went out with insufficient equipment, food and clothing. The first winter was terribly severe. The French, on the other hand, were much better equipped and better prepared for war, were better rationed, better clothed and had good equipment. The two armies were living and fighting together, side by side in camps, under the same conditions in the same climate. They both suffered from two epidemics of Asiatic cholera, which cost the English 4,513 deaths and the French 10,044. Comparing the French and the English death rates, excluding deaths from wounds and cholera, we find that in the first eight months of the war the English lost from disease alone 9,762, and the French 9,523. But here the story changes. Intense indignation in England at the frightfully unsanitary condition and the terrible death rate of their forces produced a tremendous reaction. England rushed the military necessities of food, equipment and transport to the Crimea, and as a consequence, from May to August, 1855, the English losses dropped to 923, but the French rose to 10,545. From September to December, 1855, the English losses were 463 and the French 8,473. In the last four months the British losses by disease were 218 and the French 17,129. Comparing the mortality of the autumn of 1854 with that of the same period in 1855, we find that there was a decrease of 80.5 per cent. in the rate of the British mortality, and an increase of 62.8 per cent. in the rate of the French. Comparisons of the deaths occurring from January to April, 1855, and those from January to April, 1856, reveal that there was a decrease in the British mortality of 97.05 per cent. and an increase in the French mortality of 57.43 per cent.

The details given by Garrison of these figures are even more striking. For example, during the first winter the British lost 164 men from typhus fever, and the French ninety. During the second winter the British losses from typhus were only sixteen, those of the French 10,278. The French lost 145 men from scurvy and the British 175 during the winters of 1854 and 1855; during the following winter the French lost 964, but the English had but one death from this disease. Florence Nightingale, from whose work in this war the modern system of nursing arose, describes the situation as follows:

" . . . the most complete example in history of an army after a great disaster arising from neglect, having been brought into the highest state

of health efficiency. During the first winter the mortality rate was sixty per cent., which exceeded the rate of the great plague of London. But during the last six months the mortality was not more than among the healthy guards at home, and during the last five months it was two thirds of that among the healthy troops at home. It was the most complete experiment in army hygiene, as complete as a chemical experiment in a laboratory, but which should not be repeated, even for the benefit of inquirers at home."

The cause of the French deterioration is plainly seen from a study of the correspondence of their medical inspectors and a study of the increase of sickness in the army. Surgeon General Longmore, of the English Army, reviewing the medical lessons of this war, states that "the French medical officers were completely subordinated to the *intendance*, or direct administration, and had no authority beyond that of ordinary civil practitioners at the bedside. Even the control of hospitals, ambulances, and medical service in battle was directed by the *intendance*." This quartermaster's staff, having no medical training, were quite incompetent to advise on the means necessary to preserve the health of the troops, and quite incompetent to give directions on matters of hygiene and sanitation. This situation led to the development of scurvy and typhus, with a constantly increasing virulence of these diseases, until at last their diffusion took place in such overwhelming proportion that all available resources were powerless to cope with the situation.

The short war of seven weeks' duration between Prussia and Austria, in 1866, is interesting from a medical point of view for two reasons: first, its statistics show that no improvement had been made in the Prussian Army in safeguarding the health of troops or in checking the spread of disease; and second, because of this fact, within the year, the Prussian Government had completed a reform of the medical service in their army, and turned it into as effective a machine to obtain the results for which it was organized as the military machine proved to be four years later in the Franco-Prussian War. This Austrian War is also noteworthy as being the first one in which the organized aid of the Red Cross societies, under the Geneva Convention of 1864, seems to have acted.

In the Franco-Prussian War of 1870, the Prussians reached the highest standard of protection against disease that any army had yet attained. The ratio of their battle casualties was fifty-five in a thousand to a rate of death from disease of twenty-five. The French, however, were just the opposite. Still hampered by the quartermaster control of medical organization, in a demoralized, defeated army, they suffered battle casualties of sixty-eight to the thousand and a rate of death from disease of 141. The average strength of the German Army seems to have been 725,000, and their total losses were 28,500, of whom but a little over 12,000 died through disease.

Three infectious diseases had a plague like spread in this war: these were smallpox, typhoid and dysentery. For the first time in a large European war, typhus fever did not break out in the armies.

The incidence of typhoid fever in the Prussian Army was as high as ninety-three to the thousand. The incidence of dysentery was forty-nine to the thousand. Though smallpox occurred in only 6.1 to the thousand of the fighting strength, it occurred in an army that was supposed to be vaccinated. Among the French prisoners of war, however, smallpox broke out as a plague, about 14,000 cases occurring in Germany, and about 25,000 in the interned army in Belgium. The incidence was fifty-four to the thousand among the prisoners in Germany, which is nine times that of the German Army and shows the difference between the vaccinated and unvaccinated army. Up to this time, in Germany, the population was supposed to be vaccinated, but as is usual under noncompulsory health laws, many had neglected the precaution. Smallpox followed as an epidemic in Germany, causing the death of 170,000 persons after the war. This produced a most beneficial result in causing the passage, in 1874, of a compulsory vaccination law, the workings of which have practically eradicated the disease.

To appreciate the death rate from disease in the French Army one must compare its rate of 140.8 to the thousand with the death rate from disease in the German Army of 24.5, or with the death rate of sixty-five to the thousand in our Civil War. No accurate French statistics have been published, the situation being so bad that all have wished to forget it.

The death rate in our Civil War of killed and dying of wounds is given as thirty-three to the thousand, the disease death rate as sixty-five. In the Spanish War the death rate from battle is five and the death rate from disease 30.4 to the thousand. In the present war, taking the statistics up to March 28, 1919, we find the rate of death from wounds received in action is 14.191 and that of death from disease is 14.797 to the thousand. This includes the army on both side of the ocean. The statistics of the American Expeditionary Forces, with an average strength of 975,716, reveal a rate of death from wounds in action of 31.256 to the thousand and a death rate from disease of 11.233. Of those who died of disease, pneumonia claimed 9.146 to the thousand.

Studying comparatively the diseases of the American armies during the Civil War, Spanish-American War and the recent war, we find that malaria was one of the chief causes of disability in both the Civil War and the Spanish-American War, though it caused but six per cent. of the deaths in the Civil War and but ten per cent. in the Spanish-American War. But in the recent war malaria has caused such a small number of deaths that it is not given in detail, but is put into the aggregate term of other diseases. Typhoid fever, with typhomalaria, so-called, was the chief cause of death from disease in both the Civil War and the Spanish-American War, causing 22.4 per cent. of the deaths of the Civil War, and being the one great uncontrolled epidemic of the Spanish-American War, causing in the fighting period of the latter war 60.5 per cent. of all deaths. But in the recent war only 0.4 per cent. of the deaths are chargeable to this

scourge. Pneumonia, on the other hand, causing only thirteen per cent. of deaths during the four years of the Civil War and only three per cent. in five months of the Spanish-American War, has become the dreaded epidemic of the recent war, causing in the American army eighty-five per cent. of all deaths from disease. In the Civil War, meningitis caused two per cent. of the deaths, and two per cent. of the deaths in the Spanish-American War, and it caused four per cent. of the deaths in this war. Smallpox caused four per cent. of the deaths in the Civil War; in the Spanish-American War, one man died of this disease; in this war, one man died from smallpox in the United States and five in France. In 1918 and in the first months of 1919, there were 102 patients with smallpox admitted to the hospitals in the United States. These patients came into the various camps from civil life, for the disease developed among the recruits before they could be vaccinated and thus protected, but it has not developed at all among the vaccinated troops in the United States. Dysentery caused twenty-eight per cent. of the deaths in the Civil War, and nearly thirty per cent. (29.3 per cent.) of the 5,600,000 cases of disease reported in that war. In the Spanish-American War it caused 5.6 per cent. of the deaths. But it caused only forty-one deaths out of 48,000 cases, or 0.8 per cent. of the deaths in the recent war. The transmission of yellow fever by mosquitoes does not come into consideration in the recent war, though there were small epidemics of this disease in both the former wars, there being about 1,300 cases in the Civil War and about 1,100 in the Spanish-American War.

There is one achievement by the Medical Department of the United States army after the Civil War which stands as a lasting monument to the industry and genius of the surgeons of that time; it is the *Medical and Surgical History of the War of the Rebellion*. This was the first great medical history ever published of any war, and remains still the standard to be attained.

As a result of the scientific medical work during and after the Spanish-American War, the investigations of three American army surgeons, Jesse Lazear, James Carroll and Walter Reed, who gave to the world the solution of the problem of the transmission of yellow fever by mosquitoes. With this knowledge, came simultaneously the power to control this dread disease, which for centuries had been the scourge of the West Indies, and had time and again spread in devastating epidemics to this country and even to southern Europe. Lazear and Carroll laid down their lives to gain this knowledge, and paid the ultimate sacrifice in order that thousands, through their work, might be protected and live. The sanitary control of mosquitoes, and thus of tropical malaria and yellow fever, and the wise administration of this knowledge, made possible the building of the Panama Canal. It was an American army surgeon, William C. Gorgas, who seized this great opportunity and transformed a pesthole of tropical diseases into a healthy and safe terrain, that the engineering genius of the United States army might be free to construct the canal. The French under De Lesseps had failed because of the

epidemic and tropical diseases which were at that time uncontrollable. Disease had defied and overcome engineering skill and genius. Preventive medicine controlled and conquered.

Ten years ago the practical application of the knowledge gained from the study of the epidemic of typhoid fever of the Spanish-American War brought about the compulsory inoculation against typhoid in the United States army. It had been shown by the Vaughan and Shakespeare Board that nearly sixty-five per cent. of the typhoid fever of that war was transmitted by contact of man with man, and was not water borne. Hence sanitation could only reduce typhoid to a certain level and not eradicate it. The introduction of compulsory typhoid inoculation in the army has practically eradicated the disease. Following the work of the English medical corps in the Boer War, a United States army surgeon, F. F. Russell, made possible the practical application of this method in the United States army and proved conclusively that typhoid fever could be completely controlled. The American Army Medical Corps has, in the recent war, discovered the transmissibility of trench fever by body lice, and thus has shown the means of prevention of this new disease which, while killing no one, rendered thousands of men useless for weeks and ineffective for fighting. This discovery came to save thousands of men for the fighting lines at a time when they were urgently needed.

MODERN CONTROL OF DESTRUCTIVE DISEASES.

Medical science has today, therefore, within its grasp the power to control the diseases which, in former times, decimated warring armies and spread out from these armies among the noncombatant populations. Formerly, when war broke out, it was almost inevitably followed by some dread pestilence among the civil populations of the countries in which the war was waged. By proper sanitation and preventive inoculation, dysentery and cholera can be abolished; by vaccination armies can be protected against smallpox. Body lice disseminate typhus, recurrent fever, and trench fever, and by proper disinfection of these vermin these diseases cease to occur. Through sanitation and preventive inoculation, typhoid fever, the scourge of the two previous wars, is absolutely controlled, and this includes also paratyphoid, which has been recognized as a separate entity only since the Spanish-American War. In the Spanish-American War, 60.5 per cent. of all deaths were caused by typhoid, and in the present war eighty-five per cent. were caused by pneumonia. The typhoid of the Spanish-American War was due to local causes and local epidemics. The pneumonia of this war was beyond control, and was part of a worldwide epidemic that swept over both hemispheres, and the morbidity and mortality of some of the cities of this country exceeded those of the camps. Subtracting the death rate caused by pneumonia from the total death rate by disease in the recent war, we have 2.2 to the thousand for the entire army on both sides of the water, which is practically a peace time death rate. Meningitis has caused, in this war, ten times as many deaths as typhoid fever; pneumonia has

caused 200 times as many. Mumps and scarlet fever, of the infectious diseases of the young men, remain as yet to be controlled, but they are not of great import in the armies in war. The disabling type of disease coming under the head of venereal disease has, in this war, been so controlled that the number of cases brought from civil life was greater than the number occurring in the American Expeditionary Forces in France, which was reduced to twenty-two to the thousand a year, a rate only one eighth as high as the incidence among recruits coming from civil life, and only one third as high as the best that ever had been accomplished in the army before.

Influenza, measles, and pneumonia, in the respiratory group, still stand as baffling problems, and their control has not been accomplished. Measles appeared and spread until it no longer had material on which to spread, as one attack confers immunity to a second. Pneumonia, following influenza or originating as a primary disease, still eludes control. But the knowledge which we have gained in this war of the methods of its spread, of the various infectious organisms which produce it, and their various types and varying virulence, of its occurrence as a secondary complication to measles and influenza, has enormously increased. The value of the facts thus learned are incalculable, and belief is justified that the problem is better understood than ever before, and that we soon shall see the solution of these problems.

The occurrence in the camps of meningitis, another disease of the respiratory group, as far as its portal of infection is concerned, has been forty-five times as frequent in the army as its occurrence in civil life among the same age group. This has been due to overcrowding and the diminution of air space allowed the individual soldier in badly ventilated barracks. The responsibility for these sanitary sins rests upon the general staff and not on the medical corps.

LESSONS LEARNED IN DETERMINING ACTION IN FUTURE.

What then are the lessons that we can draw for future action? There is no question but that the salvage of human beings, the protection of troops from disease in an army, renews and saves the fighting forces. Until recently, until medical science could control disease during war time, armies had been more decimated and injured by disease than through battle casualties. Now that, except for epidemic spread of respiratory diseases, the communicable and epidemic spreading diseases can practically be controlled, the medical corps of an army has become an essential part of the fighting organization. Whole nations must now go to war. No longer can they mobilize a selected portion of volunteers and send them to fight the war and defend the nation. Since all the youth of the nation must mobilize and turn to war, it becomes the duty of a general staff to save its man power and to salvage it to the greatest extent possible. The history of the Crimean War, of our Spanish-American War, and our experience in the recent war have clearly shown that only through proper

representation on the general staff by those men trained in such salvage, and by experts in such knowledge of sanitation, can this duty be performed. When the general staff of the United States Army comes to realize this fully, one cannot conceive that it will fail to give proper representation in its councils and organization to the medical department. The practical necessity for this was finally recognized in the American Expeditionary Forces by General Pershing and three medical officers were detailed at general headquarters as substantive members of the general staff. Responsibility and authority cannot be separated, and only by such organization can adequate authority equal the inevitable responsibilities.

In the mobilization of the industrial forces of the nation by the Council of National Defense, the health of the nation and the protection of both nation and its armies was regarded of such importance that it demanded direct representation of the medical profession on this board. This is also true of the navy, for its medical department is represented on the general board. Oddly enough, the anachronism still exists that in the General Staff of the United States army the medical department is regarded as an outsider. The safeguarding of the health and fighting vigor of an army, the salvage of its wounded, the saving of man power through protection from disease are still regarded as foreign to staff organization. The medical and sanitary formations are still regarded as noncombatants, although those serving with the troops often go forward and mingle with them in the combats, that the morale of the men may be better sustained. Duty demands it, and they have shown themselves willing, in this way, to be unarmed combatants, not non-combatants. The ratio of the medical officers killed and dying of wounds has been exceeded only by that of the infantry and artillery, which branches necessarily bear the brunt of the battles. The pro-rata death rate of the medical officers has exceeded that of aviators and of engineers.

This subject is a matter for Congressional action, but the profession of this country, while the experiences of this war are still vivid in the mind, must turn to the Congress, must make an intelligent exposition of these facts, and must bring about, by legal enactment, an adequate representation of the medical department on the general staff of the army.

EDUCATIONAL NEEDS OF THE MEDICAL PROFESSION.

One lesson of the war which stands out with great distinctness is the necessity for the American Medical Association to continue its unceasing struggle to raise the standards of medical education in this country. Such are the increasing demands made on the medical profession that the young men entering it today must realize that the broad and excellent education obtainable is none too good. It is not asking too much to require that all medical schools which are permitted to continue should soon be raised to the A class.

There is another urgent educational need in this country that should be taken up immediately, that is, increase in the postgraduate opportunities for

medical study. The opportunities that are presented in this country are practically undeveloped. It is for the profession to develop them, and every member of the medical corps of the army should be given an opportunity to avail himself, for a certain number of weeks each year, of the chance to study some branch of medicine or surgery at some medical centre—not required to do it at his own expense, but detailed by the Government to take up, for a definite number of weeks, his chosen branch of study. Physicians acquire their knowledge best by daily contact with opportunities which broaden their experiences. The opportunity to do this at short intervals, rather than at intervals of two, three or five years, would produce better results.

NEED OF IMPROVED ORGANIZATION.

One very important duty to be performed soon is the reorganization of the Medical Reserve Corps and the rearrangement of the medical reserve officers and of the medical officers of the National Guard into one National Reserve Corps. This must be done when a realization that the medical profession in the regular medical corps and in the reserve and National Guard Corps are all members of one and the same profession, united in desire to serve and obtain a single objective. Those in the regular corps have specialized in the study of medicine in its application to military requirements. The reserve and guard corps have specialized in clinical medicine, with sufficient knowledge of military requirements to permit of their early adaptation to military environment when war comes. Equal ethical responsibilities rest on all alike, since all are called together for the common purpose of caring for the sick and wounded of the army; but the amount of practical responsibility must be unevenly distributed among individuals, that proper organization may be perfected.

Authority of the individual must always equal his responsibilities. Military authority is always expressed by rank and cannot be separated from it. Hence rank, authority, and amount of responsibility must coincide. The reserve and guard corps should not be discriminated against in rank, as they have been in the past, because it invariably prevents authority from equaling responsibility, and thus cripples efficiency. One solution would be to have all reserve corps officers of equal rank, such as captain, and have the office held bestow the authority in proportion to the responsibilities contained therein. The administrator of each hospital unit must always have supreme local authority, but there should be an appointed group of clinical consultants in the different specialized branches of medicine, surgery and sanitation for the proper correlation of clinical procedures, that there may be uniformly good treatment and care given equally to all sick and wounded in all hospitals. Medical and surgical specialization was developed in the army for the first time in this war, and beyond question it must remain permanently. These consultants should be utilized as medical and surgical advisers on clinical subjects to the chief surgeon, with direct access to him without intervening mechanism of departmental heads. It is axiomatic that these consultants must have sufficient rank and authority

to equal their responsibilities, and necessarily higher rank than the commanding officers of the hospitals under their supervision. These are but suggestions, and it is unnecessary to go further into details at this time, but some solution of this problem must be found soon.

RELATION OF RED CROSS TO ARMY.

The relationship of the Red Cross and the army is not generally understood. The Red Cross is not a private society supported by private contributions, but is a governmental body incorporated by Congress, with a definite function, that of giving voluntary aid to the soldiers and sailors of the army and navy during war. It differs from other governmental functions in that it is not supported by Congressional appropriations, but by voluntary contributions. Many of its functions and their limitation are defined in international treaties with other nations. Originally conceived to give aid to the sick and wounded in battle, and to place them and the attending medical and nursing personnel safely into a special noncombatant group, its functions have broadened and grown until they ramify, in war time, among civil and military populations alike.

When, two years ago, the war began with us, the popular idea in the army, among the majority of medical and line officers alike, of the full extent of Red Cross duties, seemed to be that the Red Cross workers were to be kept as far in the rear as possible, to hold the little hot hand of the homesick convalescent soldier, and, on off moments, make comfort bags for soldiers and sailors. The idea of the average person eager to go into Red Cross work was to make as many surgical dressings as possible and, with armfuls of these, keep as far forward in the advanced zone as possible, ready to rush on the field of battle and stem the hemorrhages of the wounded and gasping soldiers. Stern reality soon effected a compromise, and time only permits here of a short reference to some of the medical activities in their relation to the army.

The war has shown that the Red Cross has proved an excellent stopgap for supplies, and a source of all kinds of emergency and surgical supplies and relief, even to complete and extensive hospitalization, when the situation called for them. No more satisfactory and cordial relationships could have existed between two departments than did exist in France between the medical department of the Red Cross and the Chief Surgeon's Office of the American Expeditionary Forces. Because of this relationship, the Red Cross was able to supply opportunities to the medical men in France which could not otherwise have been obtained. Through the broad minded policy of Major Grayson Murphy, Red Cross Commissioner to Europe, there was formed a research committee, with American, English and French medical men, which fostered research and secured progress in medicine even during the war. The discoveries of the origin of trench fever and its transmission through body lice was the direct result of this. The standardization of blood transfusion, the striking progress of surgery of the chest, and the continuous study of surgical shock are other examples of work accomplished by

this same committee. Through the Red Cross Research Society, whose membership consisted of all members of the medical corps in France, this research committee furnished a forum in which was discussed and given out the knowledge of medicine and surgery of the war, gathered in the years just previous to our entry. It proved to be the intellectual centre for the medical portion of the American Expeditionary Forces, and here, discussion by the medical corps of the British and French armies in its meetings, gave to the members of the American medical corps the knowledge gained in the hard and cruel experiences of the three years previous to our entrance. It was by this means that the American medical corps started with the medical knowledge of 1917 instead of with the knowledge of 1915 or 1916. It thus trained and prepared thousands of officers by reinforcing their practical experience with knowledge of the experiences to come.

The Red Cross also published a medical journal, a digest of all war articles of the allied countries, and disseminated these broadcast in the American Expeditionary Forces and among the medical corps of our allies. It further disseminated knowledge by means of a library and a medical intelligence department that furnished, on request, any information regarding scientific subjects. It thus supplied medical knowledge, and prevented medical stagnation and deterioration through lack of knowledge.

One of the unforeseen but logical sequences of the Red Cross Research Society was to establish a liaison with the medical corps of our allies. Instead of a slow and gradual acquaintance, there arose a rapid amalgamation and a rapid fusion into a frank and trusting friendship between the medical men of France, England, and America. This proved to be one of the really valuable contributions which the Red Cross made to the war. Another contribution of great value was the making and furnishing to the army of the nitrous oxide for general anesthesia. Researches with this gas showed that, in the seriously wounded suffering from surgical shock, it did not increase this shock, as chloroform and ether did, nor did it tend to send into shock the seriously wounded. The death rate, with this general anesthetic, was twenty per cent. less among the collapsed and seriously wounded than with the other anesthetics. The Red Cross brought over to France a plant to manufacture this gas; it manufactured it and placed it up in the front hospitals of the advanced zone. The practical proof that such an anesthetic, in huge cylinders, could be carried forward to the advanced hospitals, and used in practical abundance back of the battle lines, was a successful accomplishment. The lives saved justified the expenditure, for its advantages were so definite that its use meant the purchasing of the lives of our wounded.

Another real contribution by the Red Cross, in administrative matters in the war, was the founding of the base hospital organizations on the advice of General J. R. Kean. These organizations brought together from various hospitals groups of medical and surgical men and nurses who were accustomed to work together and who knew each other's ideas

and ways of work, and had them fully equipped and prepared for service before war broke out. The Spanish-American War had shown how difficult it was to gather men quickly into efficient organizations with no previous acquaintance which accustomed them to work together. The base hospital units produced a homogeneous structure instead of a heterogeneous mass thrown together by haphazard, and even when members of the hospitals were taken out later and sent as leaders of other units and teams, there still remained the basic continuity, which proved of the greatest value. It is of utmost importance for future preparedness that the Red Cross should have these base hospital groups ready to go at all times, and nothing should be allowed to stand in the way of this or of some similar plan. As is known, the Red Cross gave up these units to the army as soon as they were called to active duty.

It is a question, and one that should be fully discussed, whether or not it would be advisable for the Red Cross to retain control of the base hospitals in the rear zone of the army. This has been done in Italy, by the Italian Red Cross, with pronounced success, and the chain of hospitals continued up even into the advanced zone; but where they touched the advanced zone they left the control of the Red Cross and proceeded under the control of the army. The Red Cross can often obtain its supplies quicker than the army, and can often act independently in emergencies in which the army must proceed along more slowly acting established lines. The American Red Cross has shown conclusively in France that, with its own or with army personnel, it can furnish, equip, and efficiently run hospitals in the advanced zone, or in the rear as base hospitals. This has proved advantageous in an emergency. Would it not prove equally advantageous as an established policy?

NATIONAL CONTROL OF PREVENTABLE DISEASE.

I desire to draw but one more logical deduction from the medical lessons of this great war, and that in reality is the climax toward which all points. That is, if this nation, through its present medical knowledge, has within its grasp the power to control communicable, and hence preventable diseases, there must be established a nation wide controlling organization for this purpose, a National Department of Health. Over thirty-three per cent. of our young men were disqualified from the draft for physical defects. There is need of wider supervision of our growing boys and girls to build up a more robust nation, and it is especially urgent in rural districts. If we are to have some form of universal military service, the very necessity of its universality demands some general supervision of the health of the youth of the nation, through protection against the transmissible diseases, and to oversee the giving of health to the people as we now give education. This war has taught that there remains economic value in the maimed and wounded, and it is our duty to develop this value to its fullest extent. The maiming and injury of our workers, in the everyday work of industry, far exceeds each year the battle casualties of this war, and there is an economic necessity and duty to be

performed in the salvage and reconstruction of the industrially injured.

Malaria still prevents the use of large areas of our Southern States, and saps the energy of a large portion of the population. Typhoid fever still rests as a blot on the rural hygiene of this country. The control of epidemics between States is already in the hands of the Public Health Service, and within States, if State authorities request aid. Quarantine from outside infection is also under Federal control. There are many other Federal activities partially supervising health and disease through the various departments of the Federal Government. But it all lacks the efficient power of central correlation, and there remain many public health activities that should be undertaken by central action, from some of the problems of infant mortality to the problems of the increase of degenerative diseases of late middle life. It is the duty of the American Medical Association, and of each member of each State association, to urge on Congress the establishment of a National Department of Health.

CÆSAREAN SECTION FOLLOWING A PREVIOUS EXTRAPERITONEAL CÆSAREAN SECTION

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The opportunity to inspect the peritoneal cavity in the region where an extraperitoneal Cæsarean operation has previously been done, is of such rare occurrence that the findings are deemed of enough interest to warrant publishing. In this particular case it seems especially so, for when the extraperitoneal operation was performed fifteen months ago there was a mixed infection of colon bacilli and nonhemolytic staphylococci of all the tissues in the neighborhood of the bladder and of the lower portion of the uterus.

The use of the Carrel tubes and treatment which was started shortly after the operation, so sterilized the infected tissues that the bacterial count became negative twelve days after the operation, allowing the wound to be closed rapidly.

The entire absence of weakness in the abdominal wall, notwithstanding the necessary closure following extensive suppuration, is believed to be due to the median incision which the author has preferred for some years to any other, for he believes the recti muscles have a strong tendency to come together in the median line and in consequence a firmer union of the fascia and muscle fibres is obtained, especially following suppuration. Then, too, in these extraperitoneal operations there is a certainty of the infected liquor amnii soaking into the freshly cut tissues, and for this reason an endeavor is made to keep as far away as possible from the broad ligaments with their loose connective tissue and large plexuses of lymphatics and blood vessels.

As stated in my previous article on extraperitoneal Cæsarean section, I believe the use of this operation should be limited to cases with the following indications: A patient with a living child

where an infection is suspected and who cannot be delivered of that child through the normal passages. These conditions contraindicate craniotomy or any other vaginal interference, as the maternal mortality in a large number of craniotomies has been shown to be in the neighborhood of twelve and one-half per cent. and the infant mortality is 100 per cent. One must therefore choose some method of bringing a living child into the world with the least possible risk to the mother. The classical operation in such cases is almost surely fatal to the mother and is to be avoided; amputation of the uterus renders the patient sterile and has just as great maternal mortality as the extraperitoneal, if not greater, so it has no advantage.

It was satisfactory to find in this case that no adhesions had formed at the site of the extraction of the child and in consequence there is no reason why the patient, in the future, should not give birth to more children by means of a classical Cæsarean operation as performed with her second child.

The following is the case record (1) of the patient's operation:

CASE I.—F. G., aged twenty-five years, native of the United States, para. She was admitted to the hospital on December 2, 1917, with a history of having been in labor for nearly forty-eight hours. She stated that she had sent for her physician but before he came a nurse came and examined her three times; then the physician arrived, examined her and left her in charge of the nurse, who gave her pills which deadened the severe labor pains that she was having. She states that the nurse made repeated vaginal examinations throughout the night. Early the next morning the physician returned and made two more vaginal examinations and then called a consultant who made another examination with the addition of a careful examination of the pelvis and immediately advised that she be sent to the hospital. She was admitted at nine a. m. on December 2d, and stated that the nurse had given her two enemata and several doses of quinine. Examination on admission showed a woman considerably exhausted, with an abdomen that contained a full term uterus; the fetal heart, 140; to the left and below the pelvic measurements showed the pelvis to be just minor flattened. Vaginal examination after cultures had been taken showed the cervix four fingers dilated and soft; the membranes ruptured and most of the liquor amnii drained away. The head had made no progress in engaging at the brim and there was no possibility of it coming through. As soon as she could be prepared she was taken to the operating room and ether administered to the surgical degree. The abdomen was prepared by the iodine method; an incision of eighteen centimetres was made in the median line, from the symphysis up to the umbilicus. After passing through the fascia and muscle, great care was taken not to enter the peritoneal cavity; by the use of dry sponges, the tissues containing the bladder were stripped up from the left side and the uterus was reached. This was then further stripped back so that the anterior wall of the cervix was exposed over a large enough space to allow the delivery of the child. The bladder and

peritoneum were held by an assistant, well to the right, the uterus incised and the head of the child brought into view. This was easily extracted by using one blade of the forceps as a vectis and the child quickly delivered. The placenta and membranes were manually extracted and the uterus wound sutured with interrupted chromic gut sutures, after a culture and smear had been taken from the uterine cavity and also from the wound. The bladder and peritoneum, still unopened, were then replaced and held to the left side by one suture; a deep rubber drain was inserted on the left side and the wound closed with interrupted chromic sutures in the fascia, and clips in the skin. Dry dressings were applied. The operation lasted forty minutes and caused no shock to the patient.

On the following day the Carrel tubes were introduced into the wound for the first time. Although only twenty-six hours had passed since the operation, the wound contained pus and evidently was not going to heal by primary union. Therefore, two No. 5 Carrel tubes were introduced into the deep pocket on the left side and two on the surface of the wound, which was surrounded by pieces of gauze wet in Dakin fluid. The nurse was ordered to allow a small amount of the fluid to soak into the dressing through the Carrel tubes. This method did not secure the results desired and on the advice of Doctor Loewe and Major Stewart, of the War Demonstration Hospital of the Rockefeller Institute, the nurse was instructed to flush the wound every two hours with 100 cubic centimetres of the Dakin fluid. This immediately cleared the wound and caused a marked drop in the number of bacteria to the field. So rapid was the healing that the upper portion of the wound was drawn together with a strip of adhesive five days after the operation. Twelve days after the operation all tubes were removed and the lower wound closed successfully.

In October, 1918, she again applied to me for treatment stating that her last menstruation was June 27, 1918, which made her expected confinement early in April, 1919. Throughout this pregnancy there was no abnormal symptom other than some nausea during the early months, so that when the expected date of the confinement came she entered the New York Hospital, private pavilion. She was immediately prepared for operation and given the usual cathartic which had the effect of starting rhythmical labor pains, but these were at no time severe enough to warrant interference. The following morning she was given a vaginal douche of Dakin solution as a precaution, then in the afternoon she was taken to the operating room, and under gas and ether the usual abdominal preparation with iodine was made. An incision ten centimetres in length to the right of the umbilicus, half above and half below that point gave ample room to extract the child. Before opening the uterus an exploration of the peritoneal cavity showed no adhesions in the region of the cervix and bladder nor in the broad ligaments. The uterus was then opened in the upper third by a median incision ten centimetres in length and as the placenta was directly beneath the wound, the hand was passed

through it, and the child, a male, was extracted without difficulty, by grasping a foot first followed by the extraction of the body and head. Before opening the uterus wet pads were placed around and within the peritoneum to absorb any liquor amnii that might invade the peritoneum. The placenta and membranes were removed manually and the uterine wound closed with six chromic gut sutures and the peritoneum closed over them by a continuous plain gut suture. The abdominal wound was closed in layers; skin closed with Michel clips; dry dressings. The patient recovered rapidly from the anesthetic and the baby, a healthy boy, was normal in every respect.

It would perhaps have been better, had the patient been allowed to remain in labor for a somewhat longer time as there was such a moderate dilatation of the cervix that later there was retention of lochia. This was due to two causes: first, no child had passed through the cervix which caused it to dilate slowly; and, second, the extreme smallness of the brim of the pelvis forced the head against the symphysis and promontory, not allowing any pressure on the cervix itself. After the removal of the child, the placenta and membranes, two fingers were passed from within the uterus through the internal os—the vagina having been previously prepared—care being taken not to allow the finger to enter the vagina. At this time an inspection from within the uterine cavity of the site of the cervical opening made at the extraperitoneal operation showed nothing but normal uterine tissue with no sign of the scar. For two or three days the patient was rather uncomfortable from distention of the abdomen and afterpains which were relieved by pituitrin given hypodermically. On the fifth day the clips were removed and on the tenth day she was allowed out of bed as the lochia had become normal and the wound had entirely healed. On the thirteenth day she left the hospital, as she was most anxious to be at home and there was nothing in her condition to prevent it. I believe that in these cases of Cæsarean section the patients do better if they are allowed up earlier than in ordinary confinements, for the pelvic support is in no way weakened and the drainage is better.

This case gives us the hope that in these desperate cases if proper technic is used there remains the possibility of again having a living child with comparative safety.

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Prevention of Goitre.—Israel Bram (*American Medicine*, April, 1919) declares that goitre is a preventable disease. The chief means of prevention are boiling the drinking water in goitrous districts; the favoring of a less fleshy and more iodine containing diet; the removal of focal infections, especially of the mouth and intestines. School children may be protected by the administration of iodine or the iodides. During adolescence and pregnancy thyroid disturbances may be overcome by thyroid extract, the iodides, or both, with both physical and mental repose.

THE WILLEMS TREATMENT OF KNEE JOINT WAR INJURIES.

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The idea that rigid immobilization after a penetrating injury to a joint is a *sine qua non* of a successful result seems to have become a dogma, notwithstanding the poor functional results obtained by its use. The great war has taught us that much better results can be obtained by systematic mobilizations begun immediately after the operations. Those of us who have attempted to carry this method out are all converts to the procedure, however sceptical we were beforehand. Objectors as a rule are those who have never used it themselves and hesitate to do so on time honored, theoretical grounds only. The object of this paper is to express the hope that this method will be applied to civil injuries to joints, in order that better results may follow. We owe the initiative and the method to Doctor Willems, the Belgian surgeon, who has worked it out in a large number of cases with surprisingly good results, both in aseptic and septic joints. The old teaching was to immobilize the joints above and below a fracture of the shaft. The new teaching is, where possible, to devise splints which will immobilize the fracture point itself but will allow motions to be exercised in the neighboring joints.

Let us take up the various joint lesions and follow the treatment through according to Willems' plan (1):

1. In simple traumatic hydrarthrosis and hemarthrosis without penetration of the joint cavity, we do not ordinarily aspirate these joints early enough nor often enough. They should be aspirated immediately with no subsequent splinting, followed by active movements of flexion and extension of the elbow, and flexion and extension of the knee with walking on the knee. That the abolition of movements is due simply to the mechanical presence of the fluid and not to inflammation is shown by the fact that movements are possible immediately following the emptying of the joint.

2. Penetrating joint wounds without injury to bone. Preliminary röntgen ray examination for fracture and foreign bodies with localization of the foreign bodies. Etherization, excision (*débridement*) of the whole tract down to the synovia into healthy tissues. Removal of all hemorrhages in the fascial planes about the wound. Resterilization of instruments and gloves before entering the joint cavity. Excision of the contused edges of the synovial wound with its enlargement up and down. If possible, fingers are not to be introduced into the cavity. Removal of all foreign bodies. Flushing of the joint thoroughly with salt solution, or Dakin's solution, finishing with pure ether. Complete closure of the synovial wound with continuous plain catgut without regard to the duration of existence of the wound. The overlying tissues may be completely closed if the wound has not existed over eight hours. If more than this, they had better be left open with Carrel's tubes in place for

subsequent treatments with Dakin's solution. A culture is taken at the time the joint is opened and if streptococci are found, the joint should be opened at once and drained but no splint is applied, mobilizations being carried out as though no infection was present. A loose dressing, as small as possible, is applied but no splint is to be used. The joint at the operation should be kept open just as short a time as possible in order that the synovial membrane may dry as little as possible, since a dry synovial membrane seems to predispose to ankylosis.

AFTER TREATMENT.

In this Willems has made his great contribution. Just as soon after the anesthesia as the patient is awake, he is immediately made to actively (but never passively) flex and extend the joint to the maximum extent possible. Passive motions should not be made because they will be painful and an inflammatory reaction will be set up, in addition later on an extraarticular abscess may be made to rupture into the articulation. The patient's hands grasp the sides of the thigh which is lifted from the bed by the muscular contraction of the quadriceps, the heel remaining on the mattress. There is very little pain, only timidity on the patient's part provided there is no delay in starting the motions which prevent the extraarticular thickening of the tissues with edema with its consequent stiffening of the joint movements, as well as hindering the deposition of fibrin and also the atrophy of the quadriceps which quickly ensues. Thereafter the patient is awakened every two hours and made to actively move the joint. The next day movements must be made by the patient almost uninterruptedly to the point of fatigue. This treatment requires constant surveillance of the patient who must not be left to himself. A personnel *au courant* with the treatment is indispensable day and night. Pain is minimal provided no bony fragments are displaced, in which case no movements are indicated. Patients say that if painful sensations appear during repose, the best means of making them disappear is to repeat the movements. The next day after the operation the patient is made to get out of bed several times and take a few steps without crutches. This is done every day subsequently, lengthening each day the distance traversed.

Sometimes while active movements are going along well, there will suddenly arise a functional impotence. Examination will show an effusion into the joint. This must be aspirated at once, a culture being taken of the fluid at the same time. Upon removal of the fluid, movements and walking are resumed as before and can be performed just as well, which is a proof that it is not the articular lesion but the mechanical distention of the synovial membrane which creates the impotence. The aspiration may have to be repeated several times.

SEPTIC JOINTS.

When a joint becomes septic, following a wound, as established by local signs of inflammation or by cultural examinations, immediate thorough drainage is called for by adequate, vertical, lateral incisions. The joint is washed out and the incisions left open. At first no drainage tubes should be

used, and they are inserted later only in case drainage is insufficient. When used, the internal ends should be flush with the internal surface of the synovial membrane. No splint is applied. Active motions are begun continuously and to the maximum degree as in aseptic joints. Most important also is walking on the knee without crutches. Following these motions, it is astonishing how much pus will be extruded through the incisions, expelled by the muscular contractions. Complete drainage is more the object of these motions than the preservation of the motions and this seems to be more thoroughly accomplished by this method than by any other, thus limiting the infection to the synovial membrane and preventing its spread to the cartilage and bone. It cannot be too strongly emphasized that the motions should be started immediately after the operations, for, once the joint becomes immobile, it will be found impossible to mobilize it. If the movements are repeated often enough and vigorously enough, the pus is extruded as it forms, hence perfect drainage is afforded. The patient soon learns that movements relieve the pain, since, by the emptying out of the secretions all distention is avoided. Willems does not subsequently irrigate the joint, which he says is useless and invites the entrance of infection. As the exudate begins to dry, there is a tendency for the joint to become stiff. It is then best to almost completely suture the incisions.

3. Articular wounds with small bony lesions. Among these are the perforations of the epiphyses, the erosions of the cartilage, the raising up of bony fragments from the surface and the losses of deeper fragments but which are superficially small in extent. All these lesions have this in common that they leave intact the greatest part of the articular surface and there is no great part of the fragment detached or detachable, consequently there can be no great displacement. The treatment consists in débridement of the tract, washing out of the joint, removal of all loose fragments of bone and the smoothing of all rough bony edges. If a projectile is buried in the bone, the tract is chiselled away on all sides so as to remove all the devitalized bone and the foreign body is removed. Finally, the wound is completely closed. The after treatment is exactly like that of articular wounds without bony injury. In fractures of the patella, Willems encircles the fragments with a buried silkworm gut suture and then treats them with active motions and gentle walking as in the other joint lesions. His results are excellent.

4. Articular wounds with osseous lesions of moderate severity. By this we mean those in which an important fragment of an epiphysis is detached. Many of these are the oblique transcondylar fractures. The danger in them is the dislocation of the articular line. Active, immediate mobilizations should be begun as this prevents the callus from spreading into the joint, but in the knee walking should be interdicted for about three weeks in order that sufficient consolidation should take place to prevent displacement of the fragments.

5. Articular wounds with large bony fragments. When the fracture is one of the varieties of the T

fracture, the limb must be submitted to continuous extension.

RESULTS.

Willems gives the following statistics (2) with regard to 100 consecutive knee cases. Eighteen of these were accompanied by a purulent synovitis of a virulent type, chiefly streptococcus, but in the 100 cases there were no deaths and no amputations. There was one resection and there were two stiff joints. Doctor Willems is thoroughly convinced that many joints and limbs would be saved by the treatment which he advocates. That better functional results and a larger proportion of cures are obtained by his method than by the old immobilization treatment, there can be no doubt, as the following figures will show. I have the results of seventy-three cases of knee joint injuries treated at evacuation hospitals of the American Expeditionary Forces, more or less by the old methods. Of these seventy-three cases, fifty-seven, or seventy-eight per cent., remained clean while sixteen, or twenty-two per cent., became infected. In these thirteen infected cases known, four patients died of the infections, three had amputations, one a resection, four had ankylosis, while only one had any motion, that of 90° of flexion. In the thirty-six clean cases, only nine patients had complete flexion, three were ankylosed while twenty-four had some motion. The reasons why in the American Expeditionary Forces the results were not better are these: 1, Incomplete knowledge of the Willems's method; 2, insufficient nurses to carry motions out, and 3, too early evacuations, predisposing to stiffness in the joints.

CONCLUSIONS.

1. It is the duty of our medical schools to see that the Willems's method is thoroughly taught as the one standard of treatment to follow in knee joint injuries. The old haphazard immobilization procedure should be relegated to the scrap heap as harmful, except in well indicated cases, thereby saving lives, limbs and function. 2. In every hospital there should be a day nurse and a night nurse who should be instructed in these joint motions, and whose especial duty it should be to carry out these motions methodically. 3. In our army it should be absolutely forbidden to transfer a patient after an operation for a joint injury within ten days to another hospital, as this not only requires immobilization but also invites sepsis.

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Focal Infection and Its Relation to Toxemia of Pregnancy.—John E. Talbot (*Boston Medical and Surgical Journal*, April 24, 1919) seems to believe that all cases of eclampsia are due and can be traced to focal infection. He asserts that in a series of ninety-seven cases of toxemia of pregnancy and eclampsia he found chronic sepsis present in the teeth in every case without a single exception. Notes are given on two or three of these cases.

THE MEDICAL MODERNIZATION OF THE BACK COUNTRY.

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"If the mountain will not come to Mahomet, Mahomet must go to the mountain."—*Arabian Legend.*

To make the outer zones of rural living and doing safe and healthful, and, *pari passu*, attractive and enjoyable, is a social problem at once present and pressing. The drift of the pick and choice of population is toward the towns. The cause is plainly evident. The concrete gains of progress and growth are to be found preponderantly at these centres of concourse. Yet the process is ruinous and entails selfenervation, selfdevitalization and selfdecay. How can the tree of civilization yield bloom and fruit if through misappreciation and neglect its roots in the earth are left to gradually shrink and starve? Paramountly it is important to keep in the country a large share of the best blood of a people; to fix firmly and permanently to the creative soil a proportion of brawn and brains adequate beyond peradventure. It can not be done while undeniable advantages of thrift and development, of comfort and pleasure are attached to the urban career.

Of course, many of the blessings of advancing civilization reach out into the distant limits of the region of the open fields. As both science and art agriculture itself manifest improvements approaching perfection. Facilities for social intercourse and for education and culture have been considerably increased, and are more extensively utilized. Convenient and sanitary homes are not rare. Potent aids toward betterment of the situation have been a more efficient postal service, the telephone, and the automobile. But for all that, as a purveyor of the bounties of progress the country has not kept pace with the town. At best rural life lamentably lacks the opportunities and refinements of urban life.

One of the most essential and vital disadvantages incident to residence in the remoter country sections consists of the handicaps to medical ministrations inevitably appertaining to the system of practice yet prevailing there. The healing art, as to its complete, thorough, effective application, is one of the most backward of the cardinal factors of farm life, mark you, as to its complete, thorough, effective application. From no source will this proposition receive more unreserved, more unqualified endorsement than from the very group of able, competent, courageous men who are harassed and trammelled by the difficulties and limitations imposed upon their work by adverse conditions, under the surviving system. No one knows so well as the country doctor himself that country practice, at an earlier period largely on all fours with town practice, is now in comparison weak and lame. No one but himself can apprehend how hard is the path to the fine, masterful things he does in his wholesouled endeavor to do the best he can.

Sometimes it may be necessary to precipitately demolish the defective old in order to awaken invention along the line of replacement, to destroy to

induce creation. But in general, whatsoever its deficiencies, it is wise to preserve the old house intact until new plans and material are at hand. As a rule destructive criticism should be preliminary to constructive. When, however, it is feasible to advantageously rebuild, surely the tearing down process may begin. To speak plainly of imperfections is certainly opportune when remedies for them are in sight. To an Athenian protest against Macedonian bluntness of speech, Philip ironically replied, "The Macedonians are naturally awkward and graceless, they call a mattock a mattock." The writer heartily believes that reformation of rural medicine is not only desirable, but, also, practicable, albeit by a change radical and revolutionary. Believing this he presumes in the matter to call a spade a spade.

To adequately, exactly, artistically interpret and apply present day medicine throughout the extent of a back country practice, a circle with radii ten or fifteen miles long, a colossal wheel with spokes whimsically crooked, that cannot be done by mortal man, there stands the naked fact, truth evident to any mind with imagination enough to grasp the involved obstacles and reason enough to deduce from them just conclusions. The country doctor is a conqueror and a hero. He is of men the most indefatigable, indomitable, invincible. He accomplishes marvels. Yet, after all, even he cannot perform the impossible. Vastly bigger than the man are many of his tasks.

Such is the ulcer, where find the salve?—lest we render ourselves liable to the rebuke Shakespeare puts into the mouth of good Gonzalo: "You rub the sore, when you should bring the plaster." Says the Arabian legend, "If the mountain will not come to Mahomet, Mahomet must go to the mountain." The alternative figured in this allegory may be paraphrased to our purpose thus: If the doctor cannot go to the patient, the patient must come to the doctor. Thirty sick people widely separated and distant might be brought to a common medical centre fully equipped and served, when it were out of the question to satisfactorily organize and manage thirty medical stations in the respective homes concerned. The modern hospital idea is the key to the problem. The plan will reveal in itself admirable adaptation to the peculiarities and necessities of country medicine; will work out in a manner most gratifying to the profession and to the laity. It is a fault of system with which we have to deal. The old forms do not fit the later growths. The new wine must be put into new bottles.

Here are briefly and categorically set forth with reference to rural medical practice a defective situation and a scheme for its correction. The writer's chief aim is to arouse thought and to incite discussion relative to the whole question. He may be permitted to add further a few generic reflections whose specific elaboration will, also, be left to the study of those interested. To the people the rural hospital would afford various advantages. Comfortable quarters, with effectiveness and refinement of treatment and nursing, would be assured. Convenience as to provision for a sick member of the family, and protection against infection of the well

members would be weighty considerations. Economy as to expense, and profit from removal of hindrance to work and business are items not negligible.

To the doctor the benefits would be equally pronounced. The gain in the way of saving as to exposure and strain and wear would be beyond computation. The satisfaction and delight of being able to render uniformly efficient, scientific, artistic professional service would enhance devotion to, and enthusiasm for, his career. Command of extended facilities would warrant him in retaining in his own hands work which he now relinquishes to the city hospitals.

Certain objections to the scheme of hospitals for the back country folk may be anticipated. It will be said that the plan can be made popular with the greatest difficulty. That may be partly true; for the tradition of gold bricks is likely to make the farmer shy on innovations. But observation and experience would gradually bring him to regard his hospital as merely an auxiliary to his home. The organization could provide for the presence with the sick one, if desired, of a friend in the capacity of assistant nurse. Specially designed ambulances would meet the requirements of transportation. The cost to the well to do would be less than that of inferior service in the home; and the poor boards could have their wards cared for in the hospital more inexpensively than elsewhere.

The baleful effects of political influence and of the absence of competition and rivalry in practice, medical monopoly, in short, could be obviated by locating the hospital contiguously to two or more established fields. At any rate, the evil in this direction would be no greater under the new system than under the old. Yes, the doctor would still have to visit homes to a limited extent, to make primary diagnoses, and in those exceptional cases where a patient could not or would not be moved. But this work might be kept at such a minimum that it would be neither onerous nor disconcerting.

Come, the rural hospital of the people, by the people, for the people! An air castle? Well, the air castle can be pulled down to earth and firmly fixed upon enduring foundations. It can be done; it should be done. It would hold the superior country doctor in his broad acred province. It would mightily help to hold the superior country man on his well tilled farm.

THE REMOTE DANGER OF CHICKENPOX AND MEASLES IN CHILDREN.

BY LEGRAND KERR, M. D.,
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The child stricken with an acute infectious disease suffers from a diminution in the desire for food, a diminution in his capacity to perfectly digest it, and a changed relationship toward his accustomed food. The food must therefore be such as is easily digested, and given in smaller quantities at more frequent intervals. The demands upon the whole economy are so great that in spite of enfeebled digestion the nourishment

must be adequate, and usually adequacy means a more liberal diet than is customary in acute disease. Woods and Merrill (1) assert that the giving of two or more food materials at one meal puts less strain upon the digestive system than the giving of an equal amount of one alone. This is certainly borne out clinically and it is my common observation that a mixed diet at each meal will support a child much longer and better than the single food diet, even though the changes during the twenty-four hours are many.

Variety in the acute infections is necessary, because there must be a continued appeal to overcome the natural aversion to food. It is not merely a matter of estimating calories or even a nice balancing of what ought to be the actual food need of the child of a given age or weight. It is a problem of giving an adequate diet that the child will accept, and if possible, take willingly. Accordingly, variety is instituted not only because it is appealing, but because the mixed dietary is more readily digested and assimilated. It is always necessary in planning an adequate diet in the acute infections to have some idea of the normal standard of the particular patient. Unless this is done, we may overfeed or undernourish. It is sometimes impossible to determine this normal standard, as it depends upon habit and circumstances, but in most instances a practical working standard can be obtained. On the question of the actual diet in the acute infections there will always be a divergence of opinion. Theory or preconceived notion or the experience gained from one or more isolated cases is apt to interfere with the application of broad general principles. This commonly is the situation; the anxiety to reduce the real or imagined strain which is placed upon the stomach and intestines results in acute malnutrition; or the heart is enfeebled because a régime is instituted which has as its sole object the lessening of the work of the kidneys. It seems at times as if it was considered classic to reduce the diet to the minimum and work the bowel to the maximum. Acute infectious disease does require a special dietary, but in securing this, we should consider the patient's general condition and keep two rules in mind. First, give due consideration to the patient's previous condition and habits; will the suggested diet agree and will it be acceptable? Second, do not forbid any article of food without a definite reason for so doing.

It is a common error that restriction of the diet is arbitrary, often unnecessary, and not based upon sound reasoning. The idea that the liberal administration of food raises the temperature in the presence of fever is erroneous. The reverse is often true; in very young children a rise in temperature will accompany acute malnutrition. It is a repeatedly demonstrated fact that the lighter articles of diet at least are as perfectly digested in the presence of hyperpyrexia as in conditions with normal temperature. Theoretically, a large proportion of protein would be indicated in the acute infections but practically their administration is impossible, so that the best that can be accomplished is to use the means of conserving the protein. There are mainly two foods that will conserve this

protein waste, fats and carbohydrates. The fats are refused quite consistently by most children with high temperature, therefore the carbohydrates seem practically to meet the situation, as protein spacers. The value of the addition of sugar of milk to the drinking water (in the proportion of one ounce of sugar to one pint of water) has not been fully realized or its use would be more extensive. We cannot disregard these dietetic points as leading up to what I consider the real danger in chickenpox and measles in particular, the secondary anorexia.

Secondary anorexia will do to define this condition until some one suggests a better term based upon a knowledge of its cause. At times, the anorexia follows so closely upon the infection that I have been suspicious that habits formed through the special indulgence of the sick child have had something to do with it. This, however, is not the common experience, it is the unusual; the common observation is that after convalescence is well established following chickenpox or measles, a certain proportion of the children exhibit a loss of appetite which persists for weeks or months. This secondary anorexia is peculiar in that there is not alone the lack of desire for food, but there is developed a real distaste for it. This is associated with variations in growth and development. Whether the loss of appetite is responsible for the arrested growth or the variation in growth is responsible for the lessened demand for food, I do not know and for practical purposes it makes little difference. The proportion of cases in which this occurs is large enough to make it incumbent to follow up all cases of chickenpox and measles for four to six weeks after convalescence is established to detect its occurrence. Secondary anorexia is important not alone from the standpoint of the continued and normal growth and development of the child, but from the more serious consideration of tuberculosis. It is my common experience that many cases of tuberculosis occur in children who are predisposed, several weeks after an attack of measles or chickenpox with the occurrence of secondary anorexia. That the secondary anorexia plays an important part in the production or furtherance of those conditions which favor the development of tuberculosis, I have little doubt.

The treatment should anticipate the occurrence of this type of anorexia and with the establishment of convalescence from either chickenpox or measles the diet should be above that which might be considered otherwise sufficient. In addition to the three meals a day, for a time, there should be added: First thing upon awakening, a glass of milk or cup of broth fortified with cream; a midmorning meal consisting of a glass of milk; a midafternoon meal of milk and crackers; a bedtime meal of hot milk; milk given at other times through the day must be given toward the end of the meal.

The chief points to remember in regard to secondary anorexia is that it does not occur after the other infections, being closely associated with measles and chickenpox alone; that it is independent of the severity of the infection; that it can be distinguished from the anorexias which are the result of habit or associated with the acute features

of infectious disease, and that there is not alone an anorexia but a real distaste for food. Secondary anorexia is the most consistently serious complication of measles or chickenpox with the one exception of bronchopneumonia.

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462 CLINTON AVENUE.

FRACTURE AND DISLOCATION OF DORSAL SPINE WITH COMPLETE RUPTURE OF CORD.*

A Case with Unusual Results.

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In presenting a report of this case for your consideration, I realize that one successful case cannot be considered the criterion in all similar cases, but I have in mind the many problems in reconstruction and rehabilitation that will confront the medical fraternity when our soldiers come back exhibiting all forms of incapacity. Hence I entertain the hope, that when it is shown what perseverance can accomplish in an apparently hopeless case, that those of you, to whom similar problems will be brought for solution, will gain some small measure of confidence and determination from this case and persevere to the utmost of your efforts, in behalf of some lad for whom existence has lost all joy, and give him back to himself and to his people, with the flame of life and happiness rekindled in his breast. If I may be thus privileged, to indirectly help in the reconstruction of some maimed and crippled soldier, I shall feel fully repaid for the two and a half years of effort expended in this case.

At eleven a. m. on April 17, 1918, there was brought into my service at the Stamford Hospital, Nicholas Trisco, aged twenty-six, who had just fallen off a building that he was helping to wreck. At the time of the accident, he was on the roof, pulling off boards. One board loosened easier than he expected, causing him to be precipitated backward and to fall on a pile of rocks twenty feet below.

The examination half an hour after the accident, showed a well muscled young man in a state of extreme shock, but conscious. There was a decided bony irregularity over the lower dorsal spine, with ecchymosis and swelling. Complete paralysis and anesthesia below the site of injury warranted the diagnosis of fracture and dislocation of spine with rupture of the cord. Under the application of external heat and stimulation, his general condition improved so much, that at eight o'clock the same evening I decided to venture reduction of the fracture and dislocation.

The patient was anesthetized by Dr. A. L. House, with nitrous oxide and ether, and with the assistance of Dr. Samuel Pierson and Dr. William T.

*Read before Fairfield County, Conn., Medical Association, April 8, 1919.

Godfrey, I made an incision on one side of the spinous processes, across, and well above and below the site of the injury.

The laminae of the ninth and tenth dorsal vertebrae were found fractured and driven into the spinal canal, both spinous processes were found



FIG. 1.—Patient sitting up in bed for the first time.

broken off at their junction with the laminae. The body of the tenth vertebra was found to be fractured, the fracture line running vertically through the centre of the body, splitting it into halves. The whole spine, below the ninth vertebra, was driven forward, so that the under surface of the eighth vertebra became palpable to the examining fingers. Strange to say, the articular processes were not fractured, but the capsular ligaments, on both sides, were torn completely away from them. The spinal canal seemed empty, except for a blood clot and some glistening tissue along the anterior wall.

Working down carefully, the spines and laminae of the eighth, ninth, and tenth and eleventh dorsal vertebrae were removed. Blood clots were removed from the spinal canal, and all bleeding points arrested. The patient's chest had been surrounded with a strong strap, the ends passing under his arms and crossing at his occiput. These were carried to a steam pipe and fastened. A small multiple pulley line, such as is used with the Sayre extension apparatus, had been fastened to his feet and to a convenient radiator and put in charge of Doctor Hewitt. Gradual extension was then made by traction on the pulley line, until the impaction at the site of fracture could be freed, and the lower spine pulled backward, so as again to bring the vertebral bodies into proper position.

By carefully guiding this direction and degree of the traction, and by manual manipulation of the broken and dislocated vertebrae, a perfect reposition was obtained. It was found, that if the chest was flexed backward, the articular processes would stay in apposition with their respective articular facets. This flexion was maintained by a sandbag under the chest, and the torn capsular ligament of the articular processes was sutured, wherever a suture would hold.

The spinal canal was now examined, to ascertain the condition of the cord. As stated before, four laminae had been removed, the eighth, ninth, tenth, and eleventh, and all that was seen in the canal was a glistening structure at the front, which did not fill the canal. Careful examination up and down the canal failed to reveal the severed ends of the

cord, this glistening structure being continuous with the cord above and below, so we were forced to the conclusion that this structure was the cord, greatly attenuated, it having been stretched out, at the time of the fracture.

A small lengthwise incision into the structure proved this surmise to be correct. The wound was now closed in layers, without drainage. A previously prepared frame, over which a canvas had been tightly stretched, was slipped under the patient. With it he was lifted from the operating table, and placed so that the head and foot ends of the canvas frame rested on opposite tables. Slits were cut in the canvas, outlining the patient's body, and through these slits, the entire trunk, from pelvis to forehead was encased in plaster. The condition of the patient immediately after the operation was good, but now began a convalescence which was full of trials and tribulations for the patient, doctor, and nurses.

After about ten days of catheterization, despite the fact that a boric acid irrigation was given every eight hours immediately after the use of the catheter, there developed in the patient a severe cystitis, which for a time threatened his life. Catheterization and irrigation every six hours, day and night, for six months, kept the cystitis under control, and finally won the day, as far as the bladder was concerned. September 25th, five months after his accident, the patient voided voluntarily for the first time. He has had no return of the retention since.

On May 1st, about two weeks after the operation, pus was noticed to be oozing from the lower edge of the cast. A window was cut in it, and the pus was found to come from a gangrenous spot directly over the sacrum.

From this date until about September first, we had a perfect riot of gangrene, dead bone, and sloughing tissue. The complete rupture of the cord, of course, entailed complete loss of the trophic function, and the slightest undue pressure meant local death. His buttocks broke down into one great sloughing gangrenous mass, involving a loss of most of the gluteal muscles on the left side; the



FIG. 2.—Patient lying flat on his back, in bed.

entire coccyx died and had to be removed. The whole of the posterior bony wall of the sacrum died and had to be sacrificed. Both heels broke down, necessitating the removal of a goodly portion of each os calcaneum. The external malleoli and prominences about the knees met the same fate;

gangrene and death, with loss of flesh and bone.

The tissues over bony prominences, when subjected to pressure, even if only for short periods, would become reddened; then quickly change to gray, and in a few hours, the skin could be wiped off, and underneath would be found a mass of



FIG. 3.—Patient strong enough to get body through rungs.

leatherlike tissue that could hardly be cut with a knife. No effort was spared to protect the patient against this local death of tissue. Massage, oil inunction, frequent change of position, padding of exposed parts, alcohol and alum rubs, all were used in turn. But in spite of all our care and work, this heart breaking sloughing went on, until practically all the larger bony prominences had become involved. The patient's condition during the time of this terrible ordeal was, of course, not very good. He showed a septic temperature, had to be catheterized and irrigated every six hours, his bowels moved involuntarily, frequently, and almost continuously.

Picture this condition in a man held in a cast from head to pelvis, with anywhere from six to twenty sores, from the size of a butter plate to that of a dinner plate, scattered about the exposed part of his body, and you can imagine the task that had been set for us. But we kept at it, the sloughs were cut out as rapidly as the demarcation showed. The wounds were dressed with balsam of peru and kept clean with benzine. There were so many wounds, and most of them so deep and irregular, that I was at first at a loss for a wash that would cleanse, be nontoxic to the tissues, not poisonous to the patient, and yet be strongly antiseptic and cleanse a wound rapidly. I thought of benzine, tried it and have used it ever since. Its advantage lies in the fact, that it is strongly antiseptic and a quick solvent. A pledget of cotton soaked in it, can be used to rapidly remove all broken down fat, pus and secretion from a wound. I question whether any of it is absorbed. It probably evaporates so quickly when in contact with the tissues at the body temperature, that there is no time for absorption. At any rate I have used it freely in this case, in large irregular wounds, full of all kinds of pockets, and there has never been the slightest bad effect from its free use.

As all things end in this life, so after a time this nightmare of sloughing passed by, the wounds began to clean up, granulate, and most of them were so far healed by September 6th, that I removed the cast. The operation wound was found to have healed by first intention, the spine was in perfect

line and apposition, and apparently, firm, bony union had taken place. There was no improvement in the paralysis. When an attempt was made to sit up in bed, it was found that neither hips nor knees could be flexed to a sitting position, owing to contractures about the joints, so even this small comfort seemed to be denied the patient.

The problem now before me was, What was I going to do with this patient? Here was a young man, paralyzed from the pelvis down, in a condition of muscular attrition and atrophy from the six months he had spent in a cast and in bed, with about a dozen wounds scattered about his lower extremities. To let him stay in bed meant death in a short time from inanition and septic absorption from the many and recurring sloughs. It was obvious, that if I wanted him to live, he had to be moved from his bed. But how to accomplish this with a man paralyzed from the hips down, with hips, knees, and ankles bound down by tendon contractures, and not enough strength in his trunk to raise himself in bed was a herculean task, but as nothing is accomplished without a trial, I attempted it.

With the help of the hospital engineer, Mr. Wall, a ladder was fixed above the whole length of the patient's bed, just high enough to enable him to reach it with his hands. He was instructed to



FIG. 4.—Patient standing up straight for the first time in eleven months.

grasp the sides of the ladder and raise his body off the bed, so that his shoulders touched the ladder.

Persistent passive flexion of his legs and hips, with massage wherever possible, soon loosened the joint contractures, so as to allow the patient to sit up straight. The strength in his arms and trunk

was increasing daily, and on March sixth, with help, I had him pull himself up through the ladder and stand on a square board placed under his feet, on the bed. He stood on his feet the first time, eleven months after the accident. This performance was carried out very two hours during the day. It got



FIG. 5.—Patient walking, supported by birdcage.

him off his back and his wounds, and improved his general condition immensely, and it was not long before he could balance himself, so as to stand in the rungs of the ladder, without touching the body to it or holding onto it with his hands.

I now conceived the idea to get him out of bed altogether and make an ambulatory patient of him, instead of a bed patient. I looked at various orthopedic apparatus catalogues, but could find nothing to meet the needs.

Dr. Joseph Root, of Hartford, was consulted and he agreed that if the patient was taken from his bed, his general condition and mental depression would improve rapidly, and thought that an apparatus in the form of a babies' safety chair might work. He had one constructed and sent it to me.

It consisted of an iron frame work on rollers, with a bicycle saddle, suspended from three straps, for the patient to sit on, allowing the feet to just touch the floor. We put the patient into it, but as there was no back rest, and he could not push it about, as he could not use his feet, it failed to meet the requirements. Beside, the pressure of the saddle on the tissues overlying the tuber ischii caused them to slough, and it put the patient back into bed for a month, as now he could not sit up.

During this time I sought a way out of our difficulty, and with the help of our engineer, went to

work on the bird cage, as I called the apparatus, and had Mr. Wall rebuild it into a standing ambulatory support. I had concluded, that if the patient could balance himself while within the rungs of his ladder, he could do likewise on the floor, if given the proper confidence by adequate support. It appeared to me that our whole problem was now one of balancing, and if I could give the patient confidence and support, that he would stand alone and eventually walk.

During this last month in bed, the standing exercises had been assiduously kept up, and I had learned that if I fixed the knees by splints, the patient could stand alone and raise his hands above his head, without falling and without much swaying. In fact he had learned to balance his trunk on his two thigh bones.

I found two cast off hip braces, which were reconstructed to fit the patient and his needs, and as the ambulatory splint was also ready, on April 11, 1917, the braces were put on and the patient was placed on his feet and put into the bird cage. He stood up and was pushed about for a period of forty-five minutes. This was repeated two or three times a day, each period being increased. In a few days, he was shown, that by alternately throwing the weight of his trunk from one side to the other and pushing the apparatus with his hands, he could propel himself alone; in other words, he could walk. He was an apt pupil, and in a few weeks, pushed his cage over the entire ward and hall.

As he was now up most of the day, his wounds healed rapidly and his general condition improved markedly. He regained his bladder function, and could control his bowels, and there is practically no trouble from either source at present. By the end of July, he had become so sure of his balance, that with his arms extended in front of him, and his hands just resting on the apparatus, he could walk the entire length of the ward.

It was now time to take the next step, and this proved to be the most difficult of all, and I just had to fight him to make him obey orders. A pair of crutches were fitted to him, and he was compelled to stand up with them for his support. At first I stood him against a wall, with a nurse or orderly on either side. When he had gained confidence, a few steps were taken, hesitatingly and unwillingly, for he had a deadly fear of falling. But by insisting and giving him all possible encouragement and attendance, he finally overcame his fear and began to progress.

Dr. Joseph Root, of Hartford, who saw the patient again about this time, suggested discarding the braces and putting a split plaster cast on each leg to the middle of the thigh. These were removed at night, and fastened on with skate straps during the day. They are much lighter than braces and permit the patient to wear shoes. The shoes at first gave us trouble by their pressure on the great toes, necessitating the removal of both nails and loss of some tissue at side of toes. But since I put a pair of tennis shoes on him, I have had no further trouble. His ability to walk with crutches has improved so much, that he can get about alone and unattended. He is able to walk about the hospital

grounds, and is rapidly approaching the time when, despite his disability, he can again become partially, if not totally, selfsupporting.

His present condition is as follows. He has a wound over the lower end of the sacrum, about two inches by one half inch, in a healthy granulating state. Another wound down to bone, over the right tuber ischii, is also in a healthy granulating state, and will soon be healed. He is absolutely paralyzed from the lumbar region down, with practically complete anesthesia.

Yet owing to our persistence, often in the face of almost overwhelming odds, we have won the game, in so far that the man is able to go up and down stairs, get into and out of bed alone, can dress himself and, with the aid of a pair of crutches, is enabled to go practically where he pleases. He has been taught to go upstairs by sitting on a step, putting his hands on the step above him, and raising his body until he sits on the next higher step. He does this quite rapidly. He gets down stairs in a similar way by reversing the motions.

As soon as his wounds are healed, he will be sent to some institution, where he can be taught a trade that will meet his mental capacity and physical condition, perhaps such as carpet weaving, tailoring, or a like pursuit, requiring a minimum of physical activity. This accomplished, he may be returned to civil life, once more a selfsupporting member of society, despite his physical disability.

THE PROBLEM OF SYPHILIS AS AFFECTING OUR SOLDIERS.

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Perhaps a foreword for this article would not be amiss. Having had the unusual opportunity of studying and treating syphilis among our soldiers, I feel that a timely and emphatic note should be sounded to the profession for carrying out the treatment of this disease to a point where one may reasonably say that the individual is a safe risk. As our soldiers are returning rapidly to take up their civilian duties, many of them, I dare say, have a consciousness that syphilis still lingers with them, and in order to hand down an untainted progeny they know that they require further medical attention, either to eradicate the disease or reach a goal where marriage will be unattended with evil consequences.

During the war there were many reports and rumors of the ravages venereal diseases were making among the Allied troops. In a report which was presented at a recent meeting held in Paris by the French Society of Dermatology and Syphilology, Doctor Leredde made a statement to the effect, that from 200,000 to 300,000 French people had contracted syphilis during the war, and furthermore, that the treatment given by the French military medical department was not efficacious. At the same meeting, Doctor Brocq, the noted French dermatologist, ventured the opinion that it was not so important to give a thorough course of treatment as

it was to *blanch* the syphilitic rapidly. In justification of the latter statement, I might say that the exigencies of war were the reasons for his opinion; for I am certain that he did not mean to convey the impression that the soldier was cured and immune to later disturbances.

In our own army, measures devised and employed by the surgeon general in cooperation with outside agencies, were successful in materially reducing the number of cases of syphilis, but by no means eliminating it. However, there were a number of soldiers who entered the service with the early and late manifestations of the disease. Those showing the latter gave a history of very meagre treatment, or none at all. This condition was more pronounced in those men whose homes were in the rural districts and small cities.

In extenuation of this fact it might be stated that physicians in the smaller centres of population do not have access to the same clinical and laboratory facilities as the physicians of the large cities. But it seems, that there is a further necessity for impressing upon the profession the importance of early diagnosis which may be comparable to the maxim, "Tuberculosis is curable only if diagnosed in its early stages."

One thing which surmounted any other influence for good which the government exerted in preventing soldiers from contracting syphilis, was the educational campaign in the form of moving pictures, lectures, and literature. This influence will exert itself when the soldiers return to civil life. They will seek further advice and treatment, and at this point, we, as physicians, can be of great service.

During the period of mobilization and training of our forces, soldiers were sent overseas, who had been treated for active syphilis here. Their active lesions were healed, but the disease was not cured. Instructions were given for the continuance of treatment, but the issues of war necessitating the transfer of organizations from one place to another, made it almost impossible for them to receive further treatment. Now, are we going to permit the destructive action of syphilis to exert itself on the nervous system and result in such diseases as paresis, tabes, cerebrospinal syphilis, or on the cardiovascular system, or for that matter, on any part of the human organism?

I might digress and quote from Colonel Charles F. Craig's treatise (1): "In no case can it be stated that a syphilitic patient has been given the best that is possible for medical science to give him, either in the way of diagnosis or treatment, if the thorough examination of the cerebrospinal fluid has been omitted, and this examination should become as much a routine in diagnosis and treatment as is the Wassermann test upon the blood serum."

In other words, there is no more reflection on the practitioner in calling in assistance where a case of syphilis requires further elucidation, than in calling in a surgeon or internist for further enlightenment in other instances. The importance of syphilology as a distinct and separate subject, to be taught under a separate head, is daily gaining ground. This is demonstrated by the fact that some of the foremost medical institutions of the country, such as,

Johns Hopkins, Harvard, and the Mayo Clinic, have each a department of syphilology. The time is approaching when other prominent institutions will fall in line. In conclusion, I hope I have made myself clear on one point, namely: That a case of syphilis should be treated as intelligently and effectively as any other grave constitutional disorder.

REFERENCE.

1. CRAIG, CHARLES F.: *The Wassermann Test*.
1 WEST EIGHTY-FIFTH STREET.

REPORT OF BONE GRAFT CASES.*

By JULIUS A. MILLER, M. D.,
New York,

Captain, Medical Corps, U. S. Army.

At the present time there are still some uncertain factors that play minor parts in the taking or the nontaking of bone grafts. When grafts have been performed in various ways, and under various conditions, the number of factors which tend to prevent the transplanted bone from uniting with bones to which it has been transplanted, will be further reduced and their definite relations established. In this report I shall endeavor to show that under certain conditions, where it would have been thought that the graft would be a failure, the results were such as would have been expected in selected cases only.

In the instance of one transplant performed on a man who had lost about three inches of his right tibia from a gunshot wound, the scar tissue was so dense and adherent and covered an area of four by two inches, that three days after the operation for the repair of the tibia by bone grafting, the entire scar tissue had sloughed away owing to the lack of blood supply. This left about two inches of the graft exposed and covered by a blood clot formed by the oozing blood from the surrounding field of operation. The upper and lower parts of skin incision, which were beyond the scarred area, united by primary union, and the exposed bone was completely covered by healthy granulations within about ten days. The graft took well and the union was firm. Four months after operation, the scar had healed and the man was able to walk about with the aid of crutches. A short time afterward he was able to walk without artificial aid.

An x ray plate showed that at the end of two months union had taken place. This man was wounded in August, 1917, and operated on two days later in a casualty clearing station. At that time the wound was cleansed and the foreign bodies removed. He came under my care in October, 1917, and four months later, all infection having cleared up, bone grafting was performed with satisfactory results.

Another case where, in spite of the exposure of the transplanted bone, the graft remained and united, was that of a man in whom I transplanted an eight inch piece of bone taken from the tibia, into the spinous processes of his lumbar vertebra.

The patient was greatly emaciated and had a protruding knuckle of the third and fourth lumbar vertebrae. The skin area over the knuckle prior to operation was thin and red. About four days after the operation, although great precaution was taken to prevent any pressure or irritation, this skin gave way and sloughed. The midportion of the graft for about one inch was exposed and remained exposed for the two following months. The attempt to cover the area by drawing the skin together was unsuccessful at first, but later the exposed portion of bone was scraped and skin brought over. The operation was performed under local anesthesia. The union was good and gave no further trouble.

Another interesting transplant of bone in a non-selected case was in an ununited tibia following a compound fracture caused by a gunshot wound, where seven months after the last signs of infection had ceased there were three sinuses from fragments of bone embedded in the fractured ends of the tibia. This man was very anxious to have an attempt made for the repair of his leg. I transplanted a six inch piece of bone from the same tibia and removed three pieces of dead bone from which the sinuses emanated. The area about one of the pieces were well curetted, the other two were removed by a chisel and saw, in order to make the bed for the graft. The union took place as if it were a selected case. The x ray plate showed the graft in place, two months after the operation and the union well established. There was a great deal of callus about the upper end of this graft.

This man was wounded in July, 1917, and operated upon twice before he came under my care in September, 1917. I repaired his tibia in April, 1918. In this case the fragments of dead bone were embedded in the shaft itself and were each about the size of a ten cent piece. Had I waited until the sinuses had cleared themselves the patient would have been bedridden for another year before anything could have been done for him. A preliminary operation for removal of the sinus causing material would have damaged the bone and added considerable scar tissue to the wound, already scarred by his wound and two previous operations.

A similar case was reported by me, some time ago, where the union was perfect. One sinus was present, but this cleared up after the operation for the grafting of the bone.

75 FORT WASHINGTON AVENUE.

The Limitations of Cæsarean Section. E. Gustave Zinke (*Ohio State Medical Journal*, March, 1919) states that abdominal Cæsarean section is positively indicated in all cases where the child cannot be delivered by any means dead or alive through the parturient canal. It is the best mode of delivery in deformed, narrow and contracted pelvis with such small diameters as to forbid the test of labor, high forceps or version. It gives the best results for both mother and child in placenta prævia where the hemorrhage is profuse, moderate but protracted, and beyond control. It is a just procedure in profound eclampsia, in cases of asthenia from whatever cause.

*Permission to publish granted by the Surgeon General, U. S. Army.

Editorial Notes and Comments

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NEW YORK, SATURDAY, JUNE 14, 1919.

THE AMERICAN MEDICAL ASSOCIATION CONVENTION.

The seventieth convention of the American Medical Association was held during the past week in Atlantic City, N. J. A more ideal location could not have been selected. Here in America's playground, with its boardwalk, its shops, its stream of sauntering pleasure seekers, was found a keen contrast to the work-a-day world and the battle scarred areas of Europe. The only reminders of the world strife so recently terminated were the uniforms of the representatives of the Allied forces. These groups of men in their varicolored uniforms symbolized an important immediate benefit which the world will receive from the great war. The emergency occasioned by the necessity of immediate protection brought these physicians together for the interchange of ideas on methods and procedure in the various phases of war work. Their collaboration was the forerunner of the present meeting, where representatives have come from all parts of the world to exchange views with their American colleagues.

Two great lessons have been learned, one from the war in which they united to combat the diseases and heal the wounds of the fighting men, and the other from the world pandemic which came as a crashing climax to the devastation of war. The mingling of the Allied confrères enabled them to provide sanitation for the troops and to care more easily for the wounded. But it showed also that

they were all equally helpless against the foe of influenza, a foe which did not respect boundaries, an invisible foe which they could not conquer.

Between sessions the delegates relaxed and enjoyed the various amusements offered by the gay city. They played in the surf and sand and drank their fill of the bracing air, they enjoyed the comforts of the rolling chairs, the music, the golfing, and other sports. They were eager to exchange views and the results of work which had been done under a galling tension, and they were entitled to their fill of the joys which delightful Atlantic City offers.

The Aeronautical Association Congress was also in session at Atlantic City during the past week. Aviation made great strides during the war, and many countries contributed toward the production of perfected vehicles for air traffic. The aviators gave many wonderful demonstrations during the convention, and this in conjunction with the successful termination of the epoch making trans-Atlantic flight helped focus the public eye upon the progress which has been made in aviation.

The convention of physicians will not receive the same public attention, but its results will be more far reaching and of greater import. It has come to be recognized that the hygienic weakness of one country affects all countries, including those with the most perfect sanitary control. The inhabitants and visitors of this seaside resort probably have not realized the deep significance of the gathering just over. The medical profession should.

OCULAR SENSIBILITY TO PRESSURE IN LOCOMOTOR ATAXIA.

The ocular globe, under normal conditions, possesses a special sensibility to pressure, which is made manifest by a deep seated, acute pain, *sui generis*. This sensibility may be compared, to a certain extent, to the deep seated sensibility of various organs, such as the trachea, the breast, testicle, ovary, and epigastrium. Ocular sensibility to pressure is largely due to the setting into activity of the sensitive nerve endings of the choroid and its dependencies, and, consequently, arises from the trigeminus by the intermediary of the ciliary nerves. Ocular sensibility to pressure is upset in diseases of the tunics forming the eye and intraocular media, but the study of such perturbations is still to be undertaken. Ocular sensibility to pressure may also be modified in

diseases of a more general kind, and particularly in locomotor ataxia. In this process the changes are an increase of the pressure sensibility, which constitutes ocular hyperalgesia to pressure; a decrease, which may very properly be termed ocular hypalgesia to pressure, and finally, abolition, which represents ocular analgesia to pressure. Under the generic term of ocular analgesia to pressure may be comprised all the variations, in minus of the ocular sensibility to pressure. Tabetic ocular hyperalgesia to pressure is uncommon, analgesia being by far the most frequent. The latter phenomenon is encountered in rather more than fifty per cent. of cases of locomotor ataxia and in all the phases of its evolution.

This analgesia appears to have but little connection with the intraocular tension, the state of the retina, or optic nerve, and in general with the divers ocular manifestations commonly met with in locomotor ataxia, and, above all, with the state of corneal sensibility. Tabetic ocular analgesia is easily detected. Its frequency and the characteristics properly belonging to it make it a symptom which is of great value in doubtful cases of locomotor ataxia. However, the pathogenic interpretation of ocular analgesia to pressure in *tabes dorsalis* still remains hypothetical. It would nevertheless seem logical to look for its causal factor in ciliary neuritides, which enter the category of peripheral tabetic neuritides. These ciliary neuritides are in all probability of a sympathetic nature, analogous to the visceral neuritides common to this affection. Ocular analgesia to pressure is not peculiar to locomotor ataxia as it is encountered in some local affections, but in these cases it has been little studied. It is found in affections of a more general kind such as hysteria, in which case it assumes quite the same characters as in locomotor ataxia.

RECENT STUDIES IN YELLOW FEVER.

An interesting and detailed study of yellow fever has been made by Doctor Noguchi in his report of clinical observations made upon patients at the Yellow Fever Hospital of Guayaquil, while serving upon the Yellow Fever Commission of the International Health Board [Hideyo Noguchi: Etiology of Yellow Fever, *Journal of Experimental Medicine*, June 1, 1919.] To these observations upon human subjects, together with autopsy notes, he has added the results of the inoculation of certain animals and the clinical and pathological findings obtained from them. He has nothing especially new to report in re-

gard to the disease process and its clinical manifestation in the hospital patients. There is the usual sudden onset after a brief incubation period, with severe myalgia, headache and anorexia frequently with nausea and vomiting. Insomnia and prostration are also marked. The tongue is heavily coated, with red tip and edges, but later it may be brown and dry. Icterus is a prominent symptom manifested in the conjunctivæ and the skin, as well as in internal tissues, as discovered at autopsy. The urine is greatly diminished even to anuria for a day and it shows abundant albumin and casts. The fever is present at once and rises high for the first day or two and may persist from three to eight days and then be followed by a subnormal temperature. The greatest number of deaths occurred on the fifth and sixth days and these patients showed as a rule a high initial temperature with a rather rapid fall toward death. In others the temperature at death was high. A constant and marked feature is the widespread hemorrhagic tendency manifesting itself in various forms during life and in the different tissues upon autopsy.

A number of mammals and birds used experimentally gave negative results when inoculated with yellow fever blood, but in the blood of liver and kidneys of the guineapig a minute organism was demonstrated which proved capable of inducing similar symptoms and lesions when further transmitted to normal guineapigs. This closely resembles the *Leptospira icterohæmorrhagicæ*, which causes infectious jaundice, and is therefore given the provisional name of *Leptospira icteroides*. Disease was produced in guineapigs, dogs, and monkeys by inoculation with a pure culture of this organism or with the blood or organ emulsions of guineapigs or other animals previously infected. The symptoms and lesions are closely parallel to those in human patients though there is variation in the severity of symptoms and lesions among the animals, those in guineapigs being the most pronounced. Pathological and histological examinations show, as in the human cases, the involvement of lungs, liver, kidneys, stomach, intestines, heart, adrenals, spleen, lymph nodes, with hemorrhagic foci, and urinary albumin, casts and cells, and evidence of icterus, particularly with the guineapig in the subcutaneous tissues. In both animals and human subjects the testicles are not affected but the uterus and ovaries show marked involvement, especially in the endometrium with hemorrhage sometimes in the uterus and once in the ovaries. The nervous system shows little or no change but the cerebrospinal fluid is icteric and the membranes show a hyperemia. The brain in man is edematous.

RABELAIS, THE GREATEST LITERARY PHYSICIAN.

Rabelais, the monk, the physician, the politician, the poet, and the writer. It has been said, and said truly, that a man's writings are necessarily colored by his profession and especially by a profession to which he is devoted. If this is so, Rabelais loved the medical profession, as throughout his writings medicine in all its branches is referred to frequently and at length. Moreover, he was possessed of great medical erudition far in advance of his time. In his books he has displayed great knowledge of anatomy and of many diseases, but of course it is as a humorist that Rabelais shines most brightly. His wit was light hearted and Gallic, but at the same time pungent and even poignant. He has been termed the immortal mocker and the title fits him well.

Rabelais is one of the greatest writers of all time and falls within the same category as Dante and Shakespeare. He stands head and shoulders above all other medical men who have been writers. The only one who can be compared with him is Oliver Goldsmith, and the comparison denotes that whereas Rabelais has probably no equal as a humorist and satirist, Goldsmith has many superiors both as poet and prose writer.

François Rabelais was born at Chinon, in Touraine, in or about the year 1490, some say in 1483. Little is known concerning his birth, parentage, and early education. It was in 1519 that the Rabelais of history first came to the front. It is fairly well known that his father was either an apothecary or an inn keeper, that he was brought up in a monastery and became a Franciscan monk. Afterward he became a Benedictine monk and later abandoned his Benedictine garb for that of a secular priest. Not long after this change he began the study of medicine, entering the University of Montpellier in the year 1530 or thereabouts. According to Dr. Charles Greene Cumston, writing in the NEW YORK MEDICAL JOURNAL, April 27, 1912, there is a legend relative to the arrival of Rabelais at Montpellier. Eugene Noel relates that on the day he first came to the faculty, he took part in a botanical discussion which was so successful that it was a triumph for him, and Louis Barré adds that this ovation resulted in his obtaining his degree of bachelor of medicine one month later. Be this as it may, he lectured publicly at Montpellier on Galen and Hippocrates in 1531. He moved to Lyons in 1532 and during his stay there appeared the first of those works which were to make his name immortal. The earliest known dated edition of *Pantagruel* is 1533 and of *Gargantua* 1535.

While at Lyons Maître François was connected with the hospital, where he was engaged to look after the patients at a salary of forty pounds *tournois* a year. Rabelais is, in consequence, the first hospital intern whose name has been handed down to us. In 1534 he was physician to the embassy at Rome. In 1539 he entered the service of Guillaume du Bellay Langey, and up to the time of the publication of his third book, in 1546, nothing has been recorded of the intervening period of his life. During 1546 and part of 1547 he lived at Metz in Lorraine as physician to the town. In 1547 he again went to Rome and was there in 1549 and is supposed to have died in 1553. He is stated to have said on his deathbed: "*La farce est jouée, je vais chercher un grand peut-être.*" "The farce is played, I go to seek a great perhaps."

The writings of Rabelais are slightly known in English speaking countries. His greatest work, *Gargantua and Pantagruel*, is not much read because of its archaic language and the unbridled license of description displayed therein. In the time of Rabelais coarseness and license of language and behavior were the ordinary usages of all society, and if Rabelais wished to reach a large audience he had to adapt himself to the understanding of the vulgar. Not only is *Gargantua and Pantagruel* a mirror of the sixteenth century, but the entire work reveals the hand of the physician. Some hold that Rabelais was a sober reformer of sound education. He spoke Greek, Latin, and Hebrew; of rational, if not dogmatic religion, who wrapped his morals in a farcial envelope partly to make them go down with those he desired to reach and partly to shield himself from the consequences of his reforming zeal.

On the other hand, Sir Walter Besant thought that Rabelais was more or less antireligious and that his books were to a great extent a general protest against any attempt to explain supernaturally the riddle of the universe. In any event, it is now a matter of common knowledge that Rabelais was not the drinking, pleasure loving, lascivious minded man of the world that he has been usually considered to be; on the contrary he was assuredly one of the most learned, deep thinking men of the age. Perhaps the only writer of satirical literature who can be compared to him was Swift, and Rabelais lacked the ferocity of the terrible Dean of St. Patrick's; his satire was light and sparkling.

As a physician Rabelais excelled, and it seems likely that he was as much in advance of the physicians of his era in medical lore as he surpassed the monks in learning. His life as a physician was exemplary. He gave of his knowledge freely, and

appeared to have been successful in treatment. No literary medical man has added such lustre to the profession as has Rabelais, and it must be regarded as an enduring honor to the ranks of medicine that François Rabelais enlisted therein. In *Gargantua and Pantagruel* he raised to himself *monumentum aere perennius*.

EXHIBIT OF THE MEDICAL DEPARTMENT OF THE ARMY.

Activities of the medical department during the war and advances in disease control, sanitation, hospitalization, medicine, surgery, and reconstruction were shown by the exhibit of the Army Medical Department at the A. M. A. convention in Atlantic City. The exhibit was prepared by Colonel C. F. Craig, curator of the Army Medical Museum in Washington.

Construction and administration of hospitals were demonstrated by typical layouts of hospitals, charts, and photographs of scenes at a number of hospitals, including Debarkation Hospital No. 3 in New York. The method of handling patients on hospital trains through the ports of New York and Newport News, and the proposed development into an army medical centre of the Walter Reed General Hospital were shown. The sanitation division illustrated the methods of "delousing" used in the field and in the United States by pictures of an improvised delousing plant in operation. Practical sanitation of our army posts and mobile units both at home and abroad was shown in a series of photographs, maps and models relating to water supply, sewage treatment and disposal, wastes collection and disposal, and the control of mosquitoes and flies.

The wonderful results of operative measures upon face wounds, by which men who had practically lost their entire face had been given a new one, were shown by wax and plaster models. In addition there were models illustrating the effects of bone grafting in shell wounds of bones of the extremities. Progress in orthopedic surgery was shown by outlines of intensive courses in orthopedic surgery, camp activities, transplant splint samples, samples of special functional splints used in home hospitals, and other models.

The exhibit of the division of physical reconstruction illustrated the work of furnishing therapeutic adjuncts to medical and surgical treatment with a view to hastening recovery and securing the best functional organization service in each hospital. Instead of lying in bed and staring at the ceiling, or playing cards, patients are given suitable diversional

and purposeful occupations suitable for restoring function in the disabled parts. The exhibit portrays this service as far as possible, including some of the articles of workmanship.

BOMBS.

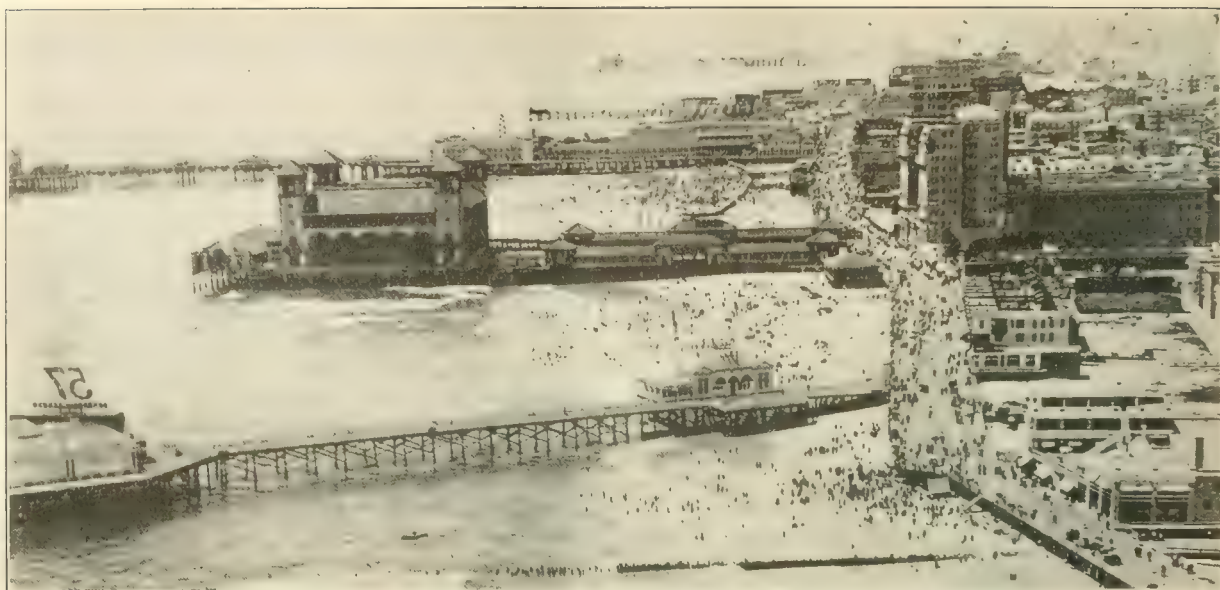
A few nights ago, eight bombs dropped on eight different door steps in eight different cities of these United States. Within twenty-four hours, those eight bombs dropped on more than twenty-four million breakfast tables in more than twenty-four million different American homes, doing damage to the nerves of more than fifty million people. Whatever causes great mental distress and shock to so many nervous systems is of paramount importance and interest to the medical profession. When the beginning of such widespread shock rests with a class of men who have no respect for law and order and use death dealing bombs to bring about such disturbance, medical men are aroused in common sympathy with all the people. In these times of three to ten editions a day of daily newspapers, with their scare headlines, it is hard to estimate the degree of shock to the nerves of the reading public by the bomb thrower and his death dealing weapon.

Finally, however, it becomes a question who is to blame for the greatest damage to the nerves of the general public, the men who throw the bombs or the publishers who exploit, in harrowing details, the results of the crimes of the bomb throwers. If the bomb could be dropped without disturbance, except in the immediate neighborhood of its explosion, the damage would not be so great, but the wave of nerve racking influence is like the dropping of a pebble in a pool of water; the shocks are broadened by the three to ten daily editions of the newspapers, until they spread out to the utmost limits of newspaper circulation. And so the waves of public shock from bomb throwing, arson, murder, accident, and calamity begin at the breakfast tables and spread out over the land, to the detriment of millions of readers who finally suffer from repeated shocks to their nervous mechanism.

TRADES UNIONISM GAINING.

An active protest against scientific workers being offered less than housemaids and cooks has been started by Sir Francis and Sir Horace Darwin in the form of a National Union of Scientific Workers. It has already nearly a thousand members, and intends safeguarding the status and conditions of employment of workers in the various sciences. The British Government during the war used to advertise for chemists with university training at \$8 or \$9 a week!

French doctors, war worn and nearly ruined have also in certain provinces combined for a uniform scale of fees: \$2 for a day call; \$4 for an emergency call or on Sundays and holidays, and \$7.50 for calls between nine p. m. and seven a. m. This increase will not worry the many who never pay doctors' bills.



CONVENTION PHOTOGRAPH OF ATLANTIC CITY TAKEN FROM AN AEROPLANE.

THE AMERICAN MEDICAL ASSOCIATION

Seventieth Annual Meeting

Held in Atlantic City, N. J., June 9 to 13, 1919

Proceedings of the House of Delegates

Dr. HUBERT WORK, of Pueblo, Colo., in the Chair.

The House of Delegates met at 10 a. m. in the library of the Hotel Traymore, Atlantic City, N. J., and was called to order by the speaker, Dr. Hubert Work, of Pueblo, Colo.

Report of the Secretary.—Dr. ALEXANDER R. CRAIG, of Chicago, presented his report as secretary, stating that the fellowship of the American Medical Association on May 1, 1918, was 44,715; the fellowship of the association for this year on May 1, 1919, was 45,412, a net increase for the year of 697.

Since the armistice a considerable number of physicians had been released from military service, and presumably the demobilization might be expected to proceed more rapidly as the overseas forces under arms were returned and discharged, but a sufficient personnel of the Medical Corps must be retained in service until the army had been reduced to a peace status. It could not be expected that an exact prewar status ever would be restored. The task which confronted the American Medical Association, he said, with its constituent state associations and component county societies, was to assist in bringing about a better state of affairs in the medical profession.

Report of the Board of Trustees.—In connection with the national program for combating venereal disease, it was worth noting that the association printed for the Army Medical Department 30,000 copies of the manual of treatment of venereal diseases, and in addition distributed between 15,000 and 20,000 copies of this book. When the

Public Health Service took up the work, the association was asked to print 70,000 of the manual. Later, orders came from some of the State Boards of Health, so that practically 100,000 copies of the manual had been printed for the Public Health Service and distributed among State Boards of Health.

According to the auditor's report, the real estate of the association was listed as worth \$231,463.59.

Investigation and Standardization of Hospitals.—One important work was that connected with the investigation and standardization of hospitals. This work was begun in 1906, at which time the first attempt was made to obtain a list of dependable medical colleges in the various states. The work had been developing since that time, and an abundance of accurate data had been collected in regard to the number and character of hospitals, their bed capacity and the physicians on the attending staffs. The efforts toward standardizing the hospitals, especially those providing internships for medical graduates, were being energetically pressed, and in this movement the abundance of data collected would be of service.

The report of the auditors showed the association to be in a healthy financial condition.

Report of the Council on Health and Public Instruction.—The increasing number of organizations interested in public health work accentuated the fact brought out by President George E. Vincent, of the Rockefeller Institute, in his address before the American Public Health Association in December, 1918, that one of the most important needs in the public health field today was that of increased knowledge of public health conditions. Knowledge even on fundamental health questions

was fragmentary and in many cases based on insufficient foundation. Public health leaders were coming to recognize that improved conditions in the public health field could not be brought about wholly by legislative enactment; that restrictive laws had only a limited value, and that the more accurate and complete our knowledge, the better could health conditions be controlled and improved through public sentiment rather than through restrictive legislation.

Social Insurance.—During the war the work of the social insurance committee was necessarily discontinued. The introduction during the last two sessions of the Legislature of bills providing for health insurance and the appointment of commissions to study this subject in a number of States, notably California, Illinois, New Jersey, New York, Ohio, Pennsylvania, and Wisconsin, and the introduction of a bill in the New York Legislature, all combined to make this question one of the vital issues now before the medical profession. No State had as yet adopted social insurance. In New York the bill endorsed by Governor Smith passed the Senate but failed to pass the House. In California, the bill recommended by the State commission was, on referendum, defeated by a large popular vote. In Wisconsin, the commission reported against the proposition. In Ohio, the commission was in favor of limited social insurance. In Pennsylvania and Illinois, the commission recommended a continuation of its activities and further study of the question. The growing interest shown in this subject during the last two years, however, made it all the more important that careful attention should be given to it by physicians, both as individuals and as a profession. The attitude of the majority of physicians up to date had been one of unqualified and often unreasoning opposition, without any efforts to study the question or to consider the arguments put forward in favor of the proposed plan. Unreasonable opposition or sweeping and often erroneous general arguments against the measure would not prevent its adoption nor would it enhance the influence of physicians.

Report of the Council on Medical Education.—With the higher entrance requirements better qualified students were being enrolled in the medical schools. The campaign for improvements carried on by the council had resulted also in providing a better medical training than was furnished in earlier years. As a result of the investigations and classifications and the publicity given to the conditions

found, more endowments for medical education were secured, better medical buildings were erected, new and improved laboratories were added, better equipment was provided and larger staffs of expert full time laboratory teachers were employed. A careful study and revision of the medical curriculum had resulted in a better apportionment of time to the various subjects of the curriculum so that those subjects were now being taught in a more logical sequence. Medical faculties were better organized, which meant that there was a better working organization of the instructors by departments, those teaching anatomy, physiology, medicine, surgery, etc. During the fourteen years better and closer relations had been established between medical schools and hospitals; methods of clinical instruction had been greatly improved by the division of classes into small sections for ward work, clinical clerkships, etc.

The world war had emphasized the great need of better facilities for graduate medical instruction in the United States. Such facilities were in great demand by medical officers as they were being released from active duty, since that presented an excellent opportunity for them to take up certain courses of graduate study before returning to active practice.

The medical profession was justified in objecting to the various cults, not because of their peculiar systems of practising, but because of their serious lack of education and the fact that they were seeking the right to practise as physicians without meeting the same educational standards with which physicians had to comply.

Hospital Standardization.—During 1912 and 1913 a questionnaire was sent to 2,424 hospitals having twenty-five or more beds. Reports were received from 2,185, and of this number 852 were regularly using interns, providing places for 3,006 interns. The questions in regard to equipment of hospitals applied mainly to the pathological and clinical laboratory and its equipment to make certain examinations and analyses, the röntgen ray laboratory, and the work it was equipped to perform, and the employment by the hospital of its expert anesthetists and dietitians.

The keeping of accurate histories and records represented one of the most important essentials in the proper conduct of hospitals. There was need for much improvement in this respect in the great majority of hospitals.

Reports from the eighty-five medical colleges which conducted classes during the session of 1918-



ALEXANDER LAMBERT, M. D.,
Of New York, N. Y.,
President, American Medical Association

1919, showed that total enrollment of medical students was approximately 12,900, or 1,540 less than for the session of 1917-1918. The reduction was mainly in the freshman classes of which the total enrollment was approximately 2,810 for the present session, as compared with 4,283 for the previous session. There were twenty-five medical



ARTHUR DEAN BEVAN, M. D.,
Of Chicago, Ill.,

Retiring President, American Medical Association.

schools also which last fall for the first time enforced the requirement of two years of collegiate work for admission. The war had rendered a great service in revealing the possibilities and benefits that would result from higher attainments in medicine.

Report of the War Committee of the American Medical Association.—This committee supplied State and county organizations with detailed information concerning the physicians in their own community who were available for civil and industrial practice, and had cooperated with these branch organizations in enlisting the services of additional physicians where the needs of a locality could not be met by physicians still remaining in civilian practice in these communities.

Second Session.

The second meeting of the House of Delegates was held Tuesday morning, June 10th.

The reference committee on sections and section work reported to its chairman, Dr. George D. Head, of Minnesota, recommending that the association continue separating the division of sections into two groups, one group to meet in the morning hours and the other group to meet in the afternoon hours. This committee also approved of limiting the number of papers, including addresses on the program of any one section, to twenty-five, and this recommendation was concurred in.

The reference committee on medical education reported that the chief factor in contributing to the

improvement of medical education was the publicity given to the results of surveys and the annual conference held with representatives of medical schools, State medical examiners and other agencies interested in medical education. State boards of medical examiners were urged to utilize to a greater extent the information gathered each year by the association with reference to the medical student body. The reference committee on legislation and political action reported against making any definite recommendations on the subject of social insurance at this time, although the subject should be considered from every angle.

A special narcotic drug committee was created for the purpose of studying this subject in conjunction with the Council on Health and Public Instruction.

An amendment to the bylaws provided for the election of officers of the several sections at the final meeting of the sections on the last day.

The reference committee on reports of officers through its chairman, Dr. Hugh T. Patrick, of Illinois, endorsed the plan of an annual midwinter conference of the secretaries of State societies with the officers of the American Medical Association.

ELECTION OF OFFICERS.

At the meeting of the House of Delegates held on Thursday afternoon the following officers were elected for 1920: President, Surgeon General William C. Braisted, United States Navy; first vice-president, Dr. Daniel L. Edsall, of Boston; second vice-president, Dr. Emery Marvel, of Atlantic City; third vice-president, Dr. Eugene S. Talbot, of



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President Elect, American Medical Association.

Decatur, Ill.; fourth vice-president, Dr. George Kress, of Los Angeles; Dr. Alexander R. Craig, of Chicago, reelected secretary; Dr. William A. Pusey, of Chicago, reelected treasurer. The next convention will be held in New Orleans, La.

The Scientific Proceedings

We present below abstracts of some of the more important of the papers read at the various section meetings and shall publish additional abstracts in later issues.

SECTION IN SURGERY, GENERAL AND ABDOMINAL.

Influence of the Surgery of the Great War on the Surgery of Civil Life.—Dr. JOHN T. BOTTOMLEY, of Boston, commented briefly on the probable influence that the surgery of the war might have on the surgery of civil life. He considered it well that this comment should come from one who saw but little active military service because it was probable that numerous papers on the topic would be forthcoming from the hands of those who saw active service. No entirely new surgical principle was uncovered during the war, but in this fact there was no discredit to surgery since the long established principles upon which surgery rests emerged triumphant from a tremendous test. At no period of the war were the principles of asepsis and antisepsis in danger; their practice, however, was at first rudely shaken because of the novelty of military conditions. Organization of our forces and application of knowledge already possessed to conditions in the end adequately comprehended finally resulted in the advent of the two great surgical developments of the war—the practice of débridement, which made possible the successful primary closure of contaminated wounds, and the so-called Carrel-

had not received the general attention to which they were entitled and which they were certain to demand in the near future. The more favorable conditions of civil life would make our results far better than they could possibly be under military



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Dakin method of treatment through which successful secondary suture of once infected wounds was rendered feasible. It was obvious that their application would be far wider and more useful in the domains of industrial and accident surgery, which

conditions. It was logical to assume that as débridement comes more into vogue, the need of the Carrel-Dakin method would be less urgent.

The speaker pleaded for better cooperation in civil hospitals between the clinicians in their various specialties and the laboratory men. He cited the results already obtained and those hoped for in maxillofacial surgery as a striking example of what cooperation among clinicians might accomplish. He believed that the dominant note in the chief contributions that military surgery had brought might be expressed by the two terms prevention and precision. The accomplishments of recent military surgery in civil life were summed up as follows:

It had been demonstrated that, even in severe wounds with existing contamination, infection could be prevented or controlled. Tetanus had practically been banished because of the preventive quality of the antitoxin. Treatment by magnesium sulphate and carbolic acid had been definitely put aside. The wound conditions favoring the development of gas gangrene were recognized, its pathology was known, and the earliest signs of its presence were tabulated, and consequently its treatment was now on a more scientific and successful basis. There were promising indications that an effective antitoxin against it might be developed. There was no longer any question as to the proper treatment either in peace or war of penetrating wounds of the abdomen. The contention of the civilian surgeon had been upheld. Many of our doubts in chest surgery had vanished. The need of complicated pressure apparatus had gone with the establishment of the fact that with-

out it the pleural cavity might be opened freely and the lung handled without undue danger. The final report of the studies on empyema which was rampant in the war camps would place the treatment of that complication in a clear light. Convincing evidence had established beyond doubt the position of those who in prewar days asserted that the synovial membrane had strong power of resistance to infection and that drainage of joints recently wounded was not only unnecessary, but often harmful. The factors entering into the production of shock and the details of its treatment had been so vividly delineated for both the public and the profession that no surgeon who had to do with the great industries in which severe injuries were common could afford to neglect provision for the prompt and efficacious treatment of the shock that might accompany them. The treatment of fractures had been stabilized by the standardization of splints and other apparatus for immobilization. Plaster of Paris had been very generally supplanted by these stabilized splints and apparatus. Many problems in connection with the transplantation of bone would be cleared up. Methods of transportation of the injured would be improved. Decision would be forthcoming in many bothersome questions with relation to the surgery of the nerves, such as tubulization by fascia or by pieces of vein, anastomosis by autografts or by nerve splitting, etc. Indirectly, surgery would benefit through the stronger spirit of discipline, the more rigid practice of economy, and the more efficient measures of cooperation that would obtain in civil hospitals.

The speaker warned the young men who had some surgical experience in the war that they must not regard themselves as able surgeons unless their war experience was based upon or followed by a thorough training in a civilian hospital. The real worth of any surgical procedure might not be truly measured until the end results were carefully studied; hence many of our present ideas must be held only tentatively. Full consideration must be given to the numerous cases of chronic osteomyelitis, of injury to peripheral nerves, and of chronic suppuration that would crowd the hospitals for a long time. Restoration and reeducation of the maimed was a duty. The medical profession should evolve some plan of physical training that would better the physical condition of the youth. Over forty per cent. of those in the first draft in the state of Massachusetts were disqualified for physical defects. Such a condition should not obtain.

The Treatment of Gas Bacillus Infection.—Dr. FREDERICK T. VAN BEUREN, Jr., of New York, said that the few statistics available seemed to show that both the morbidity and mutilation as well as the mortality of gas bacillus infection lessened appreciably during the latter years of the war. The differences in mortality between those operated upon early and those operated upon late showed that rapid transportation of wounded to the hospital should be given an important place under the broad heading of the treatment of gas bacillus infection.

Recognition of the symptoms of the disease had brought with it earlier operation and better operative results. The prolonged application of tour-

niquets was found to be dangerous and greater precautions were taken in their use. Clothing fragments and rough missiles came to be recognized as infection carriers and an attempt at their careful removal became routine practice.

Three problems must be considered in treatment: The patient, his environment, and his infection. The importance was reiterated of such predisposing factors as bad weather, contaminated soil, dirty skin and clothes, poor sanitation, rough missiles, prolonged exposure before and slow transportation after wounding. The patient was often in a more or less profound condition of shock and sometimes had been partially starved and dehydrated as well as chilled and severely bled. If infection had already developed he was suffering from toxemia and acidemia. Nothing could take the place of operation in this disease-injury complex, and it is probable that nothing ever would.

Gas bacillus infection could of course occur in any wound but did occur almost invariably in severe wounds, particularly in those of the lower extremity associated with fracture, vascular injury, and muscle damage. Such a wound was always far more extensive beneath than in the skin and its depths hid rough missiles and bits of clothing or equipment. Its crevices were filled with blood clots and it was walled by muscle, fascia and aponeurosis, torn, contused and loaded with indriven fragments of comminuted bone and with extravasated blood. The regional blood supply was locally or massively interfered with. There was also infection, usually with a varied flora, including the gas forming, saphrophytic anaerobes.

In the early part of the war surgeons began by simple incisions and drainage, but they rapidly arrived at a fairly standardized procedure. Only general rules could be formulated, as much depended upon the judgment of the operator.

1. Use nitrous oxide oxygen anesthesia, if possible.
2. Prepare the part with minimum delay and trauma.
3. Avoid tourniquets.
4. Make incisions longitudinally and one half again as long as you think they need be, both in skin and fasciæ.
5. Leave as much skin as you dare, in débride-ment.
6. Go between rather than through normal muscles and do not cut across them unless you have to. Better a long separation between two than a short cut across one.
7. Open the wound as thoroughly and freely as you possibly can.
8. Excise all torn, crushed, discolored, noncontractile muscle until you have left only that which is firm, of normal color, actively contractile, and which bleeds readily.
9. Make a careful and conscientious search for and remove all loose bone, soiled and torn fasciæ, and foreign bodies, especially clothing and blood clots.
10. Stop the bleeding. Leave the wound wide open and separate its walls with wet gauze, laid in—not packed in.

11. Use Carrel tubes if you know that they will be properly cared for, otherwise omit them.
12. Use plenty of dressings and make careful splint fixation of the part.
13. Do it all as rapidly as you properly can.



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Carrel-Dakin instillation was considered the best postoperative local accessory treatment when properly applied. Serotherapy remained to be considered. Doctor Van Beuren said he had no personal experience with this method and that while serotherapy promised much for the future, it had not had much opportunity for performance in the past, or if it had reports were not available. The results of the series tried out by the British and the Americans were not yet available, but the speaker had been informed they were encouraging if not as brilliant as had been hoped for. The sera used by the British, French and Americans were either specific antiperfringens (anti-Welchii), antioedematiens (antibellonensis), antivibrio septique or a combination of the three, preferably with antitetanic serum included. Intravenous administration was perhaps most effective but was not always possible. For preventive use it was usually given subcutaneously and intramuscularly and the combined seta used, the dose being from ten c. c. to sixty c. c. repeated, if symptoms developed. For curative injections the appropriate specific serum or sera were used, after the infecting organisms have been identified, in twenty c. c. to sixty c. c. doses, repeated as indicated. Here the intravenous method was generally combined with intramuscular injections.

The speaker said in conclusion that one may with fair confidence assert that future improvement in the results of treatment for gas bacillus infection of war wounds would rest upon: 1, Preventive serotherapy; 2, earlier operation, due to more rapid transportation; 3, observance of the correct operative procedure; 4, curative serotherapy.

Traumatic or Wound Shock.—Lieutenant Colonel W. B. CANNON, of Harvard University, reported the work of his clinical observations and laboratory studies on shock during nearly twenty months' experience in Europe. The evidence presented showed that shock was not primarily due to nervous exhaustion, fat embolism, or acapnia arising from excessive respiration. The low blood pressure of shock was due to toxic material given off from injured tissues, for: a, If the muscles of a hind leg were crushed, the blood pressure after about twenty minutes began to fall and went down to a shock level; b, this occurred even though the nerves to the leg were previously severed; c, it did not occur if the bloodvessels were previously tied, but took place immediately after the blood flow was restored; and d, the loss of blood and lymph into the injured tissue was insufficient to account for the lowered pressure. If the blood pressure fell below approximately eighty mm. hemoglobin, the tissues began to suffer from lack of oxygen. The same effect might be seen after hemorrhage.

In the treatment of shock, arterial pressure should be raised by transfusion if it persisted below the critical level (eighty m.m. hemoglobin). Crushed tissue should be removed as soon as possible. If a limb had been shattered and rendered useless, the passage of toxic material from the injured tissue might be prevented by a tourniquet placed as near as possible to the injured region. Amputation should be done proximate to the tourniquet and before removing it. Loss of body



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heat should be checked and normal temperature restored by application of heat. Since ether lowered the blood pressure in shock, it should be avoided as an anesthetic. Nitrous oxide and oxygen should be used in a ratio not exceeding three to one, preceded by morphine. Deep anesthesia and cyanosis should always be avoided.

SECTION IN GENITOURINARY DISEASES.

Dilatation of the Ureter and Pelvis.—Dr. W. F. BRAASCH, of Rochester, Minn., discussed the various etiological factors of ureteral dilatation—mechanical, inflammatory, and atonic. A description was given of various types of mechanical and inflammatory dilatation and of the gross and microscopic pathology occurring with ureteral dilatation. Doctor Braasch also described the pathology of the ureter in renal tuberculosis and considered the question of atonic dilatation.

Ureteral Transplantation in Inoperable Conditions of the Bladder.—Dr. WILLIAM E. LOWER, of Cleveland, said that in inoperable conditions of the bladder from the presence of malignant growths, the presence of urine in the bladder caused an almost intolerable condition. In many of these cases but little if any relief was given by opium. For the greater comfort of the patient, therefore, the transplantation of the ureters into the rectum or large intestine was recommended. In certain cases a complete extirpation of the bladder might be done, thereby prolonging life and making it more tolerable for the patient.

The Treatment of Stone of the Kidney and Ureter from the Standpoint of the Clinical Surgeon.—Dr. ALBERT J. OCHSNER, of Chicago, gave the development of surgical experience from personal clinical observation covering the past thirty years since this condition began to be looked upon as a surgical disease. The matter of prophylaxis against recurrence of renal calculi by the free use of distilled water, the patient drinking no other

ther stones would develop. The x ray would determine the fact in case multiple stones were present at the time the patient came under treatment.

The following conclusions seemed justified:

1. The size of the pelvic stone would usually de-



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water after having experienced one attack of renal colic, was especially emphasized. This practice if universally carried out would almost entirely eliminate surgical treatment, because it was only in rare instances that the first stone failed to pass and, if this plan of treatment was followed no fur-

termine the possibility of its passage spontaneously. In the speaker's experience when several stones were present in the pelvis at one time, the patient never passed all of these spontaneously.

2. In the ureter the primary stone would usually pass if it got started. Subsequent stones might be stopped by cicatricial contractions caused at some point by injuries due to the passage previously of one or more stones.

3. A large proportion of stones of moderate size would pass spontaneously or after dilatation of the ureter with bougies or the use of oil or glycerine injections or one of the various methods of dilatation, of which the one perfected by Lespinasse seemed most effective.

4. At times merely starting the stone with a bougie would suffice.

5. In patients suffering from acute renal colic, the use of morphine and atropine hypodermically followed by the ingestion of two ounce doses of glycerine with large quantities of distilled water seemed to be of value in aiding the passage of stones spontaneously, especially, when the patient was immersed in a very hot bath.

6. The prophylactic measure of taking large quantities of distilled water seemed to be effective in preventing recurrences.

7. Sinuses remaining after pyelotomy or nephrotomy would frequently heal after injection with Beck's bismuth paste.

8. The clinician who was alert for the discovery of renal or ureteral stones and who took into con-

sideration the history and physical findings would rarely miss a correct diagnosis provided he confirms his diagnosis, a, by careful urine examination; b, by x ray examination with intensified shadows if necessary; c, by the introduction of ureteral shadow sounds; d, by pyelography in doubtful cases, provided he was willing to consider all points as a whole and placed no weight upon negative findings by any single one of the various methods employed.

SECTION IN PHARMACOLOGY AND THERAPEUTICS.

The Pharmacology of Local Anesthetics.—Dr. CARY EGGLESTON and Prof. ROBERT A. HATCHER, of New York, presented a short paper in which they set forth certain results of an extended series of experiments, with special reference to the bearing of the results upon the problem of clinical intoxication by the local anesthetics. They laid stress upon the elimination of these drugs and showed that their elimination in the cat was accomplished by rapid destruction in the liver. They showed that all of the anesthetics studied were absorbed rapidly from the subcutaneous tissues, but that the drugs could be divided into two groups with reference to their toxicity after subcutaneous injection, or after slow intravenous administration, the grouping depending upon the rates of elimination of the drugs: Group I contained the drugs which were very rapidly eliminated, including alypin, apothesine, betaeucaine, nirvanine, procaine (novocaine), stovaine and tropacocaine. Group II contained

ence the susceptibility of cats to the toxic actions of the local anesthetics, but found that severe acute hemorrhage and narcosis by hydrated chloral were the only measures which had any appreciable effect. Both of these increased the cat's susceptibility by impairment of the heart and respiratory centre and



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those which were much less rapidly eliminated, including cocaine and holocaine. The members of Group I were much less toxic by subcutaneous injection than those of Group II.

The speakers suggested that this grouping applied to the toxicity for man. They tried to influ-

by delayed destruction of the drugs in the liver through impairment of the circulation. They found that neither artificial respiration alone nor when combined with massage of the heart was effective in resuscitating cats after the intravenous injection of doses of the local anesthetics greater than the average fatal dose. If the heart was stimulated by the immediate intravenous injection of a dilute solution of epinephrine and the respiratory centre was supported by artificial respiration, cats would generally recover from the rapid intravenous injection of as much as twice the average fatal doses of the local anesthetics. They suggest that these measures should prove of value in the treatment of acute poisoning in man, and they emphasized the fact that they were such as could be applied at once without special preparation. The speakers also showed that the stimulation of the heart by the previous administration of a dose of ouabain would permit the cat to survive the intravenous injection of one and three fourths times the average dose of the local anesthetics when artificial respiration was employed to support the respiratory centre. The routine use of epinephrine was urged in solutions of the local anesthetics intended for subcutaneous injection in man, in order to delay the absorption of the anesthetic and thus to increase the probability of the liver's being able to destroy the anesthetics after absorption sufficiently rapidly to prevent intoxication.

The paper was illustrated by tracings and a chart was shown which gave the relative maximal toxicities of the local anesthetic group investigated.

The Action of the Anthracene Cathartics on the Isolated Uterus.—Dr. CHARLES C. LIEB, of New York, said that the common anthracene cathartics, senna, aloes, frangula, rhubarb, cascara, and aloin, caused a stimulation of the isolated uterus. The action occurred quite regularly with cat and guinea-pig uteri but was not always seen with the uterus of the rabbit. It was possible that the effect which these drugs had on menstruation was due not only to the changes in the pelvic circulation but also to a direct action on the musculature of the uterus itself.

Epidemiology of Influenza.—Dr. W. H. FROST, of the United States Public Health Service, gave a review of broad epidemiological features, based on statistical studies now in progress. He reviewed the established tendency to pandemic prevalence at irregular intervals and stated that the extent of prevalence in nonepidemic periods was not well defined.

The recent epidemic was of worldwide prevalence and characteristically rapid spread. Doctor Frost compared the 1889-90 epidemic and the notable difference in fatality.

He discussed the relation of incidence and fatality to color, sex, age, and character of community (rural vs. urban) and found that incidence and fatality were not parallel.

Evidence of specific immunity from investigation of reported recurrences was given from comparative case incidence and age distribution in metropolitan and rural communities.

The Therapeutic Aspect of Blood Transfusion.—Dr. LESTER J. UNGER, of New York, gave the respective merits and indications of transfusion with unmodified blood and with citrated blood. The technic of the method devised by the author was explained including the microscopic method of testing the compatibility of the donor's and recipient's blood; the effect on the donor after repeatedly giving blood for transfusions; the mode of estimating the dose according to the age, weight, and physical condition of the patient; a new sign of impending danger of an overdose; the various indications for transfusion such as hemorrhage, diseases of the blood, toxemias, infections, shock, and general debility.

SECTION IN PATHOLOGY AND PHYSIOLOGY.

Chronic Lesions of the Respiratory Tract Initiated by the Inhalation of Irritating Gases.—Dr. M. C. WINTERITZ, of New Haven, Conn., said that the majority of the gases which had been utilized in the recent war owed their efficiency to their irritative and escharotic action upon the respiratory tract. This action caused an inflammatory edema which was followed by a cellular exudate both in the upper air passages and in the pulmonary parenchyma. While the highest mortality occurred in the acute or edema stage, a second peak in the mortality curve was encountered with the pneumonia process. The type of the latter inflammatory reaction was largely determined by the extent of the primary destruction. Many gases produced such deep seated necrosis that if death did not en-

sue in the acute edema stage or at the height of the pneumonia process, organization might occur of the exudate within the alveoli and more frequently of that in the bronchioles. The contraction of the scar might lead to serious and progressive mechanical difficulties not only with the ingress and egress of air into the alveoli, but also with the pulmonary circulation and ultimately with the aëration of the blood in the lungs. Chronic suppurative inflammatory processes might also persist, especially in the bronchi, with a typical picture of a tubular or of even a saccular bronchiectasis or bronchiolectasis.

The various gases of the respiratory irritant group had a similar action, but differed in the localization and extent of their necrotizing effect. A brief review of the pathology of mustard gas, chlorin, and phosgene would emphasize this difference.

Mustard in lethal concentrations not only destroyed the lining of the entire bronchial tree, but its necrotizing action involved the lung itself. In more dilute form it produced necrosis of the epithelium of the trachea, which, however, became less marked toward the finer ramifications of the bronchi. The gas seemingly spent itself in the upper air passages. It either did not reach the bronchioles and alveoli, or it reached them in such a diluted or changed states that chronic pulmonary lesions after this gas were rare.

After chlorine inhalation there was also an injury to the lining of the entire respiratory tract, even to the ducti alveolares and the alveolar walls themselves. The epithelium was blistered, but the necrosis in the trachea and in the larger bronchi was not as deep and extensive as it was with mustard gas. Probably on account of its less efficient corrosive action, the injury of the pulmonary parenchyma, not so severe even in the acutely fatal cases, resulted more frequently in chronic lesions which might cause death long after the initial symptoms had passed.

Phosgene had the least severe action upon the respiratory tract, but the most frequent and persistent lesions were left in its wake. Organization of bronchiolar and peribronchiolar exudates with obliteration or dilatation of the lumina of the bronchi led naturally to serious and progressive obstruction to the passage of air and the circulation of blood in the lungs.

That there was immediate death of the epithelial lining cells of the respiratory tract after exposure to these poisonous gases might be demonstrated with vital stains. Within two hours after inhalation of chlorine dogs whose circulation had been previously heavily laden with trypan blue showed deep blue nuclei in the mucous membrane of the trachea, bronchi, bronchioles, and even a staining of entire alveolar walls.

This injury was the anatomical expression of the destruction of the normal protective mechanism of the upper respiratory tract and was followed by an invasion into the lung of the bacterial flora of the mouth. This had been demonstrated repeatedly by mouth cultures before exposure to poisonous gas and subsequent cultures not only of trachea and bronchi but of the lung itself.

It had been shown that the high mortality in the most acute or edema stage was not due to the accumulation of fluid within the air sacs. Pulmonary edema must be regarded as the expression of a more deep seated process and in itself was probably never a satisfactory explanation for death. Where



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death did not terminate the process, the inflammatory exudate which supervened was readily explained by the presence of large numbers of bacteria that found in the trachea and lung, injured by the action of the gas, a fertile medium for development.

Interesting as these two stages might be, it was most important to recognize that the primary escharotic action of these gases frequently led to much more extensive lesions of the respiratory tract than were usually encountered. Even though the animal might survive, the necrotizing tracheitis, bronchitis, and pneumonia characteristic of the acute stages did not allow restoration to normal of the respiratory tract. The initial damage was followed by organization which might be sufficiently extensive after mustard gas inhalation to produce stenosis of the larynx or trachea. After chlorine, phosgene, superpalite, cyanogen bromide, chlorpicrin, etc., a progressive fibrosis with obliteration or dilatation of the smaller air passages might result. This occurred not only when the acute effects of the gas had been manifest, but with the phosgene group especially it might follow even when no marked expression of acute damage had been observed. With bronchiectasis, metastatic infection in the parenchymatous organs had been noted, but in general the changes both during the life of the animal and at autopsy were characteristic of this condition. With obliteration of the smaller air passages, pulmonary emphysema and atelectasis led to progressive respiratory disturbance which was much more manifest with physical exertion.

For the present, the chronic or residual lesions after inhalation of these poisonous gases were decidedly the most important. It seemed possible that graded respiratory exercises might prevent the contraction of the scars in the finer ramifications of the bronchi during the period of their formation and in this way at least aid in the amelioration of the distressing condition which might follow.

Experimental Emphysema.—Dr. SARAH R. KELMAN, of Iowa City, Iowa, described twenty cases of postinfluenzal pneumonia which came to autopsy and which presented a striking and uniform phenomenon—a marked vesicular emphysema accompanied by an interstitial emphysema involving the anterior, posterior, and superior mediastinum, and retroperitoneal tissues.

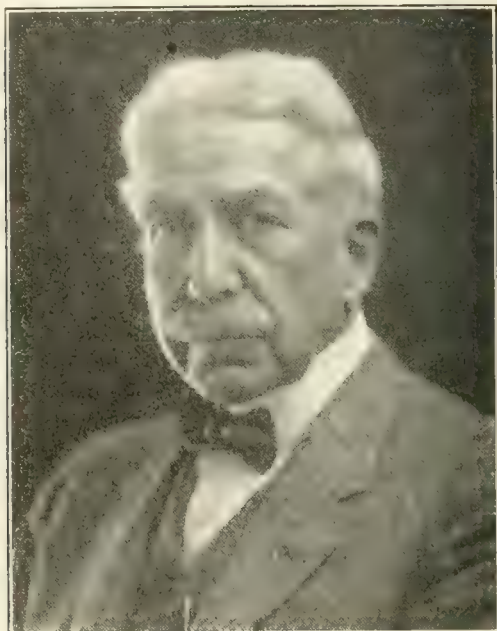
Experimentally it was proved on rabbits that the interstitial emphysema was due to an escape of atmospheric air from the lungs, the path taken by the air being extrapleural at the root of the lung along the reflexion of the pleura and pericardium over the great vessels. The vesicular emphysema could be produced on rabbits by inducing respiratory distress. This was accomplished, a, by producing anaphylaxis, thus bringing on respiratory distress, and b, mechanically, by intratracheal insufflation under slightly increased pressure. It was also found that emphysema in itself would bring on respiratory distress. Rabbits inoculated with *Bacillus influenzae* or its toxin, presented at necropsy much the same picture regarding emphysema as that found in fatal cases of postinfluenzal pneumonia. It was therefore concluded that acute



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vesicular emphysema found in fatal cases of postinfluenzal pneumonia was probably due to a combination of causes each intensifying the other: a, A toxic action of the virus on the lung parenchyma, causing a marked weakening of the alveoli; b, a toxic action of the virus on the respiratory centre,

producing dyspnea and cyanosis; c, the emphysema thus produced in its turn increased the dyspnea and cyanosis; d, the above mentioned factors combined acting on already weakened alveoli produced the acute vesicular emphysema observed in postinfluenzal bronchopneumonia.



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Clinical Diagnosis as Compared with Necropsy Findings in 600 Cases.—Dr. HOWARD T. KARSNER, Dr. LEONARD ROTHSCHILD, and Dr. E. S. CRUMP, of Cleveland, analyzed 600 cases equally distributed between two large hospitals in Cleveland. Errors of diagnosis were classified as gross and minor, the former term indicating a clinical diagnosis which did not name the organ in which the important lesion was situated, and the latter indicating that disease was properly diagnosed in an organ but the nature or exact location of the lesion not correctly diagnosed. Eight per cent. gross errors and sixty per cent. minor errors were found. The errors were about the same in the two hospitals except in the case of heart lesions, where one hospital had a total error of eighty per cent. and the other thirty-two per cent. It was argued that clinical diagnosis was still far from accurate, that constant effort must be made for improvement of methods of diagnosis, and that all methods of diagnosis as summarized in the final diagnosis of a case should be controlled by complete and carefully conducted necropsies. The paper concluded with a discussion of ways and means to improve the necropsy service of hospitals.

An Experimental Study of the Effects of Duodenectomy. A preliminary report.—Dr. F. C. MANN and Dr. K. KAWAMURA, of Rochester, Minn., reported on an investigation undertaken for the purpose of determining the effects of the removal of the duodenum. Previous work on the problem was reviewed and the anatomy, physiology, and pathology of the duodenum and their relation to the extirpa-

tion of the organ was discussed. A one stage operation for the removal of the duodenum was developed. The duodenum was removed from the dog, cat, hog, goat, and monkey. Careful studies on the dog did not reveal any noticeable changes following the duodenectomy, the animals remaining in good condition. Examination of the blood showed it to be normal with regard to cell counts, hemoglobin, carbon dioxide combining power, and hydrogen ion concentration. The x ray showed the course of a standard barium meal to be practically the same as in a normal dog. Experiments on the other species had been too recent to allow conclusions to be drawn but it would seem that the removal of the duodenum in the hog was as innocuous as is its removal in the dog. No data had been secured to show that the duodenum was of great importance in any of the species used, but future studies might give more positive results.

SECTION IN NERVOUS AND MENTAL DISEASES.

The Neurology of Cervical Ribs.—Dr. ARCHIBALD CHURCH, of Northwestern University, Chicago, said that the frequency of supernumerary cervical ribs was very much greater than usually understood, one per cent. of all human skeletons showing them according to the findings of numerous anatomical laboratories. No English textbook on nervous diseases made any mention of cervical ribs, for the literature of which works on surgery, anatomy, and radiography must be mainly consulted. These ribs were usually attached to the seventh cervical vertebra but in descending frequency to the sixth, fifth, and fourth. They had never been found arising from the first, second, or third. While the cervical rib had been known historically and anatomically for centuries, it was first recognized as a surgical condition by Cooper in 1818, and first surgically extirpated in 1861 by Coote. Since the use of the x ray it had been rather frequently discovered and, thanks to this assistance, many times surgically removed. The most comprehensive paper on the subject was that by Streissler, who gave 200 cases and made 297 references to the literature. This was published in the *Ergebnisse der Chirurgie u. Orthopädie* in 1913, Bd. 5, p. 280. About seventy per cent. of the cases were found in the female. Symptoms generally made their appearance after the age of ten, although the condition naturally was congenital. Most of them gave rise to symptoms in the third decade of life, with decreasing numbers during later years.

The supernumerary cervical rib was bilateral in more than half the cases and when lacking in symmetry or when unilateral appeared more frequently on the left side. Some families presented numerous cases of this congenital abnormality. The disturbance occasioned by the rib was due to its effect upon the roots of the brachial plexus as they passed over the structure and interference with the subclavian artery at the same point. Its presence produced an increased elevation of the thoracic cavity and a modification of the anatomy in the triangles in the neck. The symptoms occasioned were not relative to the size of the rib, some being associated with very small ribs, and some instances of very

large ribs giving rise to no disturbance during life. A continuance of the rib in the form of a cord which circled the apex of the chest was as likely to produce symptoms as a more largely developed rib. Other abnormalities of the skeleton were not infrequently associated, especially involving the ribs and sternum. Symptoms were usually developed at a time when the bone attained a certain degree of rigidity, or were brought about by contusion of the nerves and artery owing to the carrying of weights on the shoulder or in the hand. In other instances tuberculosis, inflammation of the pulmonary apex, pleurisy, exudation, loss of fat, and neoplasms brought forward the symptoms of a nervous and vascular character in the extremity.

The symptomatology presented local signs, the rib was sometimes palpable at the side of the neck, the subclavian much more prominent behind the clavicle, a widening of the root of the neck, a more lofty lung apex, and the demonstration of the x ray were prevented. X ray pictures were apt to be misleading and must be carefully studied. Operations had been done for cervical ribs when no rib was present, owing to the misinterpretation of an x ray negative, and in other instances symmetrical cervical ribs had been mistaken for the usual first thoracic pair. Very small ribs were easily overlooked.

The vascular symptoms were due: 1, To the disturbance of the arterial supply; 2, to the impairment of venous return, and, 3, to the vasomotor disorder, particularly in the hand, secondary to the development of neuritic changes in the trunks arising from the brachial plexus. The pulse was frequently changed in character or tended to disappear in certain positions of the upper extremity. In some instances even respiration modified the pulse and the circulation in the arm. A combination of this circulatory disorder was frequently mistaken for Raynaud's disease, the blue, sodden, cold, and ill nourished fingers being suggestive of that condition. While the ulnar portion of the hand was the part most commonly involved and the corresponding ulnar fingers, the radial side of the hand in a lesser number showed the principal involvement.

The nervous symptoms consisted in sensory defects in the distribution either of a single nerve or in all the portions supplied by the brachial plexus. Neuralgic pains were very frequent and sometimes radiated to the side of the neck, to the back of the neck and shoulder, to the neighborhood of the ear, or down the side of the chest. Subjective sensory disturbances were most commonly felt in the fingers and presented all varieties of paresthesia, with hypersensitiveness and hyposensitiveness of all grades, and even a dissociation of sensation similar to that observed in syringomyelia. The arm, and particularly the hand, tended to be weakened, and this weakness was intensified by the pain induced by the use of the member, so that the patient commonly carried the arm in a position of support as by a sling, or could only get comfort when lying down by putting the arm over the head. Trophic disturbances involved the muscles supplied, particularly the group of flexors originating from the inner condyle of the humerus and the small muscles of the hand, so that various claw positions were in-

duced suggesting a progressive muscular atrophy. Occasionally the sympathetic nerve in the neck was also involved, giving rise to pupillary changes and retraction or protrusion of the eyeball.

Additionally, inequality of the cervical ribs or a



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unilateral cervical rib was frequently associated with a scoliosis of the cervical spine, with compensatory curves above and below. Occasionally a wedge shaped supernumerary cervical vertebra with an adventitious cervical rib was found in these cases of cervical scoliosis, and in the 200 cases recorded by Streissler sixteen per cent. had scoliotic deviations of the cervical spine.

Mild cases were of rather good prognosis and could be readily treated by rest and various local applications of massage, hydrotherapy and electricity, such as were indicated in a low grade neuritis, but the severe cases were only amenable to surgical removal of the cervical rib. This operation was one of great difficulty and considerable danger, and a number of cases were reported in which after removal of a portion of the rib, it had reformed either from periosteum that was not extirpated or else by an outgrowth from the stump of the rib; and failure to remove the cord which represented an extension of the rib had in some instances defeated the purpose of the operation.

Every case presenting symptoms of brachial neuritis or persistent pain in the arm, especially in the hand, should be investigated by the x ray to determine the presence or absence of cervical ribs. Cases of subacromial bursitis, arthritis of the shoulder joint, syringomyelia, phthisis, and bony tumors at the root of the neck have been confounded with cervical ribs. Finally, every case of cervical scoliosis should be investigated with the x ray to determine the presence or absence of cervical ribs. The paper was illustrated by x ray photographs and lantern slides showing varieties of cervical ribs.

Multiple Neuritis of Toxic Infectious Origin, with Special Reference to Diabetic Polyneuritis.—Dr. ALFRED GORDON, of Philadelphia, after having enumerated all possible etiological factors of polyneuritis, described the so-called acute febrile polyneuritis as observed during the late war. He called attention to the special features which distinguish this from other forms of multiple neuritis. The special characteristics were found in the rapidity of development and improvement, in the bilateral palsy of the seventh and ninth nerves, the involvement of the sphincters, and slight sensory disturbances.

The speaker then gave a detailed account from personal observation of fifteen cases which followed infectious diseases: three pneumonia, five typhoid fever, two measles, two influenza, and three puerperal states. In discussing the pathogenesis of polyneuritis in infections Doctor Gordon called special attention to the hepatic insufficiency, which was so strikingly in evidence that he was strongly inclined to consider it as a probable etiological factor of the neuritic manifestations. In corroboration he brought forth physiological data relating to levulosuria, galactosuria, hematoporphyrin, urobilin, which possessed a fluorescent substance. The latter was apt to produce anatomical changes in the peripheral nerves. The hepatic view advanced by the speaker seemed to him more important than the generally accepted view of toxin caused by the infectious element of the original diseases.

Doctor Gordon called further attention to special symptoms of polyneuritis and described in detail six cases of diabetic origin. He laid special stress on a few uncommon characteristics, namely great diversity of distribution of the paralysis, its incompleteness, and the mode of development. The course of the neuritic phenomena was closely related to the fluctuation of the sugar content in the urine. This parallelism indicated a causal relationship between diabetes and polyneuritis.

Management of War Hysteria.—Dr. TOM A. WILLIAMS, of Washington, D. C., said that nearly ten per cent. of evacuations were due to hysteria. Most patients could be restored immediately if skillfully met, but differentiation must be made between cerebral commotion and chronic emotivity. A wound did not prevent hysteria; indeed, it afforded a powerful suggestion toward military incapacity, besides being a painful focus inhibiting movement and inducing contracture. Cardiac fatigue often suggested the long continued incapacity which might manifest itself as an effort syndrome.

Successful therapy must count upon the psychological mechanism of each patient. The physician must not only understand but must exercise a dynamic volition which would compel the patient to use the effort demanded. A special clinic facilitated the doctor's task, as it brought to bear upon the patients a massive countersuggestion. Relapses were to be prevented only when the army in general comprehended the principles of suggestion, collective and individual. The inert man must be treated differently from the determined man; the former was easier to cure but more difficult to keep well.

In neither case, however, was it wise that coercion predominate. An active motive and desire to return to duty must be the doctor's aim. In a majority of cases collective suggestion was an important feature of treatment, but in a more complex case individual analysis was essential.

The methods most generally and successfully used had been: 1. Straight suggestion in the early stages at the front; 2, indirect suggestion and persuasion, often combined with *torpillage* or other uncomfortable applications, or by isolation; 3, best of all, however, a metamorphosis of the patient's mental attitude by reeducative procedure as well as collective suggestion.

Congenital Tumor of the Brain (Telangiectasis) and Associated Cerebral Movements.—Dr. WILLIAM G. SPILLER, of Philadelphia, presented the case of a boy twelve years of age who had right hemiplegia dating from birth. He had a telangiectasis of the left forehead, one in the left side of the scalp near the hairline, one of the left eyeball, and a small one of the back. Convulsions involving both sides of the body began at the age of twelve years and the patient was becoming mentally deficient. He had associated movements of the left hand and foot, so that he could not move either unless he made corresponding movements of the right side. A diagnosis of telangiectasis of the brain was made and this diagnosis was confirmed by operation. Since the operation his mentality had improved and no convulsions had occurred during the past eight months.

These vascular conditions, often described as angioma, had been classed with dermoid cysts, teratoma, etc., as congenital tumors. Very few cases of telangiectasis of the brain had been diagnosed clinically and treated by operation. The diagnosis was important, as improvement is possible from surgical treatment, provided too many vessels were not tied. If too many vessels were occluded by ligatures there was danger of congestion and hemorrhage in the cerebrum.

The associated movements probably were to be explained as the result of bilateral innervation from the right cerebral cortex. Two cases were reported with necropsy which showed the probability of extensive innervation of both sides of the body from one cerebral hemisphere when the other cerebral hemisphere had been destroyed early in life. The bilateral convulsions also probably were from irritation of one cerebral hemisphere.

An Original Test for the Pathological Great Toe Sign.—Dr. LEO M. CRAFTS, of Minneapolis, presented a detailed report of a case of spinal cord lesion, nephroma following trauma, presenting a remarkable group of reflex phenomena in which the new test was first elicited. The mechanism and significance of the toe sign was explained. The various tests were of identical significance and varied in constancy. The presence of one and absence of others was evidently dependent on the exact arc level involved or the individual fibres disturbed in conductivity. The occurrence of the toe sign in the initial stage of acute conditions like cerebrospinal meningitis before organic destruction

could have taken place proved that simple irritative lesions might produce the reaction, which might later disappear entirely.

Doctor Crafts described the best method of eliciting the reaction by various tests, his own method being a stroke with a blunt point up the



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centre of the dorsal surface of the ankle, with the lower leg horizontal and the musculature relaxed. The stroke should usually be approximately up the median line, occasionally toward the outer or inner side. Sometimes direct, quick pressure of the blunt point at different places on the surface brought it out.

A brief summary of additional selected cases was given. During two years of study of the speaker's test, it had been found present in a fairly wide range of conditions of traumatic, inflammatory and degenerative types, including multiple sclerosis, spinal cord tumor, brain trauma, cerebral apoplexy, brain tumor, both cerebral and cerebellar, brain abscess, symptomatic epilepsy, myelitis, cord trauma, and acute bulbar paralysis. It had been found more uniformly constant than any of the other signs except the Babinski, to which it was comparable in importance and of identical significance.

The Rôle of the Pituitary Gland in Epilepsy.

Dr. BEVERLEY R. TUCKER, of Richmond, Va., believed that convulsions, whether pathological and called epilepsy or otherwise were symptoms of underlying pathological or diseased conditions and therefore were organic and not functional. Among these underlying conditions was a secretion of the pituitary gland. He agreed with Cushing that the pituitary secretion gave a substance which had to do with cortical cell stability and that when this

secretion was diminished or absent convulsions might ensue.

Hypopituitarism was divided into two types: first, the congenital or chronic type, in which the patient gave evidence in the past of the usual syndrome of the hypopituitarism, and might have convulsions as he approached adolescence. The second or transitional type might present clinical evidence of normal or even hyperpituitary secretion in the past, but as adolescence approaches diminished secretion was shown by lack of perspiration, increase in fat, increased sugar tolerance, slowed pulse, lowered blood pressure, and at times convulsions. The radiographic findings in the cases reported confirmed the clinical observations. The first type showed small fossæ with enlarged processes and roughened sella, and the second type enlarged fossæ with large processes and roughened sellæ. These bony outgrowths encroached on the fossæ. A number of cases were reported and the satisfactory result of pituitary feeding shown.

SECTION IN PRACTICE OF MEDICINE.

A Survey of the Epidemic of Influenza in the American Expeditionary Forces.—Dr. WARFIELD T. LONGCOPE, of New York, said that the origin of the epidemic of influenza and its invasion of Europe was still obscure. It was certain that influenza existed in epidemic form in Spain, France, and possibly in England early in 1918, and by the late spring influenza was present in epidemic form not



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only in Spain and France, affecting both the British and American armies, but also in Italy, Austria, and Germany. The epidemic in France may be divided into three fairly definite outbreaks, with an intermediate and interesting phase dividing the gap between the second and third outbreaks. The first

peak came between April and July, 1918, and was notable on account of the rapidity with which it spread through any organization, of the high morbidity rate, shortness of duration (two to four days), and the rarity of complications. The respiratory tract occasionally was involved, but pneumonia occurred as a complication in a very small proportion of cases.

The second outbreak formed a part of the terrible pandemic and the disease ran much the same course in France as in other countries. The high mortality depended upon the complicating pneumonia. A third outbreak occurred in January and February, 1919, and was of a much milder character.

Following the second peak of the epidemic and in the autumn and early winter of 1918-19, there came the intermediate phase during which time the variety of influenza observed in the early outbreak was rarely seen, but respiratory infections of all sorts were extremely prevalent. The impression was gained that the organisms acting as secondary invaders during the epidemic probably were the primary cause of the bronchitis and pneumonia which was widespread at this time.

The influenza epidemic affected troops in all parts of France but prevailed especially at the base ports in those organizations containing the greatest number of fresh replacements, and in the organizations where the men were of necessity densely crowded together and subjected to excessive fatigue and exposure.

The Psychic Factor an Element in Temperature Disturbance.—Dr. FRANK B. WYNN, of Indianapolis, said that physicians were so prone to forget the physiology of heat control that they associated with various temperature curves a definite clinical entity, despite the fact that temperature elevation did not necessarily mean fever. Though early work suggested the existence of a heat centre, present evidence was that a complex of bodily factors controlled the balance between heat production and heat loss, the latter depending largely on cutaneous vasomotor and secretory changes and the former on variations in muscle tone.

Two series of individuals observed by the speaker under circumstances associated with considerable nervous tension showed distinct elevation of temperature in a large proportion of cases, the degree of elevation varying directly with the gravity of the situation facing the individual. The first series consisted of 324 subjects examined by the draft board. The temperature was taken just preceding the examination, and the average elevation found was 99.3° F. Over two thirds of the number showed temperature elevation; of the remaining third, half were normal and half subnormal.

The second series consisted of 130 trained nurses taking a State board examination for license. In forty of these the temperature was taken before the examination and also at the end of the test. Their average temperature was 98.9° F. before and 98.3° F. after. In the other ninety nurses the temperature was taken an hour after beginning the examination and during the last hour or at the end of the test. The average of readings the first time

was 98.7° F. and for the second time 98.6° F. In the first group the element of anxiety and suspense was greater at the time the first readings were taken, hence the psychic influence upon temperature elevation. In the second group the temperatures were not begun until the first few questions had been answered, that is to say the spell of suspense and anxiety had been broken.

The fact that psychic states could so influence temperature should make the clinician cautious in interpreting apparent febrile reactions where clinical signs were meagre. In such cases a psychic rise plus diurnal variation might lead to false conclusions unless the actual physiology of temperature variation and the influencing factors were kept clearly in mind.

Effective and Practical Treatment of Malaria to Disinfect Infected Persons and to Prevent Relapse.—Dr. C. C. BASS, of New Orleans, said that the relief of clinical symptoms generally received chief consideration, and disinfection of the patient and prevention of relapse received little or at least inadequate consideration. From 50.77 to 68.86 per cent. of the malaria occurring in a representative malaria locality of the United States was relapse and not new infection. This indicated great inefficiency of the treatment of malaria practised there.

The chief cause of ineffective treatment was the employment of spectacular and impractical methods. The discomfort and inconvenience of quinine given by hypodermic injection or of quinine in solution were referred to as examples of improper and impractical methods of treatment. Neither method would be continued long enough to disinfect the patient. Blood examination could not be depended upon to determine when disinfection had been accomplished. The only trustworthy guide was the length of time proper quinine treatment had been kept up. An effective and practical method of treatment to disinfect the patient after the acute symptoms had been relieved was to administer ten grains (proportionate doses for children) of quinine sulphate very night before retiring, for a period of eight weeks. This was effective in about ninety per cent. of cases. In any case where there was any reason to suspect that it might be exceptional and disinfection more difficult to accomplish, the treatment should be continued for more than eight weeks.

The Treatment of Chest Injuries.—Dr. MARION A. BLANKENHORN, of Orrville, Ohio, said that during the war surgical treatment of wounds of the chest became a satisfactory procedure, but was confined largely to surgery of the chest wall and the management of empyema.

Cases came generally within the following five groups: 1, open pneumothorax—requiring immediate anatomical repair; 2, extensive parietal wounds—requiring revision and anatomical repair more urgently than similar wounds elsewhere; 3, retained foreign bodies—those with a diameter greater than an inch required removal; 4, infected hemothorax—required drainage if clinical signs indicated; streptococcus and gas forming infections usually required drainage; other types occasionally were

managed by aspiration alone; 5, uninfected hemothorax—required no treatment, but aspiration shortened the convalescence and diminished the tendency to infection.

The chest could be opened freely with little danger or shock under gas anesthesia given with pressure sufficient to prevent collapse of the lungs.

Pleural membranes combated infection very well when they could be maintained in approximation, i. e., free from accumulations of gas or fluid. Drainage should be delayed until adhesions were formed which prevent collapse of the lung. If drainage could not be delayed and no adhesions were present a closed system of drainage with suction was best.

SECTION IN GASTROENTEROLOGY AND PROCTOLOGY.

The Spirit of the Physician in War and Peace.

—Dr. WILLIAM M. BEACH, of Pittsburgh, said that the physician had accepted the challenge of war and used all his attainments, supplemented by instruction in the medical training camps, in order to give the nation his best service. He had developed along the lines of sympathy and sacrifice, research and those subtle forces which were metaphysical though potential factors in medical and surgical practice. Gastroenterology and proctology was much in evidence during the world war. Now in the dawn of peace the physician had accepted the challenge of peace. He returned a better man, though at first dazed at the sudden transition from



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military to civil life. Doctor Beach thought the lessons of altruism would become more real than ever before and that the spirit of cooperation would be projected into civil life, ushering nations and individuals into a new era fraught with new problems and new relationships.

Further Observations on the Gastrointestinal Disturbances Met with in Pernicious Anemia.—Dr. JULIUS FRIEDENWALD and Dr. THEODORE H. MORRISON, of Baltimore, Md., reported the results of study in seventy-six cases of pernicious anemia and the most important theories recorded. The



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gastrointestinal symptoms were especially discussed the symptoms being loss of appetite, nausea, vomiting, a sense of fullness, pressure, pain, diarrhea, and constipation. In seventy-four per cent. of the cases there was an absence of gastric secretion, and in six of these fractional gastric analyses according to the Rehfuess method, failed to reveal free hydrochloric acid at any period of the digestive cycle. The gastric secretion did not return even in the stage of apparent recovery. In nineteen per cent. of the cases there was a marked diminution in secretion and in seven per cent. it remained normal.

Gastric Cell Primary Atrophy.—Dr. ANTHONY BASSLER, of New York, protested against the use of the term achylia gastrica as applied to pathological conditions of the stomach glandularis, which should be designated as atrophic gastritis. From his studies he concluded that the term achylia gastrica should be retained but that as a designation it should be confined to the late stage of chronic gastritis in which round cell and fibrous tissue infiltration are primary factors. A form of stomach disorder that must be considered was a granular protoplasmic degeneration, perhaps best designated as primary atrophy or granular protoplasmic degeneration, which really was not a true gastritis at all. Studies were made of diseased stomach conditions in cases of death from chronic infections and also cases of operations upon chronic septic conditions, and the conclusion reached was that in long standing infections in the body, degen-

eration of gastric secreting cells might occur as a result of bacteria affecting the cell protoplasts from the systemic side—the stomach acting as an emunctory organ to those toxins—or from infective organisms in the stomach tissues. In forty cases chronic infections were found as follows: head, ten; chest, nine; abdomen, fifteen; pelvis, two; not found, four. Of the head cases only pyogenic sinus conditions, badly diseased tonsils, and distinct pyorrhea were considered significant. Of the chest series all were tuberculous with mixed infections in nonadvanced cases, and of the abdomen the gall-bladder, appendix, colon, renal, female pelvic organs, and prostate disease made up the group.

Doctor Bassler said that normally the stomach retained few bacteria. It was supposed that persistent acidity was inimical to their development, but this was significant only in the case of the simple fermentative organisms and not with the pathogenic types. There was a pathological condi-

tion had distinct pictures in which large amounts of organisms, mostly staphylococci, streptococci, and streptobacilli occurred.

Suggestions were summed up as follows:

1. Pathological studies suggested that destructive cell atrophy in the stomach was a common condition.

2. Cellular atrophy might be primary atrophy, in which instance it should be distinguished from the forms secondary to chronic gastritis.

3. In true cell atrophy the destruction was in all probability due to toxic effects from focal infections gaining lodgement in the spongy glandularis or from bacteria growing in the stomach glandularis or stomach contents.

4. Bacterial studies of test meals were important in this connection, the organism being particularly significant when actively motile in the test meals.

5. Distinction should be made between the pathogenic and fermentative organisms in the meals, not



FOREIGN MEDICAL REPRESENTATIVES, EN ROUTE TO THE CONVENTION AT ATLANTIC CITY, RECEIVED BY MAYOR Hylan IN NEW YORK.

tion in the stomach mucosa and the normal acid did not inhibit the bacteria when a local lesion was present. The bacteria derived sustenance for growth from remnants of food in the stomach and more especially from the stomach tissue, and the more pathogenic their nature the surer was their livelihood from the organic tissue. Work was done in the cases operated upon to delineate an identical infection, but this failed because of the multiplicity of bacteria met with in the focal infections and the stomach contents. The organisms of the streptococcic and bacillic classes, however, occurred conspicuously in the focal infection and in gastric contents. In the simple anachlorhydric cases more bacteria of the fermentative kinds were encountered; in atrophic gastritis and the senile cases the content was higher and tended to gram negative pictures, but in the true or primary atrophies the

only because of an explanation of the achylia but because of the suggestion that focal infection probably existed somewhere in the body.

6. Vaccines made from test meals were of no benefit in the cases either objectively or subjectively, the removal of the focal infection being beneficial to the subjective stomach symptoms as well as the body generally.

7. With the stomach symptoms alone, the old methods of treatment with gastric lavage as an addition to the lactofarinaceous diet and alkaline pancreas preparations proved to be the best treatment, although in no case was there any return of normal acid or proenzymes.

8. When primary cell atrophy had taken place, the loss of gastric juice secretion was as permanent as when the atrophy was secondary to a chronic gastritis.

Stricture of the Rectum.—Dr. FRANK C. YEOMANS, of New York, said that etiologically all strictures were congenital, traumatic, or inflammatory. The traumatic included those due to operation. Stricture should never follow a properly performed ligation or clamp and cautery operation for hemorrhoids. It was avoided by removing the tumors in the axis of the bowel and leaving a strip of mucosa between adjacent hemorrhoids. If union was not primary, stricture might follow the Whitehead operation. On account of other equally unfortunate sequelæ, the speaker abandoned this operation long ago. Occasionally blind external and blind internal fistula were followed by stricture, usually at the level of the internal sphincter. As resection of the rectum was followed by some degree of stenosis at the line of union, this was a strong argument in favor of perineal extirpation.

Inflammatory strictures comprised the most important clinical group. The infection might be simple or specific. Socalled simple infection included those by amebæ, bacilli, and cocci of various strains, and unless the submucosa was extensively involved they seldom formed a stricture. The specific infections were tuberculosis and syphilis. Tuberculosis caused stricture of the small rather than the large intestine, but tuberculous stricture of the rectum occurred occasionally, usually in victims of pulmonary tuberculosis. Syphilis, in the tertiary stage, was the commonest infection causing stricture. The lecturer had seen no case of cicatricial stricture due to muscular spasm.

The diagnosis of a stenosis could be made by digital examination in over ninety per cent. of the cases. The proctoscope and radiograms then determined their length, caliber, extent of ulceration above and below, and discovered any ulceration at a higher level. Tissue was taken for microscopic examination if tuberculosis or malignancy was suspected. The Wassermann test was made in every case. Preventive treatment of operative strictures was by correct surgical technic and healing ulcers, when discovered early, before stricture has developed. Dilatation by graduated Wales's bougies kept many patients comfortable. Forcible dilatation by metal instruments and by hydrostatic pressure was so apt to rupture the bowel that it was condemned.

Surgical treatment was by: a, proctotomy, a beneficent operation that any surgeon could perform; b, colostomy, either temporary or permanent, and in the sigmoid or the transverse colon—in the latter when the radiograms had demonstrated, 1, that the sigmoid was short and a radical operation was proposed later, or 2, that there was another stricture at a higher level as occurred in one of Doctor Yeomans's cases; c, excision, when feasible, on the same principles as for a neoplasm. The speaker reported the case of a woman on whom he did a perineal extirpation of the rectum ten years ago for luetic stricture. She was in good health, had perfect bowel function and no recurrence.

The salient features of the fifty cases reported were:

1. Including the seven cases due to fistulæ, thirty-seven of the fifty cases were inflammatory.

2. Twenty-four or nearly fifty per cent. of all cases were syphilitic.

3. Of the syphilitic cases eight were males and sixteen females; sixteen were white and eight colored; the Wassermann reaction was positive in eighteen, negative in three clinically syphilitic, not taken in three, i. e., positive in eighty-six per cent. of the cases in which the test was made.

4. Location: forty-seven cases or ninety-four per cent. were within ten cm. of the anus and palpable.

5. Forty cases were treated and observed for a long time. Of these, one, tuberculous, died in three years; twenty-nine were improved, i. e., maintained comfortable through life; and ten, two of them syphilitic, were cured.

Sphincteric Inhibition as a Cause of Constipation.—Dr. JEROME M. LYNCH, of New York, reported several cases of patients suffering from anal lesions who had manifested stomach and intestinal disturbances. In one case particularly he was able to demonstrate a definite relationship between sphincter inhibition and gastrointestinal indigestion. The gastrointestinal canal and its derivatives should be studied collectively rather than segmentally, as from an embryological, anatomical, and physiological viewpoint, it was impossible to separate one segment of the canal from another.

Doctor Lynch said that the sympathetic nervous system, which was an outgrowth of the central nervous system and evidently intended by nature to relieve the former of some of its responsibilities, was connected with the central nervous system by three great trunk lines: the vagus anteriorly; the pelvic splanchnic posteriorly, and centrally through the thoracolumbar outflow and the white rami communicans.

The pelvic nerves connected with the rectal plexus, from which arose nerves running directly into the wall of the intestine. These nerves had been designated by Langley and Anderson as sacralcolonic nerves. The sacralcolonic nerves caused contraction of the muscle of the large bowel, while the lumbarcolonic nerves caused inhibition. These colonic nerves, which arose from the inferior mesentery ganglion, supplied the internal sphincter muscle. Stimulation of these nerves caused contraction of the internal sphincter muscle and relaxation of the colon. These nerves also supplied the trigone and neck of the bladder, so that it could be readily appreciated why a pathological condition in one would reflect itself in the other.

Doctor Lynch concluded by saying that he hoped he might be pardoned for making so much of what appeared to be a trivial symptom, but what appeared trivial to the surgeon might mean great discomfort, incapacity for work, irritability of temper, and complete demoralization of an otherwise useful individual.

Further Experiences with the String Test.—Dr. MAX EINHORN, of New York, gave a detailed description of the method and the significance of different types of blood stains and the presence of bile on the string. He discussed the value of the test in the diagnosis of peptic ulcers and of stricture or patency of the pylorus, also the possibility of localizing the place of ulceration.

(To be continued.)

News Items.

Distinguished Service Cross to Red Cross Nurse.—Miss Jane Jeffrey, an Englishwoman serving as an American Red Cross nurse, was awarded the Distinguished Service Cross for extraordinary bravery in action.

Discharged Soldiers Urged to Help in Sanitation.—Just prior to discharge every soldier in the United States army receives an hour's instruction in personal and general hygiene, and is encouraged to apply the principles of hygiene and sanitation learned in the army to an improvement of conditions in his home community.

United States Hospital No. 22 to Close.—United States General Hospital No. 22 at Philadelphia is to be closed June 30th. The 300 or more convalescent soldiers now inmates of the institution will be transferred to hospitals in other cities and the buildings will revert to the Philadelphia General Hospital, according to orders from the Surgeon General's Office in Washington.

New York's Care for Blind Babies.—An amendment to the education law granting \$1.50 a day for the care, maintenance, and education of blind babies has been signed by Governor Alfred E. Smith. The bill was introduced by Mrs. Ida Sammis, of Huntington, for the International Sunshine Society. In 1912 a law was passed providing \$1 a day for the baby blind, but this amount was found insufficient.

Larger Military Hospitals.—American medical officers with the army in France are becoming convinced of the utility of larger military hospitals, according to a communication appearing in the *Army and Navy Journal*. The writer believes that under most conditions hospitals of 10,000 to 20,000 beds operated as a single unit would prove to be most effective, and these details are now being worked out by officers in a position to judge of the value of the plan.

Hospital Reconstruction Enrollment.—Of the 338,241 wounded soldiers registered at army hospitals carrying on work of reconstruction and re-education, a total of 192,225 or sixty-five per cent. had enrolled up to April 30th in the ward, school, or shop classes conducted for their benefit, according to a report of the Division of Physical Reconstruction, Surgeon General's Office. Although the number of patients is falling off, the enrollments in educational classes have increased.

Walter Reed Hospital Project.—Surgeon General Merritte W. Ireland, in speaking before the House Committee on Military Affairs, urged the establishment of a first class hospital system at the Walter Reed General Hospital. He said that the buildings there had served their purpose admirably during the war, but that they were of temporary construction and would have to be salvaged. It was planned to take care of all special cases in the East at the Walter Reed Hospital, and in addition it was desired to locate all Medical Corps activities around Washington at that point—the Army Medical School, the library of the Surgeon General's Office, the Army Medical Library, and the Army Medical Museum.

Dixon Tablet Unveiled.—A bronze tablet was unveiled at the Hamburg, Pa., tuberculosis sanatorium June 6th in commemoration of the fourteenth anniversary of the appointment of Dr. Samuel G. Dixon as commissioner of health of Pennsylvania and the creation of the State Department of Health.

American Pediatric Society.—This society will hold its thirty-first annual meeting June 16th to 18th at the Hotel Chalfonte, Atlantic City, under the presidency of Dr. Edwin E. Graham, of Philadelphia. Sessions will be held Monday afternoon, June 16th, and Tuesday afternoon, June 17th, in conjunction with the congress of American Physicians and Surgeons.

Physicians Protest Drug Regulation.—More than 100 members of the Medical Society of the County of New York have signed a call for a special meeting of the organization to discuss the proposed amendment to the Sanitary Code which would compel physicians to photograph, fingerprint and register every patient to whom narcotic drugs were prescribed. It was said that the physicians signing the summons felt that the proposed regulation was too drastic and that it conflicted with the confidential relations between patient and doctor.

Jefferson Hospital to Be Enlarged.—Plans for the enlargement of Jefferson Hospital, Philadelphia, were made public last week at a dinner of the Alumni Association of the Jefferson Medical College. The number of private rooms is to be increased 100 per cent., and in addition the hospital has been given a deed to the property now occupied by the Ivycroft Convalescent Home for Men, in Wayne. The acting president of the college, Dr. A. B. Johnson, said that the hospital had outgrown itself and that the reputation of its staff had drawn a constant waiting list of at least a hundred persons.

Resolution Relative to Death of Dr. Alexander Lyle.—At the June meeting of the medical board of City Hospital, the following resolution was passed relative to the death of Dr. Alexander Lyle:

WHEREAS: In the death of Dr. Alexander Lyle, a member of the surgical staff of the City Hospital, we have lost a fellow member and valued friend whose cheerful kindness and good fellowship endeared him to the board, a man whose skill in his chosen specialty had made him a valuable addition to the surgical staff of the City Hospital, be it

Resolved, That we make this resolution a part of the minutes of the June meeting and the secretary be advised to express the sympathy of the board to his family.

United States Combats Influenza in Alaska.—United States naval ships carrying surgeons and medical supplies have been sent to the Bristol Bay region in Alaska to combat an epidemic of influenza which threatens 5,000 persons. Deaths have been increasing in this section at an alarming rate. Sixty persons died in one small community one day last week. Governor Rigge, of Alaska, in a message to the Navy Department, said that the situation was desperate and that conditions were growing worse at Unalaska and Nankok. An appropriation of \$100,000 for the relief of Alaska influenza sufferers was included in the general deficiency appropriation bill by the Senate appropriations committee.

American Laryngological Association.—The forty-first annual congress of this society, under the presidency of Dr. Cornelius G. Coakley, of New York, will be held in association with the congress of American Physicians and Surgeons June 16th to 18th at Atlantic City. Sessions will be held in the reception room of the Hotel Chelsea. Sir St. Clair Thomson, the noted London physician, will deliver an address at the opening session on The Prognostic Importance of Tuberculosis of the Larynx, and other papers will be given by Lieutenant Colonel Joseph H. Bryan, Lieutenant Colonel Norval H. Pierce, Lieutenant Colonel Thomas J. Harris, Dr. Henry L. Swain, and Dr. Greenfield Sluder. A symposium on Streptococcus Carriers followed by discussion will be a feature of the second day's program. On the third day a symposium of reports and contributions from members in active service during the war will be given.

Columbia University to Guard Health of Students.—Compulsory health supervision of all undergraduates, male or female, will be undertaken by Columbia University with the opening of the fall term. In addition to the mental tests which will show whether he or she ought to spend four years in college, the entrant will go to the medical office for a comprehensive physical examination. The new student will learn the results of the physical tests, and he will be helped to get any needed treatment from the best sources. He must make every effort to get back to normal condition. There will be a general physical examination of students at least once a year, and comparative records will show how each individual progresses as to health. In addition, the medical officer will watch for indications of habits of wrong living. Every student will be required to learn at least two outdoor and two indoor sports. When a student's record falls off, he will be sent to the doctor before being sent to the dean.

Association of American Peroral Endoscopists.—The second annual meeting of the Association of the American Peroral Endoscopists was held on June 5th at the Imperial Hotel, Brooklyn. The morning session was devoted to the address of the president, Dr. Hubert Arrowsmith, of Brooklyn, and to the scientific session, which consisted of the presentation of specimens, instruments, and apparatus. Dr. Samuel Iglauer demonstrated new instruments which he had devised for endoscopic work. Dr. Wolff Freudenthal presented a new broncho-periscope. Papers were read on interesting and unusual cases which included the removal of foreign bodies from the larynx, the esophagus, and the bronchi, the removal of laryngeal cysts, and injuries to the larynx. Doctor Arrowsmith presented an unusually interesting paper on Endoscopic Mishaps. At the conclusion of the addresses, Doctor Lynch gave lantern demonstrations of thoracic foreign bodies. Sir St. Clair Thomson, of London, was made an honorary member of the association. The following officers were elected: President, Dr. John W. Murphy, of Cincinnati; vice-president, Dr. Harris P. Mosher, of Boston; secretary-treasurer, Dr. Samuel Iglauer, of Cincinnati; member of the executive committee, Dr. Hubert Arrowsmith, of Brooklyn.

Personal.—Sir Arthur Newholme, formerly medical officer of health, Brighton, England, has been offered the chair of public health at Johns Hopkins University, Baltimore.

Colonel Henry I. Raymond, Medical Corps, U. S. Army, was retired from active service, on May 24th, upon reaching the age of sixty-two years. He entered the regular army as an assistant surgeon in 1881.

Captain Allen D. Lazenby, Medical Corps, U. S. Army, was retired from active service June 3d for disability incident to the service. He is a native of Maryland, and was appointed a first lieutenant in the regular army in 1917, having previously served in the Medical Officers' Reserve Corps.

Major General William C. Gorgas, head of the American Yellow Fever Commission, arrived in Panama on May 31st from Guayaquil, Ecuador, en route to the United States. The commission has been investigating conditions in Northern South America under the auspices of the Rockefeller Foundation.

Major Benjamin S. Berry, Medical Corps, U. S. Army, was presented with a sword by the people of Chester, Pa., on May 30th in recognition of his services with the Marine Corps at the Bois de Belleau in June, 1918.

To Bring British and American Physicians into Closer Relation.—Sir St. Clair Thomson, of London, who is one of the foreign delegates to the A. M. A. convention, stated in a published interview that a large American hospital with private and public wards was shortly to be opened in London. The visiting staff would be English and the resident staff composed of young American doctors desirous of experience abroad. Lord Reading had accepted the chairmanship of the foundation committee. For the benefit of American physicians passing through London, a sort of medical Cook's Agency had been equipped in the building of the Royal Society of Medicine. Arrangements had been made for special courses, tours of hospitals, demonstrations, visits to places of historical medical interest, and social entertainments. The visiting doctor could take lectures or courses on anything in which he was interested from men well versed in these subjects.

These are indications of an increasing friendliness between the medical profession in the United States and in England. Sir St. Clair indicated that one of the motives which had brought him to this country was to encourage the freer exchange of medical studies between the two nations. He would also find out what was expected of London as a medical centre and to tell Canadians and Americans of the advantages for medical study to be had in London and other European capitals. The fellowship of medicine also aims to make the British less insular by encouraging them to study at such universities as McGill in Montreal, Johns Hopkins in Baltimore, Columbia in New York, and other American schools.

Sir St. Clair Thomson is professor of laryngology at King's College Hospital, London. He is a world famous throat specialist and is visiting America as the representative of the British Medical Association.

Miscellany from Home and Foreign Journals

Pathogenesis of Chronic Intestinal Stasis.—Victor Pauchet (*Presse médicale*, March 24, 1919) states that a comparative study of cases of stasis examined both with the x rays and subsequently at operation showed the condition to be explainable both physiologically and mechanically. Often there are kinks held in position by serofibrous bands partially strangling the intestine. But there occur also instances of bands without stasis, and of stasis without bands. This tends to show that both the mechanical and physiological theories are correct. It is difficult to say which factor of the two predominates in a given case, though probably functional errors precede the errors of position. Whatever the cause of chronic stasis in a given case—faulty hygiene, glandular insufficiency, etc.—the treatment appropriate where medical measures prove vain is now well known. In cases with mere functional disturbances, without permanent bands or kinks, physical culture, massage, hygiene, rational use of purgatives, and perhaps opotherapy will have to suffice. Where a mechanical obstacle exists or medical treatment has failed, total or partial colectomy is already yielding encouraging results. Great care should be taken by the practitioner, when unable to account for general auto-intoxication and dyspeptic or abdominal disturbances, not to jump from the start at a diagnosis of chronic appendicitis, salpingitis, angiocholitis, enteritis, latent tuberculosis, or neurasthenia. The patient should be examined radioscopically every twelve or twenty-four hours until the bismuth has left the small bowel, the cecum, the ascending and transverse colon, and the termination of the large intestine. Not one but three or four x ray tests are necessary in establishing a diagnosis of chronic intestinal stasis.

Physical Therapy in Sciatic Neuralgia.—A. Fraikin (*Journal de médecine de Bordeaux*, February 28, 1919) regards physical measures as far superior to drug treatment in true sciatica and as being indicated whenever the use of drugs for ten or fifteen days has failed to yield notable improvement. Even where drugs prove beneficial, physical treatment should be added to hasten recovery. Such treatment is likewise useful in sciatic neuritis, though here results are more slow in appearing. Three forms of physical measures are available, electric, thermic, and kinesthetic. In using the galvanic current, the negative electrode, measuring about fifteen by twenty centimetres, is placed on the buttock at the point of emergence of the nerve; the foot is dipped in water, which constitutes the positive pole. The intensity of current should be gradually increased to twenty, or in long standing cases even to forty or fifty milliampères. Daily treatments of ten or fifteen minutes duration are indicated. In sciatic neuritis, when pain has been allayed it is well to add faradic treatment of the affected muscles. In intense and rebellious cases, high frequency treatment should be given every other day, in alternation with the galvanic current. Diathermy is also capable of doing good in such

cases. The most important of all measures for sciatica, whether employed alone or in combination with other physical means, is the hot air treatment. For this purpose the ordinary hand operated apparatus, yielding a temperature of eighty to 100° C., is sufficient. The applications should be prolonged to the extent of producing intense rubefaction and be made over each painful area. The hot air should be applied in concentric circles, excessive heating of any given point being guarded against. Daily treatments should be given. If the galvanic current is being used, the hot air should follow it after a rest interval of one half to one hour. Kinesthetic treatment comprises massage, mechanotherapy, and reeducating exercises. Manual massage is serviceable from the onset of the disorder. Effleurage is the first step, to be followed, as improvement occurs, by pressure, pinching, kneading, and vibrotherapy. The latter, whether manual or instrumental, has distinct analgesic properties. Mechanotherapy consists in extension of the nerve—at first, if necessary, with the knee flexed, later with the knee extended. In the reeducation exercises the patient is made to walk slowly and correctly, each movement made being carefully supervised until the patient is able to overcome all abnormal antalgic positions during locomotion.

Plea for Homogeneous Nerve Graft.—E. Welby Fisher (*British Medical Journal*, April 26, 1919) draws upon his most extensive experiences and observations when he says that he has seen no instance of recovered nerve function where bridging of a gap has been done with foreign material, or where the nerve ends have been connected with a wrapping of fascia, Cargile membrane, or vein. Something more than a conduit is required for the regeneration of severed nerves. Restoration by careful suture gives the best results, but even in suture the conditions are not so simple as commonly thought. The nerve is made up of a series of bundles of fibres, each bundle being largely fibres of a single function. Suture should be carried out to prevent the improper distribution of these fibres within their channels so far as possible and this can be accomplished with considerable accuracy by careful observation of the oval contour of the nerve and approximation of the two ends anatomically correct. All scar tissue distorts the course of nerve fibres in their growth and must be removed and not permitted to reform, the latter being accomplished by accurate approximation of the neural sheaths. Finally, when the gap in a severed nerve is too great to permit direct suture of the nerve, the most satisfactory method is by the insertion of a homogeneous graft, taken, not from one or more small subcutaneous nerves, but from a mixed nerve of equal or larger size than the damaged one and inserted with the greatest care and accuracy. Such homogeneous grafts can be obtained from amputations and from amputation stumps which require secondary operation. That such a method of grafting may be remarkably successful is illustrated by the record of a striking case.

Spinal Anesthesia.—H. L. Rocher (*Journal de médecine de Bordeaux*, January 15, 1919) reports a series of over 250 cases of spinal anesthesia, comprising for the most part war injuries. The method proved of marked advantage in permitting immediate operation in patients with chronic bronchitis, emphysema, or asthma, without fear of pulmonary congestion. It also afforded an ideal anesthesia in cases in which it was necessary to keep the patient in ventral decubitus during the operation, or in which complete muscular relaxation was of prime importance, as in bone fixation or grafting, or the reduction of simple fractures with marked displacement. In one patient four successive operations were done under spinal anesthesia. An interval of ten or fifteen days should elapse between successive anesthetics. In some cases requiring time consuming and painful dressings, as in certain resections of the knee and large bone injuries of the thigh or leg, spinal anesthesia was repeatedly used by Chase, with good results. The drugs used, stovaine and novocaine, did not appear to be any more toxic than ether or chloroform. As regards aftereffects, the author believes that there do occur instances of aseptic meningeal reaction, manifested in lumbar or cervical backache, frontal or occipital headache, and slight rigidity of the neck. This disturbance passed off in one to four days, either spontaneously or under aspirin or pyramidon. A few cases of temporary retention of urine were noted after hernial or pelvic operations, but this occurs quite as often under general anesthesia. The formerly apprehended late complications, such as paralysis and spinal disorders, were never observed. The anesthesia seemed to reduce operative shock in prolonged, difficult operations, except in four cases with septicemia or gas gangrene requiring thigh amputation, in which shock symptoms came on five to fifteen minutes after the anesthetic injection. The doses used were, usually, .05 gram of stovaine or .07 to .10 gram of novocaine.

Digitalis Therapy.—Henry A. Christian (*American Journal of the Medical Sciences*, May, 1919) says that in general practice the physician fails very commonly to get thoroughly satisfactory results from the use of digitalis, while in the hospital the same patients respond promptly and effectively to digitalis therapy. Part of the explanation lies in the fact that under hospital régime the patient remains in bed and rests more completely than he is willing to do at home, even though the physician has repeatedly urged upon him the great importance of rest. But a much greater factor in the failure to get good results is insufficient dosage, due partly to the physician, partly to poor digitalis preparations. The physician is prone to give quite small doses of digitalis, and usually fails to push the dosage to the point of tolerance unless a definite effect is produced sooner. If the drug was pushed until it acted on either the kidneys, the stomach, the pulse, the bowels, or the respiration, much better results would follow. In a large hospital experience with cardiac patients Christian cannot recall a single one admitted from the care of an outside physician in which too much digitalis had been given, but has seen a great many admitted who were

doing poorly because the physician was giving them too little digitalis. Very frequently the digitalis preparation is far below the standard pharmacopœial strength. Another cause of too small doses is the common practice of prescribing tincture of digitalis by drops, and counting a drop as a minim, whereas it generally takes two or three drops to make a minim; it should be prescribed in weighed or measured amount, not by drops, and enough given of a trustworthy preparation, with a good leaf as a starting point, to produce a definite effect within four days. Another cause is the general belief that myocarditis is in some way a contraindication to digitalis, and that aortic insufficiency is likewise a contraindication, which he believes to have no foundation in fact. Finally, very excellent results follow the use of digitalis in hearts that are not fibrillating. Christian has little use for pharmaceutical preparations of digitalis. He uses the powdered leaf made freshly into pills; if the leaf is good it is as satisfactory as either tincture or infusion, just as effective as digipuratum and digifolin, and far less expensive. Efforts should be directed toward securing a potent, active leaf, as some are far less active than others.

Infantile Scurvy.—Albert Jobin (*Bulletin médical de Québec*, April, 1919) comments on the increasing frequency with which Barlow's disease is being encountered, on account of the widespread use of prepared foods, fresh milk having become too expensive for the poorer classes. In one of the author's recent cases, a four months' child was being given but eight ounces of milk a day. It lost weight, became very pale, and suddenly grew extremely feeble, lying motionless with the legs partly flexed, and very sensitive to movement. The left thigh was somewhat larger than the right. Complete recovery occurred under increased feeding and orange juice, half an ounce four times a day. The fact should be borne in mind that there are often encountered "fruste" forms of the disease, without bony or epiphyseal deformities or swelling of the gums. Thus, in one case there was noted weakness, apparent anemia, marked feebleness of the legs simulating paralysis, neuritis or acute poliomyelitis, and pain upon the least movement, suggesting arthritis and, in particular, joint tuberculosis. In another fruste case, the symptoms comprised merely swelling, softening, ulceration, and bleeding from the gums. Errors of diagnosis have been frequent in relation to this disease. Lancing a child's gums is known to have been carried out for it; or the case treated for rheumatism; or a diagnosis of joint effusion made; or both swollen limbs encased in plaster. One child was kept in bed six weeks for paraplegia, which yielded to orange juice and raw milk in a fortnight. Another was carefully isolated for acute poliomyelitis, then recovered in three weeks upon free ingestion of orange juice. The fact that the swellings in infantile scurvy are usually multiple is of diagnostic importance. The little patients consume orange juice with avidity, as though actually feeling the need of it. Lemon juice applied to the affected gums either pure or mixed with alcohol hastens recovery.

Endemic Malaria as a Military Problem.—

F. G. Haughwout (*Philippine Journal of Science*, November, 1918) points out that the recruiting of men to form army units from areas where malaria is endemic or epidemic is certain to bring together many who, while apparently well, are carriers of the malarial parasite. Such carriers, in the presence of anopheline mosquitoes, are a source of peril both to any community that is comparatively free from malaria and to their own comrades. When undergoing the fatigue and exposure of military training, they are extremely likely to develop the disease in its active form. Especially is there danger to neighboring troops if attendant conditions are such as to render antimosquito measures impracticable and quinine prophylaxis applicable only with difficulty. To obviate this, carriers among recruits should be carefully sought out. No reliance should be placed on the simple examination of blood films, but use made of concentration or cultural methods, supplemented in the negative cases by provocative measures such as the administration of adrenin, ergot, pituitary extract, strychnine, quinine, or horse serum, or irradiation of the spleen with the quartz lamp. These provocative measures tend to awaken the latent infections and bring the parasites into the peripheral circulation, where they can be destroyed by the usual specific treatment. If quinine fails to act and is not being sufficiently absorbed, adjuvants or some other form of treatment should be used. If all measures prove fruitless, the recruit should be honorably discharged from the service. From the surgical standpoint, the tendency of latent malaria to become active under the influence of wounds, operations, and anesthesia should be borne in mind.

Induction of Labor by the Use of Bougies.—

Collin Foulkrod (*American Journal of Obstetrics*, April, 1919) describes a simple method of inducing labor which he has been using for about two years. Seven cases were induced for a right occipito-posterior position at term, six each for toxemic conditions of the mother and for contracted pelvis, and one each for placenta prævia, transverse position, double mitral lesion, and pyelitis. For some years the author had noted that labor might begin after spontaneous rupture of the membranes. In toxemic patients, when the pulse tension gave warning of approaching convulsions, he ruptured the membranes with invariably good results, a lowering of the blood pressure, and usually, onset of labor soon after rupture. Noting little or no increase in the number of stillbirths following this procedure, he thinks it feasible in cases not of the toxemic type. His usual method of inducing labor, however, is simply to insert two stiff silk bougies with or without iodoform gauze. These bougies must be well placed, i. e., pass straight up into the uterine cavity between the membrane and the uterine wall. To this end the patient must be in a good position and either well selfcontrolled or controlled with anesthesia so that the operator can introduce two fingers into the cervix anterior to the child's head and see that the bougies pass directly upward. The cervix is first adequately dilated with the fingers, the membrane separated around the in-

ternal os, care being taken that the bougies do not touch any part until they enter the open cervix and are well lubricated with sterile glycerin. Finally, gauze is packed into the cervix and vagina, and the patient returned to bed. Labor pains may come on immediately or at some time within forty-eight hours. It is best to wait two days before changing the bougies, if one is confident that they are well placed. In primiparæ the patient must be fed at intervals, stimulated if necessary, and be afforded relief if pains grow severe. For the latter purpose an adjusted dose of morphine, just sufficient to relax the cervix, is of the greatest value. If it fails the author continues to inject hypodermically minute doses of strychnine combined with codeine, one eighth to one fourth grain every three or four hours. Gauze alone is sometimes of value in early pregnancy. This applies especially in toxic conditions and in some forms of placenta prævia. After prolonged trial, Foulkrod has discarded rubber dilating bags in the induction of labor except in minor placenta prævia and prolapse of cord.

Present Status of Uterine Curettage.—R. M. Rakls (*American Journal of Obstetrics*, April, 1919) states that among the patients treated at the Woman's Hospital, New York, in the last eleven years, 32,029 operations were performed, of which 6,219, or 17.26 per cent., consisted of divulsion and curettage. The number of cases of divulsion and curettage compared with the total number of operations decreased, however, from 43.17 per cent. in 1908 to 14.39 per cent. in 1918. The percentages for this operation still seeming high, the writer undertook further study to ascertain whether a number of the operations had not been done merely as a matter of routine or for indications based on insufficient clinical study of the cases. It was found that of the 336 cases in which the operation was done in 1916, there were 159, or 47.32 per cent., in which no specimen was saved by the operator. As the rule of the hospital is to have all tissue sent to the laboratory for examination, the operator evidently considered a macroscopic examination sufficient in all these cases. Adding to these other cases in which the specimen obtained was inadequate or lost, there remained only 134, or 39.5 per cent., of the curettings, that were actually examined microscopically. Of these, ninety-four, or 70.1 per cent., showed normal endometrium. In 20.5 per cent. there was hyperplasia and in 9.4 per cent., interstitial change. Upon correction of these percentages by the inclusion of the cases in which insufficient material was obtained or the material not saved, only 8.5 per cent. of cases showed hyperplasia and 4.11 per cent. interstitial changes. Rawls's conclusions from other statistical data are: About ninety-six per cent. of gynecological cases show no endometrial changes and therefore curettage is unnecessary. In about four per cent. showing such changes the procedure is of questionable therapeutic value. As a diagnostic measure it is of practical value in only 5.1 per cent. of cases of carcinoma of the uterus. When curettage is performed in a hospital and by skilled operators there is a postoperative morbidity in at least 5.5 per cent.

Practical Importance of Vitamines.—F. Gowland Hopkins (*British Medical Journal*, April 26, 1919) reviews the facts with reference to the importance and occurrence of vitamins, emphasizing the small amounts present in any single article of food and the fact that artificial methods of preparation often remove even those small amounts. He stresses the practical importance of our knowledge of the vitamins and points out that partial deficiency, while it does not lead to the development of one or other of the recognized deficiency diseases, still may account for a considerable measure of malnutrition and indefinite illness. The modern bread supply, consisting very largely of white flour, which is lacking in vitamins may be a potent factor in the production of both malnutrition and illness when, through poverty or other conditions the dietary is composed largely of that staple food, together with canned meats and vegetables and a deficiency of fruits. These conditions prevail in certain classes of the community. It is probably true that the normal appetite and desires of man would lead to his selection of a sufficient dietary, but extraneous factors have so modified this selection that under conditions of civilized life there is danger of man's taking an insufficient amount of the vitamine containing foods. This matter rises to special importance in the case of the nursing mother, for it has been shown that animals apparently are incapable of forming vitamins, but derive them wholly from the vegetable realm. If, then, a mother does not receive a sufficiency of vitamins, her milk will be similarly deficient and her infant will suffer from their lack. The whole problem deserves far more general consideration than is yet given to it from a public health standpoint.

Bothriocephalus Anemia.—Emil Jerlov (*Hygienica*, March 15, 1919) reports a case of anemia due to *Bothriocephalus latus*, emphasizing the fact that while more or less anemia is constant in parasite carriers, and while for decades a diligent search for parasite eggs in feces has been made in cases of obscure anemia, the graver types are comparatively rare, and quotes Becker, of Helsingfors, who found in a series of 475 cases of bothriocephalus infection only three cases of pernicious anemia. The patient, a man of sixty-three years, entered the hospital complaining of increasing lassitude and loss of flesh and strength, with the history of having passed worms ten years previously, that from description seemed to be *Bothriocephalus latus*, while one month before entering he had passed a worm one metre long, less broad than the former. The administration of a vermifuge three times in sixteen days resulted in the finding each time of bothriocephalus eggs in the dejecta but no worm. After that the feces were negative for eggs. The blood picture resembled pernicious anemia except that the number of lymphocytes was lower (twenty-eight to 37.5 per cent.). Hemoglobin, red blood cells, and neutrophils were diminished, eosinophils normal, and white blood cells diminished. The exhibition of arsenic after the worm cure increased the hemoglobin percentage and red blood cells. What is now the causative factor in produc-

ing grave anemia inasmuch as only a few bothriocephalus carriers have it, is the question propounded by the author? The fact that anthelmintics brought away only eggs and no worm would indicate that the latter was in a state of dissolution, and this would go to substantiate the theory of Tallqvist who assumes that the dead and disintegrated worm undergoing absorption is the factor in producing anemia by liberating toxins that have a hemolytic action. Furthermore, the blood picture after treatment would go to strengthen this theory, showing as it does the effect of a toxic element. Thus assuming that after the third vermifuge dose the worm was being absorbed, he found some leucocytosis and marked eosinophilia as a result of the liberation of toxins while the hemoglobin percentage and the red cell count were undiminished because of the exhibition of arsenic.

Streptococcic Septicemia.—F. Rathery and J. du Castel (*Bulletins et mémoires de la Société médicale des hôpitaux de Paris*, February 6, 1919) report the case of a man aged twenty-four years who was suddenly seized with a chill, violent headache, and cough. Six days later, when first seen in the hospital, he showed a temperature of 40.9° C., parched lips and tongue, and mild delirium, and remained motionless in bed. The spleen was palpable and the liver slightly enlarged. Auscultation showed merely signs of diffuse bronchitis, and later, impairment of resonance and subcrepitant râles. Blood culture showed a streptococcus in pure culture. Hemorrhagic, slightly raised spots appeared on the abdomen and lower extremities. The patient went into a peculiar state of general semicontracture whenever his joints were touched or his muscles stroked, and there was definite trismus. Large blebs appeared on the hands, feet, and occiput, and their contents revealed streptococci. In spite of antistreptococcic serum and vaccine treatment, the patient died three days after admission. At autopsy one of the lungs showed massive degeneration into grayish, friable material, with central abscess formation. The similarity of the case to the ataxo-dynamic form of typhoid fever was of especial interest.

Treatment of War Headache.—L. Bathe Rawling (*British Medical Journal*, April 19, 1919) says that these headaches usually date from the moment of recovery of consciousness and occur most severely in cases with intact skull or very small injuries; following frontal or temporal injuries; and after wounds in the region of the vertex. The headaches studied all followed gunshot wounds, concussion, fractured base, etc. In his opinion the headaches are due to some general increase in intracranial pressure, in the great majority of cases to cerebral edema. Medical treatment should be tried in the form of rest in bed, dieting, drugs, and lumbar puncture, but in most cases will fail to give relief. Then resort should be had to trephining the skull with incision of the dura, the opening being made beneath the temporal muscle and not closed, but left so that the excess of cerebrospinal fluid can drain into the subtemporal tissues and be absorbed. This treatment is safe, simple and gives relief in the majority of cases.

Heated Air and Oxygen in the Treatment of Wounds.—Marcel Vignat (*Bulletin de l'Académie de médecine*, March 4, 1919) notes that heated air may be used in two different ways, viz., first, at a temperature of 800 to 1000° C., as a means of superficial tissue destruction, carbonization, and sterilization, and second, at a moderate temperature of 55° to 60° C., as a means of inducing tissue hyperemia. In recent wounds, before the appearance of infection, no mode of disinfection gave as good results as heated air. It is not advised to substitute this measure for the customary excision of dead or injured tissue, but the use of heated air, it is asserted, sometimes acts better as an adjuvant than any antiseptic liquid or powder. After the appearance of infection, heated air did not appear very useful, but at times it proved valuable in limited gangrenous areas. In a case of wound of the buttock in which complete excision was impracticable, recovery was procured by means of carbonization with oxygen heated to 1000° C. under pressure. After the gangrenous tissues had been carbonized and deodorized, the general condition improved, and the toxic symptoms eliminated, recovery was further promoted by the use of a stream of air heated to a moderate temperature. Heated air was employed with benefit in trench foot. In long standing, obstinate wounds, Vignat uses air heated to 55 or 60° C. both in military and civil practice. By the employment of hot air under pressure a species of massage of the wound may be instituted which appears further to hasten repair. It is recommended that the initial disinfecting action of heated air on wounds be likewise availed of in civil practice.

Clinical Use of Quinine.—W. T. Parrott (*Virginia Medical Monthly*, April, 1919) asserts that one out of every six persons will absorb quinine through the skin upon vigorous rubbing. Large doses of quinine irritate the kidneys and a temporary albuminuria may result. In every important case in which quinine is given, a test for it in the urine should be systematically used, this alone constituting a safe criterion of due absorption of the drug. A suitable test consists in adding one drop of bromine test solution to four mls of urine and following with a few drops of ammonia water which, in the presence of quinine, will yield an emerald green color. If much fluid has been ingested, a few drops of sodium hydroxide solution should be added to precipitate the alkaloid, the supernatant liquid partly removed, and a few drops of acetic acid then added to bring the alkaloid back in solution for the test. Provision should always be made for quinine to reach the stomach in an acid condition when it is given by mouth. In malaria prophylaxis, quinine is cheaper and more efficacious than swamp drainage; no mosquito can carry malaria unless the individual stung has had it, and quinine will sterilize the blood of malarial organisms. The economic bearing of malaria prophylaxis is evident from the fact that three and one half million people in America are absolutely inefficient because of malaria. Six weeks of quinine treatment is the minimum required if a malarial patient is not to remain a carrier of the plasmodia.

Effects of Antimeningococcic Serum in an Epidemic in Hong-Kong.—P. K. Olitzky (*Journal of Tropical Medicine and Hygiene*, February 15, 1919) notes that in a series of 417 cases of epidemic cerebrospinal meningitis treated in Hong-Kong, 104 patients did not receive either serum or lumbar punctures, obtaining merely the usual Chinese treatment. Of this number, 84.6 per cent. succumbed. Among 228 patients receiving Chinese treatment but also one or more lumbar punctures, the mortality was 51.1 per cent. Among fourteen patients treated by lumbar puncture only the mortality was 57.1 per cent. Among seventy-one patients receiving one to five lumbar punctures and also a more or less incomplete serum treatment the mortality was forty-five per cent. Comparative tests of the serum locally produced against Flexner serum showed the former to be very low in antibody content. Olitzky recommends intraspinal injection of thirty to sixty mls of good serum. While the temperature remains high and the meningococcus is still present in the spinal fluid, the injections may be repeated every twelve hours. Later, they are to be given every twenty-four or forty-eight hours. In severe cases it is also advised to give fifty or 100 mls of serum intravenously. In four out of ten moribund cases in which blood cultures were made the meningococcus was found in the blood. Intravenous injection is especially indicated where there are signs of meningococcic septicemia, such as skin hemorrhages or joint affections, and in fulminating cases.

Gibert's Pityriasis Rosea as a Tuberculide.—P. Le Damany (*Presse médicale*, March 10, 1919) reports two cases of pityriasis rosea with recurrences, at intervals, respectively, of eight days and two years. These observations, which contradict the earlier dictum of Thibierge that this disease never recurs, taken in conjunction with a number of other cognate facts, lead him to conclude that the disease is primarily of tuberculous origin and not, as the Vienna school had taught, a condition due to a trichophyton. Careful examination of patients shows that in over one half of all instances, general symptoms, such as loss of weight, fatigue, depression, and backache accompany, precede, or follow the eruption. Slight, painless but persistent enlargement of one or many lymph glands always occur in generalized pityriasis, and frequently in discrete or localized forms. Furthermore, various tuberculous manifestations often coexist. Thus, the condition may occur in subjects already suffering, e. g., from lichen scrofulosorum or tuberculosis of the lymph nodes or lungs. Many of the patients show impairment of breathing at one apex or give a family history of tuberculous infection. In three cases the author found pityriasis rosea coexisting with undoubted tuberculous skin lesions. Finally, in a number of patients apparently healthy apart from the pityriasis the author obtained positive diagnostic tests, e. g., with the endermic test, the tuberculin skin reaction, and the Herxheimer reaction. None of the author's pityriasis patients failed to show some more or less conclusive indication of tuberculous infection.

Clonic Spasmodic Contractions.—E. Lansing Evans (*Journal of Orthopedic Surgery*, May, 1919) operated upon a patient who presented a clonic spasmodic contraction of the muscles around the hip joint after orthopedic appliances and hypnotic suggestion had failed to produce any improvement. He exposed the tensor fascia femoris and divided it transversely together with the anterior fibres of the gluteus maximus. The muscles were dissected and the nerve supply removed. The operation revealed no abnormalities of the anatomical arrangement of the tensor fascia femoris or of the gluteus maximus. The spasmodic contractions produced the same signs as a snapping hip in which various pathological conditions have been described as thickening of the iliotibial band, adventitious sausage shaped masses of tissue, or bands connecting the gluteus maximus to the iliotibial band. The result of the operation was a cessation of all spasmodic movements.

Technic for Constricting the Eustachian Tube.—Urbantschitsch (*Monatschrift für Ohrenkrank und Lar-Rhinologie*, 1917, Nos. 11 and 12) opens his paper with a question of priority by stating that the technic very recently published by Blumenthal in the same periodical (Nos. 9 and 10) was already described by him eight years ago. Urbantschitsch uses grooved celluloid bougies and rubs the tube until it bleeds. When the discharge of pus has ceased the Eustachian canal can be also rubbed from the cavity of the tympanum. The writer has had a tympanum catheter constructed for this special purpose. He considers the celluloid bougie more advantageous than Blumenthal's metallic sound.

Derangements of the Semilunar Cartilages of the Knee Joint.—M. S. Henderson (*Minnesota Medicine*, April, 1919) reports the study of ninety-eight patients operated upon at the Mayo Clinic. Seventy-seven were males and twenty-one females; the right knee was affected in forty-four instances, the left in fifty-four. The internal cartilage was removed in ninety-four cases, the external in four. The term "loose" cartilage is not correct, as a ripped or torn semilunar will be found in the majority of cases. The symptoms which should be present are: History of trauma (usually indirect), pain, disability, locking of the joint, effusion, and a negative radiogram. A semilunar cartilage should not be molested unless there has been more than one attack of locking, and in typical cases operation should be done only after due consideration.

Closure of Schools in Epidemic.—William H. Devine (*Boston Medical and Surgical Journal*, May 1, 1919) says that with proper medical supervision children are safer in school; the daily medical inspection and supervision of nurses and teachers are powerful preventive factors. Children remaining at home during epidemics do not have this systematic inspection and comparatively few have medical advice, with its early detection of contagious disease. The discipline of the school prevents the close proximity of the students, and the alert teacher is quick to detect the early symptoms of disease. The ordinary child is safer from contagion if attending school during an epidemic and incidentally losing no schooling.

Pneumothorax Treatment of Pulmonary Tuberculosis.—Herbert F. Gammons (*Boston Medical and Surgical Journal*, May 8, 1919) recommends: 1. Consider the possibility of using artificial pneumothorax in every case of pulmonary tuberculosis. 2. Use every hygienic method first and then, if the chance of improvement following pneumothorax appears good, use it. 3. Artificial pneumothorax should not be used as a last resort, as a rule. 4. After the pneumothorax is started and there are good prospects of a complete collapse, the treatments should be administered often. It is best to give 300 c. c. at the initial attempt, and then it should be given every two or three days until the lung is collapsed, the amount to be given at each operation being dependent upon the manometric reading. 5. If, after a few attempts, numerous adhesions are present preventing a complete collapse, the case should be given up as a failure. 6. The ulcerative case offers the best results. Unilateral cases without much sputum and fever should not be treated with pneumothorax, even though the entire lung is full of large, moist râles. The collapse would tend to tear up the fibrosed areas.

A Point in the Technic of Transmesocolic Posterior Gastroenterostomy.—P. Duval (*Presse médicale*, March 13, 1919) states that among the essential characteristics of a satisfactory gastroenterostomy, perhaps the most important of all is a situation of the anastomotic orifice at the dependent point of the pyloric vestibule, as near as possible to the greater curvature of the stomach. Posterior gastroenterostomy as ordinarily performed does not always permit of recognition by the operator of the precise point of the stomach which he is bringing up through the narrow slit in the mesocolon. To obviate this difficulty the author recommends Lardennois and Okinczyk's procedure of stripping the omentum from the colon, which allows the operator to expose the entire posterior surface of the stomach. The anastomosis having been effected, the margins of the opening in the mesocolon are simply sutured through the posterior cavity, and the great omentum is brought down over the transverse colon.

Treatment of Peptic Ulcer from the Internist's Viewpoint.—F. D. Garrett (*Southwestern Medicine*, February, 1919) groups peptic ulcers as follows: 1. Surgical without delay; perforated ulcers, cases with suspicion of beginning malignancy, and cases in which there is repeated uncontrollable hemorrhage. 2. Surgical as soon as feasible; a, chronic ulcers resisting medical treatment; b, ulcers causing stenosis of the pylorus, or those with troublesome adhesions; c, cases in which there is intractable, continuous secretion; d, cases where the patient cannot devote sufficient time to succeed with a medical cure. Medical treatment will give sixty to eighty per cent. of cures in uncomplicated cases. Best results demand from three to six weeks in bed and at least two months' detention from business. Successful treatment must be directed to the relief of the following conditions: Vagotonia and local vascular spasm, general lack of nerve tone with poor nutrition, blood dyscrasias, lues, and focal infections.

Stock Vaccine in Pneumonia.—W. F. Theodore Haultain (*British Medical Journal*, April 26, 1919) treated a considerable number of cases of pneumonia following influenza with a stock vaccine prepared from mixed strains of streptodiplococcus which had been isolated from the sputum of several patients. Five million organisms were given at the first dose and the doses were increased by 5,000,000 at each repetition, the intervals being two, three, and four days. Among the patients receiving the vaccine there was only 5.7 per cent. of deaths as contrasted with 21.7 per cent. among the untreated cases.

Influenza Among Poison Gas Workers.—Frank Shufflebotham (*British Medical Journal*, April 19, 1919) recalls the general impression that workers in poison gases are less susceptible to influenza than the general community and records the results of investigations which he conducted in widely separated districts in England. Twenty different sources were included in the investigation and the results were essentially the same for all. With the exception of those who work with phosgene gas, workers with the poison gases enjoy a very high degree of immunity from infection with influenza. Workers in phosgene, on the other hand, are peculiarly susceptible to influenza, and the disease develops in serious form.

Hay Fever and Asthma.—J. G. Parsons (*Minnesota Medicine*, April, 1919) lays stress on the anaphylactic reactions as causes of asthma. These reactions occur in individuals who have been sensitized to some foreign protein belonging to one of the following principal classes: 1, Food products, animal or vegetable; 2, body emanations, such as horse dandruff and cat hairs; 3, plant emanations, chiefly pollens; 4, bacterial products, particularly those absorbed from foci of infection. The foci of infection from which the absorption of bacterial proteins most frequently occurs are the teeth, the tonsils, nasal sinuses and gallbladder. The bacteria which play the most important part in causing sensitization resulting in the anaphylaxis of hay fever and asthma are the streptococcus viridans, streptococcus hemolyticus and micrococcus catarrhalis.

Report of the Influenza Epidemic at the State School, Wrentham, Mass.—George L. Wallace (*Boston Medical and Surgical Journal*, April 17, 1919) gives the following figures. The total number of cases of influenza at the school during the months of September and October was 740, with a mortality of twenty-seven. The infection was general, extending to all departments of the institution. Vaccine was obtained and made available for all employees who cared to avail themselves of it. Seventy-one employees were vaccinated; of these five later contracted influenza. Fifty-eight were not vaccinated; of these thirty-eight contracted the disease. Thirty girls who constantly assisted in the care of the sick were vaccinated; of these three contracted influenza. In a building in which lived 156 inmates, twenty-eight were vaccinated; of these only one contracted influenza. Of the 128 unvaccinated persons in this building, all equally exposed with those who were vaccinated, sixty-four contracted the disease.

Antimony Tartrate in Bilharziosis and Tachycardia.—J. B. Christopherson (*British Medical Journal*, April 19, 1919) believes that the tachycardia reputed to follow the therapeutic injection of tartar emetic in bilharziosis is not necessarily due to the drug. He suggests that in many cases tachycardia would be found before treatment if looked for and offers, as an explanation for the rapid heart, the simultaneous infection of the subjects of bilharziosis with one or more of a large variety of intestinal protozoa and parasites. The author therefore urges that the feces of all patients with bilharziosis be examined for such other parasites while the use of antimony is still on trial, so that this valuable drug may not be unjustly blamed for effects which it does not produce.

Births, Marriages, and Deaths.

Married.

STEPHENS—KRANS.—In New York, N. Y., on Friday, June 5th, Dr. Richmond Stephens, Major, Medical Corps, U. S. Army, and Miss Ella Mary Krans.

Died.

ANDERSON.—In Philadelphia, Pa., on Tuesday, June 3d, Dr. Caroline V. Still Anderson, aged seventy-one years.

ANGELL.—In Delphi, Ind., on Wednesday, May 14th, Dr. Charles E. Angell, aged sixty-five years.

BARNETT.—In New Haven, Conn., on Thursday, June 5th, Dr. John F. Barnett, aged sixty-three years.

BARSTOW.—In Council Bluffs, Ia., on Friday, May 23d, Dr. James M. Barstow, aged sixty-four years.

BOOTHBY.—In Benton Harbor, Mich., on Thursday, May 29th, Dr. James M. Boothby.

BOSWORTH.—In Brookline, Mass., on Monday, June 2d, Dr. Freeman Dodd Bosworth, aged forty-three years.

BRAND.—In New York, N. Y., on Monday, June 2d, Dr. Adolph Brand, aged thirty-eight years.

DAY.—In Bennington, Vt., on Monday, May 26th, Dr. Henry C. Day, aged seventy-four years.

DEAN.—In Elmira, N. Y., on Thursday, May 29th, Dr. George W. Dean, aged sixty-nine years.

DIMOND.—In Philadelphia, Pa., on Wednesday, June 4th, Dr. Henry C. Dimond.

DOLAN.—In New York, N. Y., on Wednesday, May 28th, Dr. John D. Dolan, aged forty-three years.

FARLOW.—In Cambridge, Mass., on Tuesday, June 3d, Dr. William Gibson Farlow, aged seventy-five years.

GABRIEL.—In New York, N. Y., on Tuesday, June 3d, Dr. Ngrditch Simbad Gabriel, aged sixty-three years.

GRIMSHAW.—In Swedesboro, N. J., on Tuesday, May 27th, Dr. Oliver Grimshaw, aged fifty-eight years.

LENNON.—In Kearsarge, N. H., on Tuesday, June 3d, Dr. John M. H. Lennon, aged fifty-two years.

LLOYD.—In Olyphant, Pa., on Monday, June 2d, Dr. William E. Lloyd, of Forest City, Pa., aged forty-four years.

MEARS.—In Philadelphia, Pa., on Wednesday, May 28th, Dr. James Ewing Mears, aged eighty-one years.

PALMER.—In Framingham, Mass., on Tuesday, June 3d, Dr. Lewis M. Palmer, aged sixty years.

PENDERGAST.—In Syracuse, N. Y., on Monday, May 26th, Dr. N. Walter Pendergast, aged forty years.

SCHOONOVER.—In New York, N. Y., on Tuesday, June 3d, Dr. Warren Schoonover, aged eighty-one years.

STANBRIDGE.—In Winchendon, Mass., on Thursday, May 22d, Dr. George W. Stanbridge, aged forty-eight years.

STRICKLER.—In Boggs town, Ind., on Friday, May 23d, Dr. Stephen L. Strickler, aged sixty-five years.

SWASEY.—In Beverly, Mass., on Wednesday, June 4th, Dr. Oscar Fitzallan Swasey, aged ninety-three years.

THOMPSON.—In New York, N. Y., on Saturday, June 7th, Dr. John Henry Thompson, aged eighty-four years.

TRIPP.—In San Jose, Cal., on Monday, June 2d, Dr. Russell B. Tripp, aged one hundred years.

WIESECKEL.—In Brooklyn, N. Y., on Thursday, May 29th, Dr. George Wieseckel, aged fifty-six years.

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Original Communications

MODERN COMMENTARIES ON HIPPOCRATES.*

BY JONATHAN WRIGHT, M. D.,
Pleasantville, N. Y.

SUBJECTIVE SYMPTOMS AND DIET.

Interesting as it is to feel that we still can enter into the merits of the discussion as to the general principles which were applicable to the practice of medicine in days so remote as those of Hippocrates, one cannot hope, by picking out the more or less detached phrases which reveal them in some of the Hippocratic books, to learn all that is useful or all that is entertaining even in the details of the treatment in individual cases. I do not mean to assert that we get very much that is valuable in technical information or in the practical details of treatment, though this is by no means negligible, but just as we perceive that the general principles of theory and practice, and above all, of worldly wisdom and common sense, have not changed much in the course of ages, so the details of practice, in so far as they conform to our own practice, encourage us and in so far as they differ from our own notions, they show at least that other men long ago have had the same problems to contend with which give us trouble today. It is usually quite impossible for us to be sure what pathological lesion or often even what general condition of the patient lies behind the symptom discussed in relation to therapy for its relief and we are perforce confined to take note of the devices for the relief of it without much reference to etiology or pathology.

"When pain seizes the side, either at the commencement or at a later stage, it will not be improper to try to dissolve the pain by hot applications. Of hot applications the most powerful is hot water in a bottle or bladder, or in a brazen vessel, or in an earthen one; but one must first apply something soft to the side, to prevent pain. A soft large sponge, squeezed out of hot water and applied, forms a good application; but it should be covered up above, for thus the heat will remain the longer, and at the same time the vapor will be prevented from being carried up to the patient's breath, unless when this is thought of use, for sometimes it is the

case. And further, barley or tares may be infused and boiled in diluted vinegar, stronger than that it could be drunk, and may then be sewed into bladders and applied; and one may use bran in like manner. Salts or toasted millet in woollen bags are excellent for forming a dry fomentation, for the millet is light and soothing. A soft fomentation like this soothes pains, even such as shoot to the clavicle." (1)

It is difficult indeed for us to find in etiology or pathology any reason why such treatment should relieve pain originating in lesions of any of the organs of the thoracic or abdominal cavity, yet that such procedures are capable of affording the patient more or less temporary comfort, I think few will deny. Most of the patients will assert that such treatment gives them relief or even "cures" the pain. Now it is not for us as pathologists or clinicians to deny it. Pain is a subjective not an objective phenomenon. The patient suffers from it, not the doctor. He may dip into psychology for his explanation why the patient thinks he has had his pain cured, but the fact remains very many people with pleurisy or even the less serious forms of abdominal inflammation will not look at it from that point of view. From practical as well as from theoretical knowledge the attending physician knows he must expect that this favorable result of his topical application will soon cease. Unless the pain is severe, the sensation of heat attracts the patient's attention and diverts his mind from the pain which is distressing more on account of its monotony than on account of its severity. Poultices and cautery do not relieve severe suffering and after a time their appeal to the sensory system ceases to overpower that of the original discomfort. Plutarch remarks: "Hippocrates saith that of two pains the lesser is obscured by the greater."

A tight bandage aside from its immobilization of the part plays the same rôle. The duration of the relief achieved by these methods is in proportion to the severity of the patient's pain and to the mutability of his temperament. After a longer or shorter time other devices to divert the mind or to dull the pain must be sought. If the medical attendant is wise he will await the exhaustion of the first anodyne, because by that time the original distress may have ceased through the operations of nature. "If the pain be below the diaphragm, and do not point to the clavicle, we must open the belly

*The translations of Francis Adams's *Hippocrates, Genuine Works*, v. 1 (New York: William Wood & Co.), and E. Littré's *Hippocrates, Oeuvres complètes* (Paris: J. B. Baillière, 1839-1861), 10 v., have been chiefly used and compared with Littré's Greek text.

either with black hellebore or peplium, mixing the black hellebore with carrot or seseli, or cumin, or anise, or any other of the fragrant herbs; and with the peplium the juice of sulphium (asafetida), for these substances when mixed up together, are of a similar nature. The black hellebore acts more pleasantly and effectually than the peplium, while, on the other hand, the peplium expels wind much more effectually than the black hellebore, and both these stop the pain, and many other of the laxatives also stop it, but these two are the most efficacious that I am acquainted with."

I remember I was very much astonished when I entered upon my duties in the wards of a hospital as a newly fledged physician in the capacity of a junior assistant, to perceive that my chief, the house physician, gave, as a routine prescription, ten grains of calomel and ten grains of jalap to almost every patient, not in *articulo mortis*, who entered his service. The astonishment I felt was deeply tinged with respect, I knew not why. The medication had much the same effect on most of the patients, especially the astonishment. They rarely afterward complained of constipation in the presence of the house physician and there can be no denying it deepened their respect for him. Indiscriminate as was the practice, such harm as might occasionally come from a violent intestinal commotion, was more than counterbalanced by the beneficial effect ascribable to the cleansing of the *primæ viæ*, but it always made an impression on the patient's morale and usually a favorable one. Soft voiced and winning mannered, this deeply loved friend of my youth, dead and gone these many years, drew suffering men and women to him by the sympathy of his demeanor and doubtless this deepened the astonishment felt at the vigor of his treatment. I have brought forth this trait of the long cherished memory of him, because it has abided with me along with much more that is less unusual in the friendships of our youth. I place it in antithesis to the purging and in accord with the emollient and soothing applications to a painful chest, but it has that underlying psychological factor which also will serve to illustrate some of the successes secured in practice, quite inexplicable on any theory grounded in etiology or pathology.

Purging, which we are ready to admit furnishes a rational basis to therapy of most affections, has very materialistic connotations, but for the applications of either emollients or vesicatories to the chest wall, for poultices or blisters, or for the real influence of personality in the doctor, we seek in vain for any anatomical or purely physiological reason. The distraction of the attention of the patient from a worrying discomfort is attained in more ways than one. It may be poultices or blisters or the surprise of violent catharsis, but as for the subjective element in such troubles there can be no doubt of their efficacy.

However, whatever may be the reason that such things have remained rooted in the practice of medicine for thousands of years, we get the realization that it must be fundamental and we can scarcely refrain from the conclusion that it is founded in the psychology of man which remains unchanged through all the vicissitudes of theory

and practice during the ages. I must belabor this point a little to attract attention to it. Therapy, which appeals to the theory of the day, inevitably varies from generation to generation—almost from day to day, certainly from doctor to doctor. It is an activity which appeals to the interest and the intellect of the medical attendant, and it appeals to the psychology if not to the intellect of the patient. It is only chance that causes a coincidence between much therapy of the Hippocratic physician and that of the twentieth century, but when it comes to personality and to poultices, to blisters and cautery and sudden, violent, drastic purgation, the unvarying depths and shallows of the psychology of man, unchanged from the golden days of Greece to the materialistic modern days, are sounded and the results are the same, not perhaps because they have nothing to do with the cure of pathological lesions, but because they rest primarily on foundations unconnected with material lesions. They may indeed contribute to the abatement of the latter; that I am unable and indisposed and uninterested here in denying. It is quite within the range of possibilities that peripheral modifications of the human anatomy may affect the sensory impressions having their origin in visceral lesions, entirely aside from purely psychological reasons, but I am unable to discuss it from a standpoint which is not my own.

Let us take the phrases which in the text lie between the two quotations I have made. "Venesection, however, does not alleviate the pain unless when it extends to the clavicle. But if the pain be not dissolved by the fomentations, one ought not to foment for a length of time, for this dries the lungs and promotes suppuration; but if the pain point to the clavicle, or if there be a heaviness in the arm, or about the breast, or above the diaphragm, one should open the inner vein at the elbow, and not hesitate to abstract a large quantity of blood, until it become much redder, or instead of being pure red, it turns livid, for both these states occur." Lenient as we may be toward emollients and even vesicatories and approving as we may the practice of purging we find ourselves at once up in arms. What indeed has bleeding to do with pain at the level of the clavicles? I suppose it disappeared when the patient became faint from loss of blood. It is going far to say that fomentations too long continued dry up the lungs. Yet really is this any more absurd than supposing peripheral warmth has any effect on pain of internal origin, unassociated with psychological impressions? I think we must turn to the nature of the effects claimed for it. The soothing of pain is a subjective phenomenon, but the desiccation of the lungs is a physical concept. Bleeding for pain must be founded on physiological error, but possibly sound psychologically, in the time of Hippocrates and in later times. As to the drugs employed as purges we can imagine why black hellebore and the euphorbia peplodes are no longer in favor, and indeed the reasons may be noted in the text itself, but there can be little doubt that they were employed by the Hippocratic physicians with a judgment and a skill not habitually employed today in the administration of a cathartic, though they confessed fatal results sometimes ensued from their use.

I remember once being thrown with a man whose society circumstances compelled me to frequent for a number of days, a matter which ordinarily would have long since disappeared from my memory, because, beyond the unnecessary amount of raw whiskey he assimilated, there was nothing extraordinary about him. What he might have been without the whiskey I do not know. He might, of course, have been intoxicated as long as I knew him, but this state in him, if such it was, did not attract my attention. What recalls him to my recollection is associated with a meal set before him of broiled chicken. He said he couldn't eat it. Broiled chicken always disagreed with him. Naturally, I thought, here is another friend who ascribes to the oysters or the chicken what belongs to the whiskey, but steak was procured and he consumed it without remark or any sequence of incidents traceable to it. I suppose subsequent experience in practice accumulated observations of exceptional vagaries of digestion in a category by itself and the demand of my mind for the admittance to it of my alcoholic friend and his broiled chicken idiosyncrasy kept an incident alive in my memory which otherwise would have passed into oblivion. He was the only man I ever knew with whom broiled chicken disagreed. Now I have known very many people, indeed, who avowed that milk was little better than poison to them, and yet who, under the inexorable demand for a milk diet by a rigorous practitioner, thrived on it when ill of typhoid or other affection where orthodoxy in practice would permit nothing else. So perhaps neither the whiskey nor the broiled chicken, impartially viewed, would really have interfered with my friend's digestion. The only thing was the difference in his states of mind toward them.

I have just seen an account in a recent publication (2) which touches the same point in the psychology of primitive man in his attitude of mind toward the menstruous woman among the Choctaw Indians of an early period. "As I was beginning to eat her husband arrived. I asked him if he wanted some food, and having answered me that he did, he began to eat with me, but when the plate was half emptied, it occurred to him to ask me who had prepared it; it is to be remarked that he had recognized the cause of his wife's absence through some articles which were missing from the house; when I replied that it was his wife who had been my cook, he was at once seized with sickness and went to the door to vomit." Naturally we infer from this tale only the activity of the red man's imagination, but hear what Livingstone (3) says of the black man.

Speaking of the Bechuanas in close apposition to a reference to the African Arabs' loathing of pork he remarks: "I have known Bechuanas, who had no prejudice against the wild animal, and ate the tame without scruple, yet, unconscious of any cause of disgust, vomit it again. The Bechuanas south of the lake have a prejudice against eating fish, and allege a disgust to eating any thing like a serpent. This may arise from the remnants of serpent worship floating in their minds, as in addition to this horror of eating such animals, they sometimes render a sort of obeisance to living serpents by

clapping their hands to them, and refusing to destroy the reptiles; but in the case of the hog they are conscious of no superstitious feeling." If Livingstone's conclusions are correct that the stomach of these savages eject pork unknowingly ingested, the anecdote is out of place here—and out of place in any other record known to me. I venture to think the observer made a mistake as to the unconscious part of the story. Not to such a degree certainly, but I fancy that something of the uncertainty is an element that always enters into the science of dietetics, especially in chronic cases and in those of average health. One must always keep in view not only the food which agrees with the stomach but that which agrees with the mind, for there are idiosyncrasies of each, but certainly not unconscious racial idiosyncrasies of either.

This however is more especially applicable to the diet of health. In an essay on the Regimen of Acute Disease it might seem the author got off the track and into the rut I have here traversed in the last paragraph or two, but he drives home almost unperceived the lesson. If these vagaries of the stomach, to which I have ventured to add in laying a greater emphasis on the vagaries of the mind, if these idiosyncrasies which distinguish a man from a machine are to be taken into account in health, why not in acute disease?

"One may derive information from the regimen of persons in good health what things are proper; for if it appear that there is a great difference whether the diet be so and so, in other respects, but more especially in the changes, how can it be otherwise in diseases, and more especially in the most acute? But it is well ascertained that even a faulty diet of food and drink steadily persevered in, is safer in the main as regards health than if one suddenly change it to another. Wherefore, in the case of persons who take two meals in the day, or of those who take a single meal, sudden changes induce suffering and weakness; and thus persons who have not been accustomed to dine, if they shall take dinner, immediately become weak, have heaviness over their whole body, and become feeble and languid, and if, in addition, they take supper, they will have acid eructations, and some will have diarrhea whose bowels were previously dry, and not having been accustomed to be twice swelled out with food and to digest it twice a day, have been loaded beyond their wont. It is beneficial, in such cases, to counterbalance this change, for one should sleep after dinner, as if passing the night, and guard against cold in winter and heat in summer; or, if the person cannot sleep, he may stroll about slowly, but without making stops, for a good while, take no supper, or, at all events, eat little, and only things that are not unwholesome, and still more avoid drink, and especially water. Such a person will suffer still more if he take three full meals in the day, and more still if he take more meals; and yet there are many persons who readily bear to take three full meals in the day, provided they are so accustomed. And, moreover, those who have been in the habit of eating twice a day, if they omit dinner, become feeble and powerless, averse to all work, and have heartburn; their bowels seem, as it were, to hang loose, their urine is hot and

green, and the excrement is parched; in some the mouth is bitter, the eyes are hollow, the temples throb, and the extremities are cold, and the most of those who have thus missed their dinner cannot eat supper; or, if they do sup, they load their stomach, and pass a much worse night than if they had previously taken dinner. Since, then, an unwonted change of diet for half a day produces such effects upon persons in health, it appears not to be a good thing either to add or take from."

In the last few words the translation of Adams becomes unintelligible and as we refer to the text we perceive Littré has accepted an emendation which permits him to cast the translation into a shape more coherent with the thought at the back of it. Since such incidents arise in a state of health from a change of diet it is evident that "in a state of disease" these changes should not be made. We learn incidentally from this passage that while it was usual for the ancient Greeks to take only one or at most two meals a day it was not uncommon for them to take three or even more. From Greek literature in general we infer that whereas in our day and civilization the latter habit is the rule, the former custom more generally obtained in ancient Greece. The garrulity of the writer is a perfect godsend to us in many respects. We are far indeed, much of the time, from their dietary treatment of pneumonia and typhoid but incidentally we learn of the seasoning they had with their food and professionally we admire the acuity of observation which, along the line we have just commented upon, takes note of the strange small things we know of too—how a welsh rarebit at one a. m. often is followed by a peaceful sleep during what remains of the night for a person who is distressed if he takes milk toast. "As to the effects of eating much flesh, contrary to usage, or garlic, or asafetida, or the stem of the plant which produces it, or things of a similar kind possessed of strong properties, one would be less surprised if such things produce pains in the bowels, but rather when one learned what trouble, swelling, flatulence, and tormina the cake (maza) will raise in the belly when eaten by a person not accustomed to it; and how much weight and distention of the bowels bread will create to a person accustomed to live upon the maza; and what thirst and sudden fullness will be occasioned by eating hot bread, owing to its desiccant and indigestible properties."

Their welsh rarebit seems to have been like our own a mixture of cheese and wine, what Circe gave Ulysses' sailors in the *Odyssey* and what Hekamede, another charmer in the *Iliad* whom Nestor, the sporty "old man won from Pylos," kept in his tent, stirred up with barley for him and Patroklos. Plato (*Republic* III, 405) makes Socrates refer to this as rather inflammatory and insinuates that medicine in later times was tending rather to induce than to cure disease. Circe "hocussed" the repast, as we know, with the dire results for the bibulous crew which we often read of in the police reports concerning other men who are thus turned into swine today. How natural it all seems as we get back to the reality of things in the youth of man and of the world even when they were already old!

"Persons who are bilious bear these changes worse." The cyceon of Circe and Hekamede was a mixture not only of cheese and wine, like our own, but if they had no beer at least they put barley flour in the wine. A dash of honey seems to have completed the formidable mess, and they apparently took it raw—not hot and melting from the chafing dish. With our prejudices in favor of our own rarebit we are very ready to believe this ancient form of it, uncooked, might well have always given rise to "tormina" as they called it in the time of the translator.

As to this Hippocrates was speaking of the maza cake, a form of nutriment widespread throughout the Mediterranean lands and as old at least as Hesiod and in it we find both the sweet honey and the oxymel or acid honey whose own fermentation seems to have been accentuated by the addition of vinegar, "a sort of pudding or cake made from barley meal mixed up with water, oil, milk, oxymel, hydromel, or the like." Hippocrates surprises us by expressing his surprise that such a brew often really does not agree with some people who are unaccustomed to it. I think nothing should more impress us with the vast range of the adaptability of the human digestion which an analysis of Hippocrates and Homer and some vagaries of our own diet, as I have just sketched them, should give us. So perhaps broiled chicken might not have been on the evolutionary bill of fare on which my friend's family had been raised, and whiskey was, I know. This is a strange train of thought to introduce into the regimen of the acutely ill, but I think Hippocrates, dealing with it in a more stately manner, it is true, than I have been able to, considered it a useful one, and by the art of his garrulity and apparent inconsequence—an art in which Montaigne later so excelled all, he brings it into his study of the diet of the very sick for the sake of the general principles which apply as well to a state of disease as to a state of health.

These are the central points of interest for the historian. The history of the use of a drug is as tiresome as a kaleidoscope to the vision when long gazed upon and for the same reason. What have become of the purgatives and of the drinks? What do we care for the hydromel or the oxymel, or the barley water? The latter two were used in the harvest field in my young days when the whiskey began to disappear from it, and even from the gruel in the sick room. The wine has disappeared and the alcohol itself is going. What would be the book on the Regimen in Acute Diseases but for these? Yet we have harvested much wisdom in poring over it. It is more often by the incidentals that knowledge advances and is acquired, both experimental and didactic, than from the studied intent of the wisest authors.

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A MODIFIED HOMOCOMPLEMENT FIXATION TEST FOR SYPHILIS.

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In May, 1918, prior to the publication of Noguchi's work (1) on his homohemolytic test for syphilis, the writer had been experimenting with a human serum complement fixation test with promising although not brilliant success. The obstacles to uniformly favorable results lay in the poverty of complement in .1 c. c. of many of the fresh, human sera, and in the large units of antihuman amboceptor required to complete hemolysis when this quantity (.1 c. c.) of serum was employed. Noguchi's recent series, however, showed that .2 c. c. of human serum as complement was a perfectly safe unit to use, if only acetone insoluble antigen was used as the fixing agent. Adopting this amount (.2 c. c.) of serum as a complement unit, we removed these two objectionable factors.

In these experiments, other difficulties were constantly presenting themselves. Attempts to eliminate these obstacles resulted in several modifications of the system suggested by Noguchi. The first is the use of pooled, human sera instead of a single, chance specimen, to titre for the hemolytic unit of antihuman amboceptor to be used in the tests for that day. Pooled serum is used to avoid the possible selection of a specimen containing an excess or a deficiency of complement and to insure an average unit of hemolysin. The pool is made up of approximately equal amounts of serum from five or more specimens to be examined.

The second modification is the employment of .5 c. c. of a one per cent. suspension of red cells which is one half the amount employed by Noguchi and commonly used in other laboratories. Admiral Stitt (2) recommends this suspension in the original Noguchi test. Our experience has convinced us that there are very few sera in which there is not sufficient complement to insure complete hemolysis of this smaller amount of corpuscles. In addition, the end results are more sharply defined into distinctly negative or unquestionably positive reactions, when such a light cell unit is employed.

The third variation in the procedure is a fifteen to twenty minute instead of a twenty-five to thirty minute period of incubation for finding the hemolytic unit. This unit, then, is that amount of amboceptor which will completely hemolyze .5 c. c. of a one per cent. suspension of human corpuscles in the presence of .2 c. c. of pooled, human serum in the water bath at 37° C. for this period of time. This insures more than one unit of hemolysin in the amount of amboceptor used in the test. Such a method of determining the hemolytic dose was found to be more satisfactory in our hands than the customary practice of adding a fraction of a unit, or a whole unit, to the amount of amboceptor required to complete hemolysis in thirty minutes. The added attention that this method of titration requires possibly explains our preference.

The fourth modification is the determination of the anticomplementary dose of the antigen (acetone insoluble) by using human serum instead of guinea-pig serum. Our procedure is to secure two samples of negative human serum (negative history and physical findings) and to run each specimen in a separate series of tubes receiving .2 c. c. of serum in each tube and increasing amounts of antigen diluted one to ten, with sufficient saline to make a final content of 1.5 c. c. in all tubes. Both series are incubated in the water bath at 37° C. for thirty minutes. After this the hemolysin and red cells are added. Then the two series are reincubated for thirty minutes. The amount of antigen in the first tube showing inhibition of hemolysis is the anticomplementary dose. It is not safe to use more than one fourth of this amount as the antigenic unit. Rarely is it necessary to determine the complement content of the sera prior to estimating the anticomplementary dose, because repeated titrations have shown that the anticomplementary unit in comparative series does not exceed a variation of .1 c. c. of diluted antigen. If a greater difference is obtained, one must suspect the absence of complement or the presence of a specific antibody in our supposedly negative serum. The anticomplementary reaction of the antigen has been checked in every instance by control titrations with guinea-pig complement. The antigenic and hemolytic properties of the antigen may also be determined by human complement titrations in addition to, and as readily as the determination of these qualities by the use of guinea-pig complement.

The fifth, and possibly the most important modification is in the second step of the test, that is, complement fixation. Comparative tests have convinced us that complement fixation is more satisfactorily accomplished by the ice box method applied to fresh sera for a period of four to sixteen hours, preferably overnight, than by the usual practice of heat fixation. This procedure is more satisfactory, because the number of sera with deficient complement is reduced from seven per cent. to less than two per cent., without affecting the sensitiveness and reliability of the test. In other words, by the ice box procedure complement is just as completely and specifically deviated at 4° to 8° C. over night as it is in the water bath at 37° C. for thirty minutes, and the complementary power or activity is enhanced while the anticomplementary properties of the sera are appreciably diminished.

PREPARATION OF TEST REAGENTS.

While there have been practically no innovations added to the methods recommended by Noguchi for collecting and preparing the various elements entering into the homohemolytic system, nevertheless, there have been some details in the methods, the careful observation of which has been found to contribute very much to the success of the test.

PATIENT'S SERUM.

Each patient's serum plays a dual rôle in the test by furnishing, not only the syphilitic reagin (in the luetic cases), but also the complement in approximately ninety-eight per cent. of the tests. The remaining two per cent. of sera contain no comple-

ment or a deficiency of complement, either of which conditions necessitates the use of a known negative serum possessing active complement. Since the complement content of each serum is utilized in the fixation of the specific antibody by the addition of antigen, inactivation must not be performed. In addition, the serum should be fresh (not more than twenty-four hours old), preferably free from large amounts of hemoglobin, and should not contain its own red cells. If three c. c. to five c. c. of blood are withdrawn aseptically by venipuncture into a dry, warm centrifuge tube, then allowed to form a firm clot at room temperature, or in the incubator at 37° C. for fifteen minutes, and finally centrifuged for several minutes, most of the sera will be highly satisfactory. Bile tinged sera have been consistently negative by this test. The lytic action of the bile on the human red cells of another individual possibly explains these results.

Sera collected by puncture of the tip of the finger or the lobe of the ear are less satisfactory for any complement fixation test than are the specimens taken by venipuncture. A majority of the sera from either of the former sources show varying degrees of hemolysis which condition, in itself, introduces a confusing factor in reading the results. While specimens from the finger or the ear are not infrequently anticomplementary when the Noguchi heterohemolytic and the original Wassermann tests are performed on them, it is the exception to find these same sera lacking in active complement when the homohemolytic system is used. In fact almost all sera that are anticomplementary when guineapig complement is used, possess active human complement and are entirely satisfactory for the homohemolytic system.

ANTIGEN.

It is a well established fact that nonspecific, proteotropic, complement fixation occurs when alcoholic extracts or alcoholic extracts reinforced with cholesterol are used as antigen. This reaction naturally is more marked when fresh, active sera are used than when the specimens have been inactivated. Therefore, it is imperative that acetone insoluble antigen be employed in the homohemolytic test. The essential qualities of this fixing reagent have been established and described by Noguchi (3). Stock solutions become anticomplementary very readily if the greatest precautions are not observed. Possibly the most frequent error in the technic causing this disqualifying property of an antigen is the accidental introduction of minute quantities of water or saline solution into the alcoholic stock reagent. This may be avoided by keeping the antigen container well stoppered at room temperature and by cautiously pouring rather than pipetting the amount needed for each series of tests. In preparing the one to ten dilution of stock antigen and sodium chloride solution (.9 per cent.), Kolmer (4) recommends the addition of small amounts of saline followed by vigorous shaking. These are alternately repeated until the required dilution is made. It appears to be advantageous to pool two or three stock antigens (5) (acetone insoluble) one of which is made from human heart extract and the other from an animal tissue extract. Rarely

one finds that a luetic serum completely fixes the complement when a human extract antigen is used, while the same specimen produces a questionable result with an animal extract antigen, and the reverse may occur. Kolmer explains this phenomenon on the assumption that the lipophilic antibody in certain syphilitic sera shows a special affinity for the lipoids in one antigen and less of this property for another.

ANTIHUMAN AMBOCEPTOR.

The difficulty in producing an antihuman amboceptor with a high titre is the only obstacle in this method. We have been most successful in obtaining a suitable hemolysin by combining the intravenous and intraperitoneal methods of inoculating rabbits. Of fresh, thoroughly washed human corpuscles, packed and warmed to 38° C. or 40° C., one c. c. is inoculated slowly into an ear vein of the rabbit on alternate days for three injections. Then three c. c. to five c. c. of cells similarly prepared are injected into the peritoneal cavity of the rabbit every fourth or fifth day for four or five inoculations. The rabbit is then bled at the end of the eighth or tenth day. If .5 c. c. of a one per cent. suspension of red cells in the presence of .2 c. c. of fresh, pooled human serum is not completely hemolyzed in fifteen minutes in the water bath at 37° C. by .01 c. c. or less of the rabbit's serum, this animal's serum should not be used as the test hemolysin. Repeatedly we have been enabled to inoculate our animals twelve to fourteen times without their death from anaphylaxis by adding to the cell suspensions either one tenth minim of adrenalin alone, or adrenalin with a minute dose of atropine sulphate (1/3,000 grain). We are not certain that the alkaloid itself does not interfere with antibody production. At present we are using a mixture of human and sheep cells for the first three or four inoculations of the rabbit with the hope that antihuman hemolysin production may be stimulated by the accompanying sheep cells. In fact, by the use of a human sheep cell suspension as an antigen, one of our staff, Doctor Shaweker, has succeeded in producing a bivalent amboceptor of sufficiently high titre to be of practical value as a hemolysin for either variety of corpuscles.

HUMAN RED CELLS.

When the venipunctures are made for the test sera, a three to five c. c. excess of blood over the amount required for the serum may be withdrawn from two subjects to obtain the corpuscular suspensions. Each sample is transferred to a separate centrifuge tube containing five c. c. to ten c. c. of a two per cent. potassium citrate in .9 per cent. sodium chloride solution, then centrifuged and washed alternately at least five times in .9 per cent. saline. After the final washing, the cells in a packed state together with the supernatant saline are put on ice until the following morning. It is our custom to select individuals that are apparently in good health. The prolonged administration of drugs, the presence of fever and clinical evidence of active lues or any acute disease are the accepted factors upon which we have been disqualifying prospective donors of red cells. In the determina-

tion of the hemolytic unit, titrations against both corpuscular suspensions are made. This is done, because occasionally one cell suspension will hemolyze more satisfactorily than another, irrespective of the absence of natural hemolysins in the pooled sera cell control tubes.

PROCEDURE FOR EXAMINING FRESH SERA.

Table I indicates the steps of the tests detailing the amounts of each reagent used. The sera should be measured by pipettes and not by the drop method. In the second step ice box fixation is used because at this temperature the complement content of each serum increases within the first twenty-four to thirty-six hours (6) after the blood is withdrawn. In addition, human complement is fixed with more difficulty than guineapig complement, and for this reason, the second step is prolonged with advantage.

TABLE I.

PROCEDURE FOR EXAMINING FRESH HUMAN SERA (WITHIN FIRST TWENTY-FOUR HOURS).	
First Step.	Patient's serum (fresh, hemoglobin free and cell free), .2 c. c.
Front row (test row).	Antigen (acetone insoluble diluted 1-10), .1 c. c. Normal salt solution (.9%), .5 c. c.
Back row (control).	Patient's serum (as above), .2 c. c. No antigen. Normal salt solution (.9%), .5 c. c.
Second Step.	Shake. Put in ice box for four to sixteen hours, preferably the latter. (A thirty minute incubation fixation is less satisfactory.)
Third Step.	Tubes in front and back rows receive: First, .5 c. c. of 1% human red cell suspension, and second, a fifteen to twenty minute unit of anti-human amboceptor so diluted that .2 c. c. constitutes the working dosage.
	Shake. Total amount in each tube is 1.5 c. c.
Fourth Step.	Incubate in water bath at 37° C. for fifteen minutes. Shake and record all back row (or control) tubes that are not completely hemolyzed. Continue incubation for another fifteen minute period.
Fifth Step.	Make preliminary reading at once. Put on ice for one hour and make final reading.

In step three .2 c. c. of a hemolysin so diluted that this amount completes hemolysis in fifteen to twenty minutes is, in our hands, a more satisfactory quantity, than a dilution in which .1 c. c. of amboceptor lyses the cells in the same length of time. This is obviously due to the use of the reagent in a higher dilution, which condition minimizes the effects of adding a fraction too much or too little to the tests. After fifteen minutes incubation in the fourth phase of the test, a record should be made of all control tubes that are not completely hemolyzed. These notations may be of value when the final readings are made, because these sera contain less than an average amount of complement. A questionable result in any one of these specimens must be regarded as negative. Each serum with an indeterminate reaction is retested at a later date, or reported negative. It is to be understood that known positive and known negative controls are run with each test.

PROCEDURE FOR EXAMINING SPINAL FLUIDS.

In Table II it will be noticed there are several variations from the procedure recommended for fresh sera. They are for the examination of spinal fluids and old sera, which is made after the fresh sera tests have been completed. If any specimens among the fresh sera prove to be acomplementary, they should be reexamined with the old sera and

spinal fluids. In this way known negative human complement is selected from the series of tests just completed for the spinal fluids, old sera, and acomplementary specimens.

TABLE II.

PROCEDURE FOR EXAMINATION OF SPINAL FLUIDS, OLD SERA, ETC.	
First Step.	Known negative activating serum (as complement), .2 c. c.
Front row (test row).	Spinal fluid, .4 c. c., or old serum (inactivated), .2 c. c. Antigen (dilution 1-10), .1 c. c. Salt solution (.9%), .1 c. c., or q. s.
Back row (control).	Negative serum (as above), .2 c. c. Spinal fluids, .4 c. c., or old serum, .2 c. c. No antigen. Salt solution (.9%), .2 c. c., or q. s.
Second Step.	Shake. Incubate for thirty minutes in water bath at 37° C. (ice box fixation is not used in this procedure).
Third Step.	Add .5 c. c. of 1% suspension of human red cells to front and back rows, and a fifteen to twenty minute unit of antihuman amboceptor to all tubes. Shake. Total amount in each tube is 1.5 c. c.
Fourth Step.	Incubate for thirty minutes in water bath at 37° C. Shake once during this step in the test.
Fifth Step.	Make preliminary reading at once. Put on ice for one hour and make final reading.

When a serum is more than forty-eight hours old, it should be inactivated at 55° C. for thirty minutes. Two tenths c. c. is then added to the same amount of known negative, active, human serum selected from the fresh specimen series. If a fresh specimen with a deficiency of complement is encountered, the addition of another amboceptor unit will usually suffice to clear up the control tube and make possible the test readings. These tubes are reincubated for another thirty minute period. In the second step of this retest procedure, complement fixation is accomplished by incubation for one half hour in the water bath at 37° C. Heat fixation must be used to avoid the deterioration of complement that always occurs in specimens that are more than one day old. The remaining steps of the test are the same as the corresponding phases for fresh sera.

PROCEDURE FOR DETERMINING THE HEMOLYTIC UNIT.

Titration for the amboceptor unit to be used in the tests are made in the morning immediately before proceeding with the third step of the test on fresh sera detailed in Table I. When two human red cell suspensions have been collected separately and properly prepared, two series of six tubes are set up, one series for each cell antigen. The first four tubes in each group are the hemolysin tubes, the last two are control tubes. Two tenths of a cubic centimetre of pooled, human serum is put in the first five tubes of both series, then increasing amounts of the diluted amboceptor are added to the first four tubes of each group (.1 c. c., .2 c. c., .3 c. c., and .4 c. c.) and a sufficient quantity of saline solution is added to both series to make a final dilution of 1.5 c. c. in each tube. Now .5 c. c. of a one per cent. suspension of red cells No. 1 is put in all tubes of the first group. The same amount of cell suspension No. II is added to all tubes of the second series. The fifth tube of both series acts as a serum cell control, while the last tube in both instances serves as a cell saline check. Salt solution is the most frequent single offending reagent in the hemolytic system. Shake. Incubate for fifteen to twenty minutes at 37° C. in

water bath, and make a note of the tube with the least amount of amboceptor that shows complete hemolysis. Repeat shaking and continue incubation for the remainder of the one half hour period. If, at the end of this time, the next lower amount of amboceptor produces complete hemolysis of the cells, a higher dilution of the hemolysin must be made and the titration repeated.

THE EFFECT OF AN EXCESS OF HUMAN COMPLEMENT.

The possibility of an excess of complement acting as an influencing factor in the end results of the test, naturally is suggested. In a series of 258 sera, we have run two controls. One was the regular control containing .2 c. c. of serum. The other was the experimental control containing .1 c. c. of serum. Thirty-two per cent. of the sera contained sufficient complement excess to hemolyze completely the cells in this second control. One of the specimens in this group, or less than one per cent. resulted in a three plus reaction, while the respective check test with the Noguchi heterohemolytic and original Wassermann systems was four plus. In Noguchi's test, acetone insoluble antigen was used, while this reagent as well as cholesterol reinforced antigen were used in the Wassermann tests. It is interesting to note that this discrepancy occurred in the blood of a patient receiving mercurial treatment at the time the test was made. Another specimen in this group containing an excess of complement resulted in a four plus reaction in both the homohemolytic and the cholesterol Wassermann systems, while in the Noguchi heterohemolytic test the result was indeterminate. This patient was admitted with a genital chancre the duration of which was eleven days. This variation suggests that the homohemolytic system will possibly show a positive reaction earlier in the disease, in spite of a complement excess, than other systems except those in which cholesterol antigen is used.

STATISTICS.

This report is based upon the examination of 3,618 sera and 124 spinal fluids made in the United States Naval Hospital, New York. This number includes only those specimens upon which Kolmer's second method and Noguchi's heterohemolytic system were used as check tests on the same day by another medical officer on the laboratory staff. In the first 1,100 tests, heat fixation was used, instead of the ice box procedure which was employed in the remaining tests. This shift from heat to cold fixation was made with the control tests as well as with the homocomplement system. In the group upon which water bath (heat) fixation was used, it was found that seventy-nine sera, or seven per cent., were hypocomplementary or acomplementary. Indeterminate reactions necessitating retests were not infrequent in this series. In contrast when cold fixation was used, only fifty-two specimens, or approximately two per cent. of the 2,518 sera examined, showed a deficiency or absence of complement. Questionable readings were conspicuously rare in these specimens.

Anticomplementary reactions were recorded in thirty-one of these 2,518 blood sera examined by Kolmer's second method and the original Noguchi

technic. Human complement was deficient or absent in only five of these thirty-one anticomplementary specimens. The other twenty-six sera contained sufficient human complement to produce definite readings in the homohemolytic system; eleven were four plus, the other fifteen negative. Simon (7) asserts that the fixation of complement even in the absence of an antigen (a so-called anticomplementary reaction) occurs only in patients giving a syphilitic history, and that therefore this phenomenon suggests the existence of sufficient corresponding (endogenous) antigen in the serum to fix the entire amount of complement. He adds that "it is interesting to note that in a number of instances of this order complete absence of complement has been noted in the patient's sera—an observation which has never been made in a nonsyphilitic individual."

Our results with the homohemolytic test disprove the contentions stated above. As stated elsewhere, 132 sera in all were found to be hypocomplementary or acomplementary. In ninety-four of these the results with the control tests were negative, while thirty-eight, or approximately two fifths gave four plus reactions.

The sensitiveness of the different systems is definitely shown in Table III, where a comparison is made of the positive reactions recorded in the 2,518 sera upon which cold fixation was used.

TABLE III.

Systems. Antigens. No. of pos- itive sera	Homohemolytic. Acetone insoluble.	Kolmer's second method. Acetone insoluble.	Cholesterol.
.....	665	559	734

In this table only those sera responding with total inhibition of hemolysis are listed. Retests on luetic patients that have received thorough treatment are included in this group. These figures show that the homocomplement method is more sensitive than Kolmer's second method, with acetone insoluble antigen. Cholesterol antigen in turn is more sensitive but less reliable than the homohemolytic system.

SUMMARY.

Valuable modifications to the hemolytic system of the homocomplement method are pooling sera for the determination of the hemolytic unit, the use of a light cell suspension, and finally taking, as the hemolytic unit, that amount of amboceptor which completes hemolysis in fifteen minutes rather than in twenty-five minutes.

In the test itself, the use of pooled acetone insoluble antigens is of paramount importance, because the antigen is the keystone reagent in this as in every other complement fixation test. The most valuable change in the technic of the test is the substitution of cold for heat fixation. This has not been the experience of some other workers, but this difference may be explained by the increased period of fixation adopted by us.

The use of sera with a complement content of variable quantity is theoretically not a part of an ideal system, but practically the influence of this variation is of little importance, because active sera in moderately large amounts are used. In the great majority of instances with such amounts more

than enough specific antibody is present to deviate all of the complement with the routine antigen excess.

Noguchi has shown that unheated syphilitic serum from an active luetic patient contains one antibody fixing unit to every .008 c. c. of serum. Therefore .2 c. c. of this patient's serum would contain twelve antibody fixing units. In addition, although syphilitic sera in the majority of instances contain active complement, there are fewer specimens from luetics with a hypercomplementary activity than from nonluetics. These two properties of specific sera reduce the possibility of error from hypercomplementosis.

In conclusion, it may be stated without reserve that the homchemolytic method for the diagnosis of syphilis has virtually become an essential adjunct to the serological tests for lues. This method merits this place on account of its features of simplicity of equipment, ease with which the component parts of the test are obtained and the remarkable degree of accuracy noted in the results—an accuracy that, in our opinion, is not exceeded by any other single method.

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TREATMENT OF ACUTE GONORRHEAL URETHRITIS AT HOME AND IN CAMP.

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The concentration of troops in camps presented an unusual opportunity to study the treatment of acute gonorrheal urethritis, and to compare the results obtained there with those obtained in civilian clinics and hospitals. It is reasonable to expect that the comparative number of recoveries without complications would be larger and the duration of the disease would be shorter in patients treated in camp than among others; for private and clinic patients cannot be induced to rest in bed for an acute urethritis, and public hospital patients suffering from this disease are not, as a class, as well physically as the pick of the young adults of our population. Before describing the treatment given and the results obtained in the various places

—the clinic, the hospital, and the camp, it may be advisable to give a brief sketch of the conditions with which we have to deal in acute gonorrheal urethritis.

The gonococci, deposited in the fossa navicularis, multiply and spread backward along the urethra. The reaction of the tissues to their toxins produces a scanty mucoid discharge which contains epithelial cells with gonococci on them and free, and a slight itching or tickling is felt at the meatus. This, the prodromal stage, lasts several hours to a day or two and it is at this time, before the gonococci have penetrated below the epithelial cells of the mucous membrane, that attempts to abort the disease may be made with any hope of success.

The gonococci soon penetrate more or less deeply to the deeper layers of the mucous membrane and the submucous tissue. The leucocytes and the local fixed connective tissue cells multiply in the attempt to destroy the obnoxious invader and the inflammatory reaction becomes more intense. The meatus is puffed and reddened, urination is painful from the sudden distention of the inflamed urethra by the rush of urine, the discharge becomes more profuse and purulent; erections are more frequent from irritation in the canal and painful, because the infiltrated urethra and corpus spongiosum have lost their elasticity and will not stretch. During the first few days following the prodromal stage these symptoms are comparatively mild, the discharge is mucopurulent and shows microscopically epithelial cells, some pus cells, and gonococci; and the first urine is cloudy from mucus and some pus. This period we call the stage of invasion. Later the symptoms become more severe, the discharge is profuse, creamy, yellowish or greenish yellow from admixture with blood, and shows microscopically many pus cells and a few epithelial cells loaded with gonococci; the urine is turbid with pus which settles on standing, leaving a cloud of mucus above. This is the acute or purulent stage which continues till the submucous tissue and the deep layers of the mucous membrane are cleared of the gonococci by the phagocytes and usually lasts to the end of the second or the third week.

The pathological condition now remaining is a catarrhal inflammation of the mucous membrane, with edema and congestion, and erosions where the surface has been denuded of epithelium and with granular patches where erosions have been covered with an overgrowth of capillary loops. The symptoms have become milder, the epithelial cells are swept out in the urine with the gonococci on them, the discharge again becomes mucopurulent, thinner and scantier, and shows microscopically few pus cells and many epithelial cells with gonococci; the urine is less turbid and contains clumps of inflammatory debris. This is the stage of decline.

Resolution progresses; the edema and congestion disappear, the discharge again becomes mucoid, then decreases further till it is seen only in the morning, and the scanty, dry secretion is swept out in the urine as shreds (terminal or chronic stage) which finally disappear. Concerning sites of predilection of gonorrheal inflammation it has been found that the inflammatory reaction is most in-

tense and the germs are most numerous about the urethral crypts and glands which are filled with germs and inflammatory debris. The mucous membrane of the fossa navicularis is involved in the inflammation but its epithelium is impermeable to the gonococci.

COMPLICATIONS.

Acute gonorrheal posterior urethritis cannot be called a complication of acute gonorrheal urethritis, as when it occurs, it is part of the process itself. It is, however, a complication of acute anterior gonorrheal urethritis in the sense that it never occurs without previous involvement of the anterior urethra; and we shall consider it as such to emphasize the importance of treating the gonorrheal urethritis, which is at first always limited to the anterior urethra, in such a way as to guard against the spread of the inflammation backward from the anterior urethra.

In a large proportion of cases of acute anterior gonorrheal urethritis, the infection extends backward, beyond the cut off muscle, into the posterior urethra. The classical symptoms of this complication are frequent and urgent urination with tenesmus and perhaps terminal hematuria; and with these symptoms there is a sudden, marked diminution of the discharge from the meatus. This latter sign appears with all severe gonococcal complications of the organs opening into the posterior urethra. In a very large number of cases, however, the condition is so mild that no subjective symptoms are present; the only sign of the posterior involvement being a cloudy second glass of urine due to the flowing backward into the bladder of the pus secreted in the posterior urethra, behind the cut off muscle. These mild cases clear up readily if the patient is put to bed and all local treatment of the urethra is suspended.

Complications outside of the urethra itself are prostatitis and seminal vesiculitis which tend to keep up a chronic urethritis, and epididymitis and gonorrheal rheumatism which have no direct bearing in this way. Other complications, which are directly connected with the urethra and the persistence of which tends to prevent healing of the urethritis, are unresolved edema and congestion of the urethral wall due to persistence of underlying infiltration, granular patches, urethral follicles filled with infectious inflammatory debris, periurethral abscess, papilloma of the urethra, and lesions left from some preceding gonorrheal urethritis. Congenital conditions which have the same action are narrow meatus, which is not at all uncommon, hypospadias, which is infrequent, and epispadias, which is rare.

TREATMENT.

The treatment of acute gonorrheal urethritis, not including the abortive treatment which is not considered in this paper, is controlled by the following indications: 1. Prevent complications. 2. Relieve symptoms. 3. Control the discharge. 4. Destroy the germs directly where that is possible, without severely injuring the tissues. 5. Avoid interference with the natural curative processes. For example, astringent injections or irrigations are harmful in those stages of the disease in which the phagocytes are destroying the gonococci in the deep tissues and,

together with the germs, are being discharged as pus.

The different methods of treatment which we shall consider differ chiefly in the local measures used in the urethra. The hygiene, diet, care of the bowels, keeping the urine bland and the use of local dressings are the same in all, and the propriety of their application is disputed by none. The hygiene consists in avoiding heavy exercise, sexual excitement, and exposure. The diet includes only easily digestible substances which do not produce irritating compounds that must be eliminated in the urine, nor such as cause congestion in the genital organs or the bladder; i. e., avoid spiced and pickled foods, asparagus, condiments and alcohol, and reduce the consumption of meats, tea, coffee, and tobacco as much as the patient can well tolerate. The local dressings are so arranged as to admit of free drainage while protecting the clothing from being soiled. The patient should wash his hands with soap and water, preferably with antiseptic soap, after touching the soiled dressings, to prevent carrying infectious matter to his eyes. It is also desirable to support the testicles by a suspensory bag, which, however, should not press on the urethral canal and interfere with drainage; this can do no harm and may prevent an epididymitis by relieving the drag on the spermatic cord. The urine is kept diluted, and neither too acid nor alkaline. Potassium acetate, fifteen grains, given well diluted two hours after meals, will dilute the urine and reduce its acidity, while fifteen grains of sodium benzoate, boric acid, or acid phosphate of soda or twenty grains of salicylate of soda administered the same way will render an alkaline urine acid.

Other internal medication includes certain substances known as antibleorrhagics, the principal ones of which are sandalwood oil, copaiba, cubeb and kava-kava, which are eliminated through the urine and seem to have a specific action on the lower genitourinary tract. We find clinically that they relieve the symptoms, lessen the discharge, and tend to prevent complications. They are all slightly irritating to the mucous membrane of the genitourinary organs and therefore should not be used in hyperacute cases nor for too long a period in the chronic stage when their irritation may keep up a slight discharge. Sandalwood oil is the least irritating of these, especially when given together with fluid extract of kava-kava, three parts to one, and is best used in the mild acute stage in doses of ten minims three or four times a day after meals; the balsam of copaiba in ten minim doses or the oleoresin of cubeb in five to ten minim doses is used in the subacute stage of the disease.

The best form of local treatment in most cases of acute gonorrheal urethritis is still a disputed point. Some authorities use expectant treatment; that is, they prescribe no antibleorrhagics and give no local treatment whatever in the ordinary case until the stage of decline sets in, when they prescribe an astringent hand injection to be used two or three times daily, or give irrigations of warm, mild astringent solutions. In hyperacute cases with edema of the foreskin, etc., they apply heat locally for a day or two till the hyperacute symptoms have subsided, as do all other clinicians.

A method that was much in vogue three decades ago was Janet's method of irrigating the inflamed urethra with warm solutions of potassium permanganate by hydraulic pressure. This treatment was based on the theory that potassium permanganate, in proper strength, causes a temporary edema of the mucous membrane which is intense enough to check the growth of the gonococci, but is not severe enough to injure the mucous membrane. It is possible that the ill success of this method was due in part to rough technic, it having been considered advisable, at that time, to distend forcibly the urethra with the solution so as to get the medicament into the urethral crypts, without properly considering the resulting damage to the inflamed mucous membrane by the forcible and painful tearing apart of the inflamed urethral walls. However it may be, while the discharge is checked rather quickly by this method, recurrences were so frequent and the proportion of cases in which there developed prostatitis, seminal vesiculitis, and epididymitis were so abnormally large, that this method is rarely used now as a routine measure.

The following is the method of local treatment of acute gonorrheal urethritis which is most in favor at present. If the inflammation is hyperacute, if the glans and meatus are swollen, no intra-urethral treatment is attempted. The penis is soaked in water as hot as the patient will tolerate, for ten or fifteen minutes several times a day, or applications of lead and opium wash are made. In a day or two the swelling will have subsided and the methodical treatment is instituted.

The drugs first used are organic preparations of silver, those most in favor being protargol and argyrol. These drugs are not directly gonococcidal, but they seem to exert an action on the tissues which render them unfavorable soil for the growth of the gonococci. They modify the symptoms and the discharge very favorably so that the discomfort of the patient is reduced to a minimum. Protargol is used in strengths of one quarter to two per cent. and argyrol in a two to ten per cent. solution or stronger. We find that the weaker solutions are as efficacious as the stronger and are less irritating. In hospital and clinic our routine local treatment is as follows: We prescribe a one quarter per cent. solution of protargol to be used as a hand injection and to be retained in the urethra for at least five minutes. As with all injections or irrigations in the diseased urethra, it is used immediately after the patient cleans the canal by urination. This prevents the forcing backward into the posterior urethra and bladder of any pus which might have accumulated in the urethra.

The strength of the protargol solution is increased after the first week to one half per cent. because the urethra has become accustomed to the slight irritation of the weaker solution and this strength is maintained to the end. With the appearance of the stage of decline, when the discharge again becomes mucopurulent and contains microscopically few pus cells and gonococci and many epithelial cells, the organic silver preparations are gradually replaced by mild astringent injections. At first one of the silver injections a day is discarded and a solution of zinc sulphate and lead ace-

tate, one grain of each to the ounce, is used in its place and is retained one minute. This solution is used for one week and is then increased in strength to two grains in an ounce. As the discharge becomes more mucoid, two injections a day of the silver are replaced by the astringent, and when the gonococci have disappeared from the discharge, the organic silver is stopped and only astringents are used until all discharge has ceased and the shreds have disappeared from the urine.

Some years ago we tested several forms of treatment on hospital patients suffering from acute gonorrheal urethritis. We divided the patients into three groups of twenty-five each. Group I was treated by the expectant method. The men were kept in bed, the hygiene and diet were looked after as described above, the urine was kept bland, and when necessary urinary sedatives like belladonna were administered. Hyperacute cases were treated by soaking the penis in hot water or by application of lead and opium wash; enlarged inguinal lymph nodes were painted with iodine, etc. No medication which is considered more or less specific, such as sandalwood oil internally or the silver albuminates as urethral injections or irrigations, was given. Nor was any other intraurethral medication given till the stage of decline set in when astringent hand injections or irrigations were administered. Group II received the same treatment, plus sandal wood oil by mouth in the mild acute stage and copaiba or cubebs in the subacute stage. Group III received the treatment of Group II plus hand injections of the silver albuminates. The following results were obtained:

Group I: Not quite sixty-five per cent. recovered in eight weeks; the rest became chronic. Group II: Not quite sixty-five per cent. recovered in seven weeks; the rest became chronic. Group III: Not quite sixty-five per cent. recovered in six weeks; the rest became chronic.

It will thus be seen that the percentage of uneventful recoveries was the same with every method of treatment, the only difference being in the duration of the disease; about eight weeks with the expectant plan, seven weeks when the antibleorrhagics were added, and six weeks in those who received both the antibleorrhagics and intraurethral treatment with the organic silver preparations.

In camp, where about one thousand cases of acute gonorrheal urethritis were observed, the routine treatment was somewhat different. In the hyperacute cases the patients were treated in the same way as in the hospital cases mentioned above. In all acute cases the patients were kept in bed, given a liquid diet, and put on olei santali or on Lafayette mixture for from three to five days. They were then allowed to be up and about but kept in the hospital, and on the usual diet and internal medication as in Group III. Instead of hand injections of one quarter per cent. solution of protargol, irrigations of one half to one per cent. solution of this drug were used twice a day. The method of irrigation was as follows:

The patient stood before the surgeon. The irrigator was about three feet above the patient's pelvis. The nozzle was applied to the meatus and sufficient solution allowed to run in gently to fill the urethra

without overdistingding it. As soon as the urethra appeared to be full the tip of the nozzle was drawn away from the meatus sufficiently to permit the fluid to escape from the urethra and then reapplied and the urethra filled again. A half pint of the solution was used at each sitting. The discharge would become mucoid (and show microscopically epithelial cells with a few pus cells and gonococci) in ten to fourteen days, after which the patient would be discharged from the hospital. The internal treatment was continued and the patients would report at the hospital once daily for a protargol irrigation, and would use an astringent hand injection twice a day. The astringent injection consisted of a solution of zinc sulphate and lead acetate, one grain of each to the ounce the first week, and two grains of each to the ounce thereafter, usually for two weeks. The urine was clear and free from shreds at the end of this time, about five weeks, in from sixty to sixty-five per cent. of the cases.

It is noteworthy that all methods of treatment gave a similar percentage of uneventful recoveries, between sixty and sixty-five per cent., the only difference being in the duration of the disease in the large majority of cases of each group. This was eight weeks in Group I; seven weeks in Group II; six weeks in Group III, and five weeks among the soldiers in camp whom we shall consider as Group IV.

Among the thirty-five to thirty-eight per cent. of patients who resisted treatment we found twenty-five (of the thirty-five or thirty-eight) had lesions persisting from some previous gonorrhea. (Ninety per cent. of those patients who made an uneventful recovery gave a history of previous gonorrheal urethritis). The remaining ten or thirteen in a hundred showed congenital stricture at the meatus, patulous urethral crypts filled with inflammatory debris, granular patches, areas of edema in the mucous membrane, urethral polypi, periurethral abscess, or involvement of the prostate and seminal vesicles. These were treated according to indication. The narrow meati were slit open; patulous urethral crypts were emptied and their infiltrated walls reduced by dilatation with Kollman's dilators or, in obstinate cases, were slit open with a knife through an endoscopic tube; granular patches were curetted and touched with a fifty per cent. solution of silver nitrate; patches of erosion were touched with a similar solution of silver; areas of edema, which are due to persistence of infiltration beneath them, were treated by dilatations which forced resolution of the underlying infiltration; urethral polypi were curetted off and their bases touched with a fifty per cent. solution of silver nitrate; periurethral abscesses were opened externally when the internal orifice was well closed, through the urethra in other cases; prostatitis and seminal vesiculitis received appropriate treatment.

The point of importance disclosed by these investigations was the shortening of the duration of acute gonorrheal urethritis by a week among the soldiers in camp, over the best results obtained in civilian hospitals. Whether this was the result of using the organic silver preparations by irrigation instead of by hand injection, or of the better physi-

cal condition of the patients in Group IV, we are not prepared to say. It is probable that the method of treatment was the principal cause since many of the hospital patients were as good physical specimens as were the men in camp.

THE DIAGNOSIS OF *EARACHE*.

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A short review of the etiology of *earache*, together with a brief study of some points in differential diagnosis and a classification of the forms most often encountered, should be of use to the general practitioner, as the necessity for relief is usually imperative and the choice of proper therapeutic measures depends entirely upon the exact cause of the pain. The frequent occurrence of *earache*, its generic origin, and variations in character and intensity, render the subject of wide interest. The unfortunate results attending a wrong diagnosis and its accompanying faulty treatment have been matters of common observation in patients suffering from *earache*, and it is believed that the presentation of a few simple clinical points, characteristic of the ordinary varieties of this complaint, will prove of assistance in eliminating mistakes in diagnosis and treatment.

The following classification into four groups of patients suffering from *earache* is based upon anatomical, etiological, and therapeutical grounds.

1. Those produced by an inflammation behind the tympanic membrane, the infection originating in the nose and throat and being introduced into the middle ear by way of the Eustachian tube. The attack is usually preceded by an inflammation of the upper air passages. An aural examination reveals a more or less inflamed or bulging drum head. It may, however, be covered with a white necrotic epithelium, which on being removed reveals an underlying deeply injected *membrana tympani*, very sensitive to the touch of a cotton wound applicator. The pain of a middle ear abscess is steady and boring in character, it is located directly in the ear, and is more or less continuous. As a rule it is relieved only by incision or spontaneous rupture of the drum.

2. In this class of case the *earache* is produced by inflammation of the soft parts of the external auditory canal, commonly known as external otitis or furunculosis. It frequently develops in individuals suffering from eczema of the ear, who are in the habit of scratching the canal with some hard substance to relieve the sensation of itching. It sometimes follows faulty attempts to remove wax or foreign bodies from the canal. In summer it often occurs in persons accustomed to daily sea baths, the frequent submersions causing excessive dryness of the auditory canal epithelium. An aural examination reveals a more or less swollen and sensitive external auditory canal. By the careful use of a small speculum the drum head may possibly be observed. It frequently shows some sympathetic congestion but is otherwise normal in appearance. The tragus or auricle is nearly always very sensitive

to the slightest touch or traction, and the pain is usually increased by mastication. This is a valuable point in differentiating between the pain in this condition and that resulting from other causes. Often there is some slight painful enlargement of the lymphatic glands situated about the auricle. In most of these cases the pain is more throbbing in character than in a middle ear abscess, and it is usually increased by lying down or leaning forward.

3. Earache in which there is no inflammation present in either the middle ear or external auditory canal is known as otalgia. The pain is neuralgic and reflex, being referred from other regions, e. g., the teeth, nose, or throat. The otalgia which accompanies a peritonsillar abscess or follows a tonsillectomy is an example. These patients are often neurasthenic. Usually the pain is not located directly in the ear, but in the region around it and is not so intense as in the other classes. An aural examination shows a normal drum and auditory canal.

4. Earache which is largely mechanical and chiefly confined to children and infants suffering from enlarged tonsils and adenoids is very common and nearly always nocturnal, as a rule recurring several nights successively. Mechanically the etiology is as follows: The prone position of the sleeping patient increases the congestion in the nasal pharynx, resulting in temporary closing of the Eustachian tube thereby converting the middle ear into a closed cavity; the blood circulating in the walls of this cavity soon absorbs its contained oxygen thus inducing negative pressure. The ear drum being the only large yielding surface in the tympanic walls responding to physical law retracts sharply. The patient awakens suddenly with an earache and immediately starts to cry vigorously. The act of crying forces open the Eustachian tube relieving the negative pressure in the middle ear, the pain then soon ceases and the patient returns to sleep. Aural examination shows the membrana tympani to be normal, save for more or less retraction with possibly some congestion during the attack.

It sometimes happens that an earache is produced by a combination of some of the factors mentioned above, e. g., furunculosis of the canal associated with an acute or chronic middle ear abscess. In these cases the clinical evidence is of most value in determining what is the cause of the pain and the utmost skill may be required to diagnose and treat the condition.

The limitations of this paper naturally forbid a complete definition of the etiology of earache. The author's only purpose has been to present a ready classification of the subject to be used as a diagnostic aid by the general practitioner who is constantly confronted with the symptom.

In conclusion he wishes to emphasize the importance of making an early diagnosis in this condition so that the proper measures for relief may be instituted at once and in this manner prevent if possible the subsequent development of such a severe complication as mastoiditis, which sometimes attends this complaint.

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SURFACE TEMPERATURE IN THE DIAGNOSIS OF SURGICAL ABDOMINAL CONDITIONS.*

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In the seventies and eighties (1) of the last century a number of observers made investigations of variable extent on the features and value of surface thermometry. Most of these early observations were made by neurologists and were mainly in connection with lesions of the central nervous system. Broca's (2) experiments on localized cerebral temperature are well known. Likewise the observations of Brown-Séquard, Charcot, and others. Lombard (3) in 1878 showed that the surface temperature of the head varied under conditions of rest, intellectual activity and emotion. Peter and Vidal (4) 1878, were the first to claim that in pulmonary tuberculosis, the surface temperature at the affected apex is from .3 to 1° F. higher than on the unaffected side. Similarly Forest (5) advocated the determination of the surface temperature at the apices of the lung as an aid in differentiating apical tuberculosis from chlorosis. Likewise, Charteris (6) in 1876 reported that in advanced pulmonary tuberculosis the axillary temperature on the affected side was higher than on the unaffected side. Peter also claimed that in thoracic paracentesis there always occurred a rise of temperature which subsided in twenty-four hours unless more fluid formed. According to Squire (7) acute pleurisy may raise the surface temperature as high as four or five degrees above that of the opposite side. Myalgia may also cause a rise of local temperature. Also in paralysis the paralyzed side has a higher temperature than the unaffected side—which he explains on the basis of a vasomotor relaxation. The surface temperature of the various parts of the body are given by the same author as follows: head 94°, neck 96°, chest, abdomen, and back 94.5° to 96.5°, extremities 90° to 94°. Beside the ordinary clinical thermometers, some of the observers mentioned above employed in their investigations a special surface thermometer. The first instrument of this kind was devised by E. Seguin (8), of New York, and described by him in his book published in 1876. It is quite an ingenious instrument but not very accurate. The surface thermometer of Dupré is said to be quite accurate.

Of American observers on the same subject, E. Seguin in the work referred to above (p. 274) draws attention to the value of surface thermometry in the diagnosis of pleurisy, peritonitis, ovaritis, meningitis, and phthisis. Gray (9) of Brooklyn recorded a case of cerebral disease where the temperature over the seat of the lesion was 2° F. higher than at other parts of the cranium. O'Hara (10) reported some minor observations in 1879. Recently Abrahams (11) revived Professor Peters's observations upon surface temperature in apical tuberculosis, affirming great diagnostic value for that sign.

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Outside of the transient reference of E. Seguin as to the value of abdominal surface temperature in the diagnosis of peritonitis and ovaritis, as referred to, I could find no mention in the literature of any

nature of which may be gathered from the accompanying tables.

The thermometers used were ordinary clinical thermometers previously tested, and particular at-

TABLE I.
TABULATION OF NINETEEN CONSECUTIVE ACUTE SURGICAL ABDOMINAL CONDITIONS.

Case No.	Name.	Post-operative diagnosis.	Surface temperature.		Body temperature.	Evidence of general reaction.	Blood count.	Peritonitis.
			R.	L.				
101	Mrs. G.	Right pyosalpinx.	98.4°	98.2°	99.8°	Slight.	11,400; polymorphonuclear, 79%.	Localized.
102	S. M.	Acute suppurative appendix.	96°	95.4°	99°	Moderate.	16,800; polymorphonuclear, 86%.	Localized.
103	Perry.	Ruptured gauge. Appendix.	95.8°	95.8°	100.2°	Marked.	18,200; polymorphonuclear, 88%.	General.
104	Mrs. B.	Acute catarrhal appendix.	99.4°	99°	100.4°	Marked.	19,100; polymorphonuclear, 90%.	None.
105	J. W.	Carcinoma of stomach.	97°	96.8°	98.6°	None.	Normal.	None.
106	Mrs. M.	Abscess of appendix.	90.2°	96.4°	100.6°	Moderate.	17,200; polymorphonuclear, 85%.	Localized.
107	Mrs. Bened.	Suppurative appendicitis.	96.8°	96.2°	101.2°	Marked.	14,800; polymorphonuclear, 95%.	Generalized.
108	Mrs. L. B.	Ruptured ectopic gestation (R.).	96.6°	97.4°	98.4°	Shock.	11,400; polymorphonuclear, 76%.	None.
109	F. S.	Suppurative appendicitis.	99.2°	98.2°	102.4°	Marked.	19,300; polymorphonuclear, 89%.	Localized.
110	H. B.	Acute catarrhal appendicitis.	100.4°	100°	100.8°	Marked.	22,800; polymorphonuclear, 91%.	None.
111	J. S.	Acute catarrhal appendicitis.	97.2°	96.6°	101.8°	Moderate.	17,800; polymorphonuclear, 85%.	Localized.
112	Harry G.	Suppurative appendicitis.	98.2°	98°	102.6°	Marked.	18,000; polymorphonuclear, 89%.	Localized.
113	Mrs. McD.	Cholelithiasis.	99.8°	99.6°	103.4°	Marked.	12,400; polymorphonuclear, 80%.	None.
114	P. R.	Gangrenous appendicitis.	100°	100.4°	101.2°	Marked.	17,400; polymorphonuclear, 96%.	General.
115	Mrs. L.	Right pus tube.	99.6°	99.8°	102.2°	Moderate.	14,600; polymorphonuclear, 82%.	Localized.
116	Miss Z.	Acute gangrenous appendicitis.	99.2°	99°	99.8°	Marked.	17,100; polymorphonuclear, 87%.	Localized.
117	F. G.	Ruptured gastric ulcer.	98.6°	99.4°	98.8°	Moderate.	14,200; polymorphonuclear, 88%.	General.
118	A. K.	Acute pancreatitis.	95.6°	96°	99.8°	Marked.	12,800; polymorphonuclear, 83%.	General.
119	L. C.	Empyema of gallbladder.	96.4°	96.6°	102.2°	Moderate.	28,400; polymorphonuclear, 94%.	Localized.

TABLE II.
TABULATION OF TWENTY-TWO CONSECUTIVE CASES OF SURGICAL DISEASES OF THE KIDNEY.

No.	Name.	Diagnosis.	Surface temperature.		Body temperature.	General reaction.	Blood count.	"Pointing."
			L.	R.				
11	H. G.	Perinephritic abscess (R.).	100°	101.2°	102.8°	Good.	17,800; polymorphonuclear, 87%.	Slight.
12	George K.	Left pyonephrosis.	100.4°	99.4°	101.6°	Good.	21,400; polymorphonuclear, 89%.	None.
13	Lucy B.	Left hydronephrosis.	96.2°	96.4°	98.6°	Good.	Normal.	None.
14	F. M.	Right tuberculous kidney.	98.4°	99.6°	100.4°	Good.	6,400; polymorphonuclear, 48; lymphocytes, 40.	None.
15	G. L.	Left renolithiasis.	94.2°	94.4°	98°	Good.	Normal.	None.
16	V. L. M.	Left perinephritic abscess.	100.8°	100.2°	103.2°	Poor.	12,600; polymorphonuclear, 90.	Slight.
17	Mrs. L.	Right floating kidney.	94.6°	94.2°	98°	Good.	Normal.	None.
18	Thomas.	Bilateral pyonephrosis.	99.6°	99.2°	101.4°	Good.	18,600; polymorphonuclear, 87.	None.
19	Lillian G.	Sarcoma of right kidney.	95.2°	95.6°	97.6°	Good.	Normal.	None.
20	K. G-n.	Right pyonephrosis.	99.4°	100.8°	102.4°	Good.	14,200; polymorphonuclear, 79.	None.
21	R. F.	Left tuberculous kidney.	96.8°	95.4°	99°	Good.	6,200; polymorphonuclear, 54; lymphocytes, 40.	None.
22	F. S.	Perinephritic abscess (R.).	101.6°	102.4°	104°	Good.	24,800; polymorphonuclear, 92%.	None.
23	L. A.	Left pyonephrosis with stone.	100.2°	99.2°	101.4°	Good.	12,100; polymorphonuclear, 79%.	None.
24	Thomas L.	Multiple cysts of right kidney.	94.6°	94.4°	98°	Good.	Normal.	None.
25	F. G. K.	Left hydronephrosis.	95.8°	96°	98.4°	Good.	Normal.	None.
26	A. T.	Right pyonephrosis.	98.2°	99.8°	100.6°	Good.	16,400; polymorphonuclear, 82%.	None.
27	F. C.	Left pyonephrosis.	99.6°	97.8°	100.8°	Fair.	12,800; polymorphonuclear, 90%.	None.
28	T. H.	Left perinephritic abscess.	98.4°	97.6°	100.2°	Good.	16,200; polymorphonuclear, 79%.	None.
29	J. J.	Right perinephritic abscess.	98.8°	100.2°	101.4°	Good.	10,600; polymorphonuclear, 82%.	Marked.
30	F. McC.	Tuberculous right kidney.	94.8°	94°	98.2°	Fair.	5,400; lymphocytes, 52%.	None.
31	G. M.	Left pyelitis with stone.	95.8°	95.2°	99.4°	Good.	16,200; polymorphonuclear, 80%.	None.
32	FitzM.	Right pyonephrosis.	96°	97.8°	100.4°	Good.	18,100; polymorphonuclear, 88%.	None.

investigations of surface temperatures in connection with diseases of its viscera (12).

The material employed for the present investigation consisted of fifty normal cases and 250 cases of diseases of abdominal organs, the variety and

tention was paid to see that they did not slide or jump, a phenomenon I have seen take place with instruments of unreliable make. The thermometer is shaken down to its lowest mark, 94° F. If the mercury was shaken down lower than the gradu-

ated lines one should notice its exact level so that it may be shaken down to the same level in the subsequent determinations. Of course the same thermometer is used for all the readings on the same patient.

Sites of temperature determination.—For this purpose the maximum points of tenderness or the maximum point of rigidity were usually chosen. Hence, most frequently, these points corresponded with McBurney's point, the tubal point and the region over the gallbladder. In the majority of the cases the surface temperature was determined at all these points. In emergency cases only the suspected area and the corresponding point on the opposite side were investigated. The thermometer was placed so that the mercury bulb was located over one of the points mentioned and the skin folded over it so that the entire bulb was covered, a procedure usually very easy with the skin of the abdominal wall. The time is accurately observed, and a note made. Usually the patient can be shown how to hold the thermometer. Both hands should be used for this purpose. In some cases a small piece of adhesive plaster may be employed to hold the fold of skin over the mercury bulb. For the determination of the localized elevation of temperature over the region of the kidney, the two points over the site of the kidney posteriorly were employed.

In the first hundred determinations five minutes were given for each reading. Investigating the rise of temperature for each minute, I found that during the first two minutes the greatest part of the registration took place. After that it is about $.4^{\circ}$ for the next minute and about $.2^{\circ}$ to $.4^{\circ}$ for each succeeding minute. Since the deduction from the temperature determination is one depending upon its comparison with the opposite side three minutes are quite sufficient for the determination. Some points to be observed are: 1, Accurate persistent covering of the mercury bulb by overlapping flap of skin; 2, exact amount of time on each side; 3, the room temperature must be even, and skin and thermometer not exposed to drafts, and 4, the skin must not be the seat of previous counterirritation. The application of iodine for instance may cause an elevation of local temperature of one or more degrees which may last for several days.

Results of investigation.—In the normal individuals examined the difference in the various points varied from $.4^{\circ}$ to $.8^{\circ}$ F. In eight per cent. of the cases it was 1° F. Repeated tests in the same place also showed a similar variation, in a few cases an entire degree. The average surface temperature of the abdominal wall was from 95.4° F. to 97.6° F., while mouth temperature at the same time was from 97.8° F. to 98.8° F.

In the cases of suspected inflammation of the abdominal organs the findings were uniformly disappointing. In some cases the findings were such that would make one believe it to be very valuable, but extremely disappointing were the numerous cases of gangrenous appendicitis, localized appendiceal abscesses, gangrenous gallbladder and ruptured gastric ulcer without any localized elevation of temperature. Indeed, my colleague, Doctor Follett, once

remarked that if the surface temperature over the appendix is lower than that of the opposite side it is a sure indication that arrangements should be made for an immediate operation.

In patients with localized appendiceal abscesses the surface temperature was unaffected except in the few cases where it was actually beginning to point (three cases in this series). In these cases the surface temperature was $.8^{\circ}$ higher, and in one case 1.2° higher than on the opposite side. In strangulated hernia, e. g., ventral, inguinal, and umbilical, the surface temperature over the hernia was not affected unless there was localized peritonitis. In these cases the surface temperature was elevated ($.6^{\circ}$ to 1° F.) in twelve out of sixteen cases examined (sixty-six per cent.)

In patients with general peritonitis the surface temperature was generally higher than in other cases. With a mouth or rectal temperature of 101° or 102° F, the surface temperature is apt to be 100° or 100.2° F., while in other febrile conditions a similar general temperature would be more apt to give a surface temperature of 98° or 99° F. But the normal surface temperature variation is so wide that I should place no diagnostic value upon it.

In inflammation of the kidney, however, it seems that an elevation of temperature is quite common. In normal cases the difference in temperature on the two sides is from $.2^{\circ}$ to $.8^{\circ}$ F. In only one case out of fifty examined was the difference in temperature above one degree. In unilateral pyelitis, pyonephrosis, perinephritic abscess, and even in tuberculous disease of the kidney, the surface temperature of the affected side seems to be always higher than on the unaffected side.

In the sixty-seven cases of kidney disease in this study, forty-nine patients (seventy-four per cent.) had an elevation of 1° F. or more on the side affected. Six patients (nine per cent.) had no elevation of temperature. The rest had an elevation of from $.5^{\circ}$ to $.8^{\circ}$ F. on the affected side. In two cases of advanced tuberculosis of the kidney, the temperature was lower on the affected side than on the normal one. Hydronephrosis does not give rise to any elevation of temperature.

Of the sixty-seven cases mentioned above six were pointing. In these the surface temperature was from 1.5° to 2.4° F. higher than on the opposite side.

SUMMARY AND CONCLUSIONS.

1. Surface temperature can be determined by folding the skin over the bulb of an ordinary clinical thermometer and reading it after three minutes' registration. It should be compared with the opposite side.

2. In surgical inflammations of the abdominal viscera (except kidneys), there is no elevation of temperature of the skin overlying them.

3. In unilateral inflammation of the kidney there is frequently a localized elevation of surface temperature.

4. In seventy-four per cent. of the cases of unilateral suppuration of the kidney the surface temperature on the affected side was 1° F. or more, higher than on the unaffected side.

5. In advanced tuberculosis of the kidney the

surface temperature may be lower than on the unaffected side.

6. Determination of surface temperature may be considered an aid in the diagnosis of unilateral suppurative conditions of the kidney.

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RENAL INFECTIONS ASSOCIATED WITH PREGNANCY.*

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Because of the interrelation of all types of septic processes involving this organ it will be necessary in a brief way to mention the salient points common to all renal infections in order that the etiology, symptomatology, diagnosis and treatment may be more readily appreciated. The etiology will be discussed first and may be subdivided under the following headings, which have been conclusively proved both experimentally and clinically.

First, kidney infections have their origin in acute or chronic septic processes elsewhere in the body, among which the so-called focal infections must receive special mention, i. e., the teeth, tonsils, sinuses, intestinal bacteriemias, cholecystitis, appendicitis, pelvic inflammations, and leg ulcers. How these inflammations may openly or insidiously attack the kidney and destroy it will later be fully considered. However, their great importance must be constantly remembered and the clinician not satisfied with alone determining that the kidney is

involved in an inflammatory process, but he must carry his investigation further, seeking the etiology in some remote organ. For all practical clinical purposes it may be said the kidney is never the seat of primary infection.

Second, bacteria, their toxins and other products

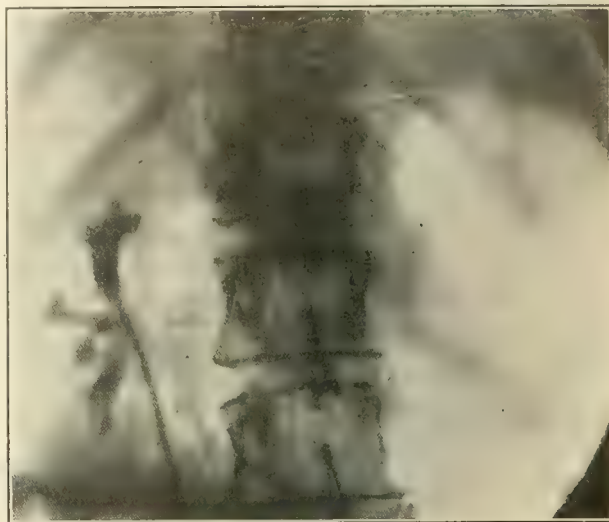


FIG. 1.—Normal kidney pelvis, fairly typical in shape. The calyces are well defined.

of inflammation reach the kidney in three ways. 1. Through the blood stream (1). This route is responsible for at least one half or more of all renal infections. 2. Through the lymphatics, especially along the ureter (2). 3. Through the ureteral lumen (3, 4).

Bacteria and other solid bodies like cinnabar and fat may pass through the kidney and be recovered in the urine without any appreciable damage to the renal parenchyma which can be detected by any tests at our command; further, a number of years ago the writer found in many acute systemic infections that the bacteria responsible for the infection could be readily recovered in the patient's urine removed by catheter. It seems certain that bacteria gain entrance into the blood stream, reach the kidney and are either destroyed or pass through into the urine many times during the individual's life without even producing symptoms. Clinically, the writer has observed this very often. The reason why bacteria do so relatively little harm to the renal parenchyma may be explained as follows: 1, The cells of the convoluted tubules seem to possess the power of actually destroying bacteria (5); 2, the period of bacterial action is transient and disappears with the termination of the infection. If, however, the process is a chronic one, a slow undermining of cell resistance often occurs, with final conversion of the renal structure into fibrous tissue, i. e., chronic interstitial nephritis; 3, the bacteria are usually of low enough virulence to be mastered by the kidney parenchyma.

Factors which operate unfavorably against the kidney in the presence of infection by lowering its resistance are: 1, Trauma; 2, previous damage from infection; 3, concomitant disease as calculus and 4, exceedingly important urinary obstructions

*Read before the Buffalo Academy of Medicine, April 16, 1919.

from causes within or without the urinary tract, where the kidney suffered not only in mechanical damage, but the dammed back urine forms an ideal condition for any bacteria present to multiply with increasing virulence. The danger of bacteria in an obstructed mucous lined cavity like the appendix



FIG. 2. Beginning hydronephrosis or pyelonephrosis due to infection and obstruction. Arrow points to congenital narrowing of ureter. Ureter below also dilated. Kidney contained calculi. Beginning rounding and obliteration of calyces.

or gallbladder has long been recognized, but not so well in the urinary tract.

Symptomatology.—Much confusion has existed and is still present in the terminology of renal infections; the writer suggests for the sake of simplicity and easy clinical application the two following classifications into which all cases can be readily placed.

First: Bacteriuria, which is recognized clinically by the presence of bacteria in samples of urine obtained by the ureteral catheter without the presence of other abnormal substance like pus, etc. Symptoms may be entirely absent, or when present are entirely urinary, namely, frequency and urgency due to irritation of the vesical trigone by the bacteria. A typical case, seen about a year and a half ago, was that of a young man who complained of failing health, night sweats, frequency and urgency of urination, which was diurnal and nocturnal. The urine was clear, but the cystoscope showed the picture usually seen in early tuberculous vesical irritation (the cobblestone bladder). Streptococci were the only organisms found, however, in the ureteral samples, the urine being otherwise normal, as was the phthalein test. A physical examination was negative until the throat was inspected, when large

diseased tonsils were seen. Tonsillectomy completely cured the patient and restored him to health.

Second: Pyelonephritis acute or chronic, in which pus and, perhaps, blood, as well as bacteria are found in ureteral urines. That many cases of bacteriuria result in pyelonephritis is obvious for the reasons just mentioned, and although the margin between the two may at times be a narrow one, nevertheless, if the two conditions are sharply distinguished and separated from each other, there will be little difficulty in recognizing them as separate clinical entities.

The symptoms of pyelonephritis are: 1. General (which are present in any infection): Chills, prostration, rise in pulse and temperature, leucocytosis with increase in the proportion of polymorphonuclears. 2. Local, also to be found in all other abdominal infections: Pain, tenderness, and muscle spasm which is present over affected kidney, both anteriorly and posteriorly. 3. Urinary, which are referred to the bladder and are frequency, urgency, and tenesmus, with the passage of small amounts of turbid urine. Less often are symptoms of renal colic present which might lead the observer to believe a ureteral stone was being passed.

The symptoms of all three groups may be prominent, or, if the infection is a very virulent one the general and local group will be marked and the urinary relatively insignificant. It is especially necessary to remember a point made by Cabot (1) several years ago that the cocci infections tend to involve the renal cortex and for the first few days give little or no evidence of pyelonephritis in the urine, the phthalein test even being practically unaffected, while the patient is usually very acutely ill

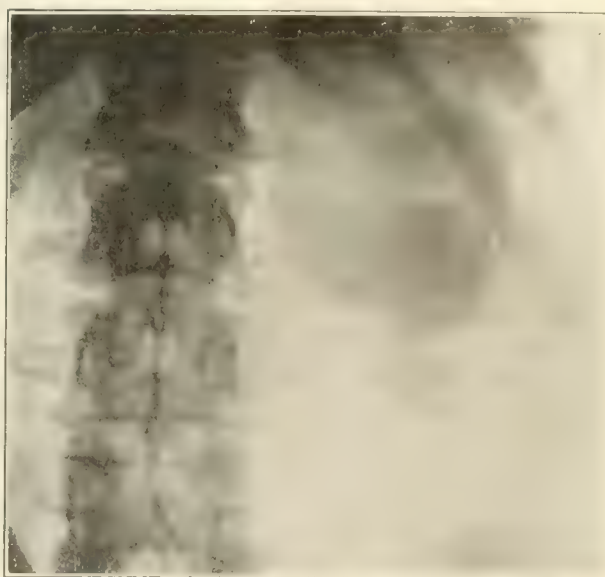


FIG. 3. Large pyelonephrosis, very shallow remaining. Not only obliteration of all calyces but pelvis and ureters.

and in need of prompt surgical attention. The bacillus type on the contrary gives urinary symptoms from the start because the lower tubules and pelvis are involved; the urine containing many pus cells, and the phthalein will be quite reduced. If the infection is a mixed one the symptoms of all

three groups may be expected. In the writer's limited experience these observations seem to have been borne out.

In the more chronic types, after drainage has been well established the general and local signs may entirely disappear and the urinary symptoms

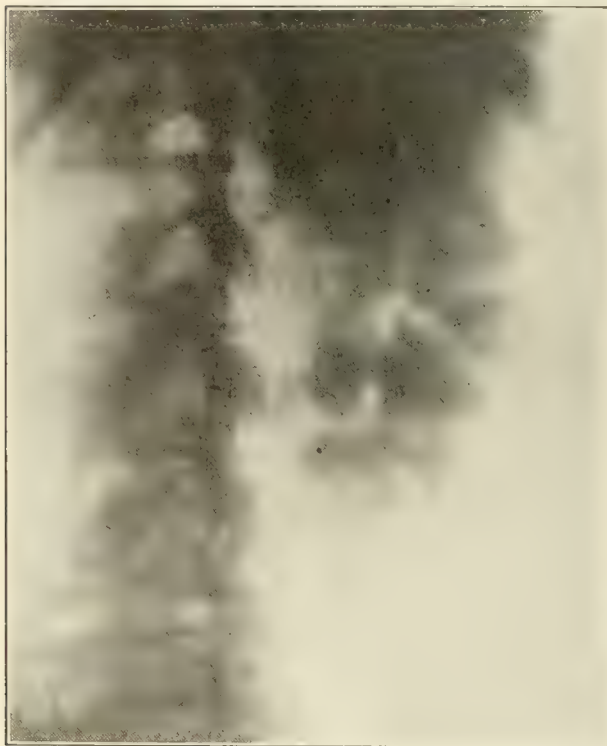


FIG. 4.—Thorium solution diffusing through multiple pus pockets of a functionless kidney. Total obliteration of the entire outline of pelvis and calyces, as in Fig. 3.

are the only ones present, even when the kidney is practically destroyed. The general and local symptoms of pyelonephritis depend upon the severity of the infection and the lack of drainage; urinary symptoms point to the establishment of at least partial drainage. The diagnosis of pyelonephritis will be made by the history and physical examination, in which careful search will be made for acute or chronic focal infections, and the urinary findings revealed by a modern urological examination which will include the collection of separate urines with their examination chemically, microscopically and bacteriologically, the estimation of kidney function by one of the dye tests, together with a pyelographic study of the outline of the renal pelvis which is altered by disease. It will be found not infrequently that a certain proportion of cases which are regarded as an early infection are really chronic, with, perhaps, very advanced kidney destruction, and that the present symptoms are simply the lighting up of an old process.

The treatment of pyelonephritis will range between the conservative and the radical, each case being decided upon its merits. Generally speaking, the cocci type of infection is the more severe and will more often demand nephrectomy owing to the greater virulence and the lack of drainage because of the cortical location of the infection. If the infection is less severe conservative measures are to

be employed at least temporarily. These measures will consist in:

First: Removing the source of the infection when possible.

Second: In trying to limit the virulence and spread of the infection. In this connection it is exceedingly important to seek and remove all forms of urinary obstruction, and may consist in the use of the indwelling ureteral catheter for some hours if the ureter is kinked or obstructed by stone or inflammation. In case the catheter cannot be passed drainage through the kidney pelvis, as advocated by Keyes (6), should be considered, unless the patient is in a suitable condition for a radical operation, for the relief of the obstruction. The washing out of the pelvis by antiseptics is not especially helpful, and it is probably the drainage afforded by the ureteral catheter which does the most good. However, solutions of silver nitrate up to two per cent., if allowed to flow in by gravity, can do no harm; and good results have been reported following its use. Posture in the pregnant woman, if the obstruction seems due to the pressure of the uterus, is helpful; and the patient should be asked to assume the knee chest position for a few minutes several times daily; also, as has just been mentioned, the ureteral catheter is strongly indi-

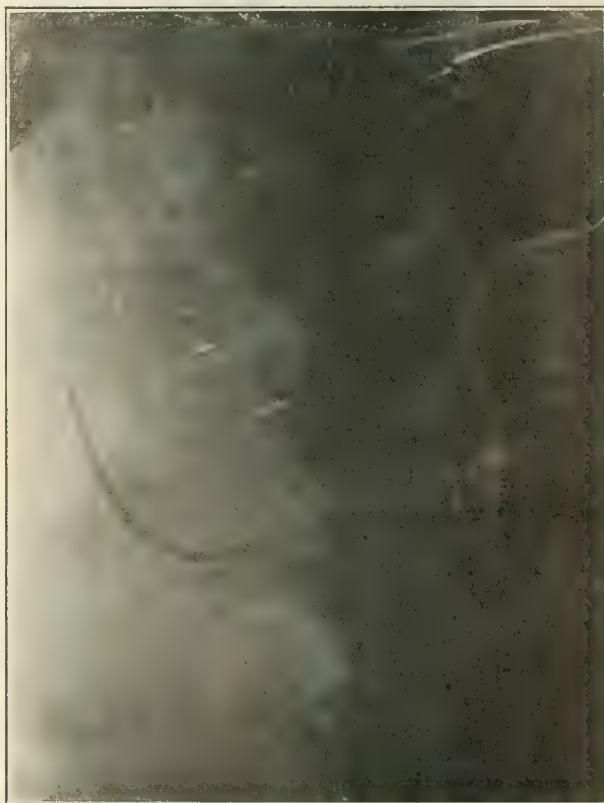


FIG. 5.—X ray catheter tracing course of ureter to the renal pelvis. The kidney in this instance is in a condition of marked ptosis, with poor drainage. Ureteral kinks can also be demonstrated in this way, especially when thorium is used.

cated for this type of instruction. Stricture in the female urethra is quite rare. However, contraction of the meatus has not been so very infrequent, and may cause a sufficient amount of obstruction, especially if the bladder muscle is atonic or weak. This condition should be treated by gradual dilatation.

Rarely does the fecal head press sufficiently upon the urethra to cause obstruction before labor. However, it is well to bear even this possibility in mind.

Third: Everything should be employed in build-

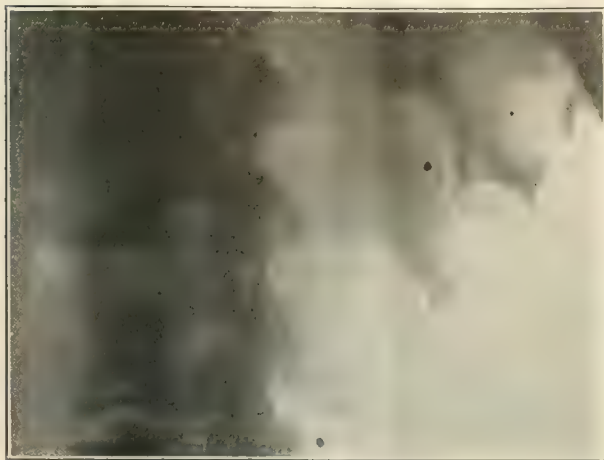


FIG. 6.—Deformity of renal pelvis in an otherwise normal kidney due to pressure of three cysts which were excised and the kidney saved.

ing up the patient's resistance, which will consist of rest, anodynes, plenty of fluids—even given subcutaneously if necessary, and a selected diet in which the following foods are omitted because they contain calcium, which is irritating to the kidney: Spinach, tomatoes, rhubarb, strawberries, pepper, cocoa, tea, chocolate, also milk and milk products, asparagus, peaches, gooseberries, vinegar, alcohol, ginger ale, pop, birch beer, and sarsaparilla.

In summing up the dangers of renal infections in the pregnant woman, before and after labor, the following suggestions may be made:

First: The removal of all focal infections before conception or early in pregnancy; especially if urinary symptoms are present; however, the silent bacteriuria must not be forgotten. For this reason a sample of sterile urine might well be examined bacteriologically, as well as in the routine way.

Second: Careful attention to diet and elimination which reduces autointoxication to a minimum; because the patient is living for two and has the entire elimination for both.

Third: All symptoms of urinary obstruction, i. e., pain varying from an acute to a dull ache over the kidney or colicky in character, running down the ureter, should be carefully investigated and relieved promptly.

Fourth: Labor should be conducted with the least possible trauma because of the dangers of pelvic inflammations ascending along the lymphatics.

Fifth: Catheterization should be avoided if possible, because of the danger of infection, which may ascend through the ureteral lumen because of a patent orifice. If catheterization is necessary it is well to leave an ounce of saturated boric solution in the bladder for its antiseptic effect.

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CLINICAL NOTES FROM FRANCE.

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THE DETECTION OF BLOOD IN URINE.

The new technic for detecting blood in the urine microscopically devised by Dr. Laurent Sardou, of Marseilles, is of extreme delicacy and, therefore, of considerable value to the clinician. The object of this new technic is to increase the hemolysis and consequently the sensibility of the reaction. It must be remembered that this procedure is to be employed for urine only and is not to be used for the detection of blood in the feces, on account of the numerous possible errors which might arise on account of the presence of various kinds of ingested foods.

The technic is as follows: The necessary reagents are Meyer's phenolphthalein solution, which is made as follows: Two grams of phenolphthalein and twenty grams of anhydrous potassium are dissolved in 100 grams of distilled water, after which ten grams of impalpable powdered zinc are added. The mixture is at first red, but becomes progressively decolorized due to the reduction of phenolphthalein into phenolphthalein. The reagent should be brought to a boiling point and the mixture continually stirred and filtered while still hot as soon as complete decolorization has taken place. Acetic alcohol, composed of two cubic centigrams of crystallizable acetic acid in ninety-eight cubic centimetres of ninety per cent. alcohol, and twelve volumes oxygenated water.

Three cubic centimetres of unfiltered urine, which is first thoroughly shaken, is poured into a test tube and then three cubic centimetres of acetic alcohol are added. After shaking, one cubic centimetre of Meyer's solution is added and the mixture again shaken, and finally three drops of the oxygenated water are added.

If the urine contains blood a more or less intense rose tint occurs, according to the quantity of blood present. The beginning of the reaction takes place within a few seconds to three minutes after the addition of the oxygenated water. The reaction retains its intensity for some time, a thing which does not take place when the ordinary method is employed. This modified Meyer procedure makes the reaction quite as reliable as if the microscope was used, while its advantage over microscopical examination is that according to the degree of molecular concentration of the urine, due principally to the chlorides, it may

happen that in a number of cases (particularly when the patient is on a milk diet) a globular hemolysis takes place and therefore the red blood corpuscles cannot be seen microscopically but their presence in the urine is made manifest by this reaction.

SPOOTRICHOSIS.

Sporotrichosis is a parasitic affection due to the sporotrichum Beurmanni, a growth very closely related to the trichophytons. The affection is common to both man and animals, producing identical lesions in both. It is transmitted to man externally from animals or vegetables when a lesion of continuity is present, or internally by the mucosa of the mouth or pharynx. The disease is characterized by subcutaneous gummata, with or without ulceration, scattered over the body surface and undergoing a slow evolution. The muscles, bones or viscera may become involved. Microscopically, the lesions are characterized by the presence of sporotrichotic nodules with the parasite, polynuclear cells and giant cells contained within macrophagic cells. The surest means of making a correct diagnosis is by culture on malted gelose at the room temperature. The organism will appear on the culture medium at the end of a week and is colored a deep black. The diagnosis may also be made by the Widal-Abram sporeagglutination test, the intradermic or cutireaction and direct microscopical examination of scrapings from the lesions. The differential diagnosis must be made from syphilis, tuberculosis, osteomyelitis, epithelioma and sarcomatosis. Sporotrichosis must also be differentiated from other mycoses.

It is well to consider the treatment of this interesting disease somewhat in detail. The therapeutics were considered essentially surgical until the specific action of potassium iodide was discovered. At present the treatment is entirely medical, consisting of a local and general treatment. Locally, if the gumma is subcutaneous, it is treated by applications of tincture of iodine every three or four days. If the gumma has ulcerated it must first be deterged with dilute peroxide of hydrogen. Crusts are made to fall by the application of moist antiseptic dressings, while should festulæ be present, the tract is injected with a ten per cent. alcoholic solution of iodine. When the ulceration is on the road to cicatrization its edges may be touched with tincture of iodine or a silver nitrate stick.

The gummata may also be treated by subcutaneous or intramuscular injections, made on its circumference, with the following solution:

Metallic Iodine,	50 centigrams;
Potassium iodide,	1 gram;
Distilled water,	300 c. c.

These injections have been known to cure the gummata in cases where the internal exhibition of potassium iodide was contraindicated, as for example in pregnancy.

Serotherapy has also been resorted to, the serum having been obtained by subcutaneous injections of the sporotrichum made in several rabbits. After six daily injections of five cubic centimetres of an emulsion of the sporotrichum in normal salt solution, the animals were killed, their serum collected

and injected into the patient at the dose of from seven to fifteen cubic centimetres once a week. These injections were well borne by the patient, causing some pruritus which was controlled by giving three grams of calcium chloride daily, for two successive days. These injections had little effect on the morbid process, but Achard and Ramond believe that perhaps if the rabbits had been treated for a longer time with more virulent spores than those used, an active serum might be obtained.

For the general treatment of sporotrichosis, potassium or sodium iodide are the only really effective drugs. They can be administered either by mouth or rectum. The rectal administration is to be resorted to only when gastric intolerance arises. The iodides should be given in progressively increasing doses, beginning with a small daily dose of fifty centigrams for one week, then one gram for a fortnight, and finally attaining two, four, six grams daily. Occasionally the patient may show a slight intolerance for a few days, made manifest by weakness and gastric disturbances; at other times by an eruption of acne, pemphigoid bullæ, urticaria or patches of erythema, in which case the drug must be stopped. The iodides predispose to hemorrhage, therefore, before administering large doses the physician should see that the patient is not hemophilic or a tuberculous subject given to hemoptysis. In these cases the dose of the drug must be moderate. Should intolerance be marked iodipin is to be given in place of the iodides. Otherwise, the iodide must be given for a considerable time after a cure has been obtained in order to avoid any possible recurrence of the infection.

The iodides are, as I have said, the only specific for sporotrichosis and a cure may be obtained by their use in about one month. Their action on the parasite is unknown. The organism grows well in broth containing ten per cent. iodide of potassium, likewise in a 1:1,000 sublimate solution. If the iodides possess an antiseptic action as was formerly supposed, it is probable that they undergo a transformation in the human body and the new compound thus formed and which has not as yet been determined acts directly on the parasite.

The Prognostic Value of the Creatinine of the Blood in Nephritis.—Victor C. Myers and John A. Killian (*American Journal of the Medical Sciences*, May, 1919) record observations in 100 cases of nephritis that showed creatinine retention. Eighty-five of these patients had a creatinine of over five mg. in 100 c. c. of blood, the figures ranging from 5.1 to 33.3 mg. Eighty of these eighty-five patients died. Of the remaining five the condition is unchanged in three, and two have recovered. These two patients showed only a temporary elevation of the blood creatinine. The writers are of the opinion that the creatinine gives a better prognostic insight into these cases than either the blood or the phthalein tests, which were made simultaneously, and that in advanced cases of nephritis the blood creatinine furnishes a more reliable prognosis than any other test we possess.

Editorial Notes and Comments

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IMMEDIATE STERILIZATION AND CLOSURE OF INFECTED WOUNDS.

What will probably stand out as one of the great surgical achievements of the war was brought to light last week, in the surgical section of the American Medical Association, at Atlantic City, by Lieutenant Colonel W. Wayne Babcock, of Army General Hospital No. 6, Fort McPherson, Georgia.

It is an unfortunate fact that the great aim of the Carrel-Dakin treatment of infected wounds, their early closure, has not been attained in the great majority of instances, i. e., in hardly one per cent. of bone infections and in but few soft tissue wounds. Even though the Dakin solution was employed in our army hospitals by medical officers specially trained in its use, in seven thousand operations for osteomyelitis in returned soldiers, an aseptic closure had been obtained in probably less than one per cent. of these cases up to May 1, 1919. This cannot be attributed to lack of effort, each of the patients having had from two to twenty-nine operations performed upon him—a fact demonstrating clearly the ineffectiveness of the average operative treatment, even with the aid of the Carrel-Dakin method.

The far-reaching importance of this fact asserts itself when we realize that about forty thousand of our troops suffering from bone injuries have been returned to this country, while in France and England some three hundred thousand similar cases

are receiving treatment which, in the light of the poor results attained so far, will drag on several years. A feature which further aggravates the situation is the necessity of multiple operations and at times of exceedingly painful dressings that the Carrel-Dakin treatment includes. Even the highly skilled surgeon is at times deterred from the energetic procedures required when they entail severe suffering and by the shock caused to the patient delay recovery.

The Babcock method aims to eliminate these drawbacks, by doing in a single operation under anesthesia, even under adverse circumstances, in unselected cases, and without inflicting unusual suffering, what the Carrel-Dakin method accomplishes so slowly and only under the most favorable circumstances with two or more operations. The Babcock method is especially adapted for the treatment of osteomyelitis, septic compound fractures, chronic abscesses and sinuses, and consists briefly in the following four procedures:

1. Immediate chemical sterilization of all sinuses and wound surfaces by the injection and application of a saturated solution of zinc chloride.
2. Delineation of infected areas by the injection of an ethereal solution of methylene blue.
3. Mass excision of the entire area of infection.
4. Wound closure with the obliteration of all dead spaces.

A summary of the working technic will be found on page 1099 of this issue of the NEW YORK MEDICAL JOURNAL.

The results obtained so far in sixty-four cases of osteomyelitis, all selected for their severity and for their resistance to the usual surgical procedures, including the Carrel-Dakin method, out of an aggregate of about three hundred cases of bone infection, were as follows: Seventy-eight per cent. of the patients are well as far as all bone manifestations are concerned, a few showing delayed healing of a few sutures or incision areas, but otherwise normal. The remaining twenty-two per cent. of the patients have granulating wounds with no evidence of deep or osseous lesions, and bid fair in most instances to proceed to recovery.

Familiarity with bone lesions and their tendency to recur counsels prudence in forming an estimate of the actual value of the Babcock method, but inasmuch as symptoms of recurrence usually appear within a few weeks after the affected limb has been used, and as four of the patients treated by the newer method have been well six months, there is every reason to hope that it will mark a new era in bone surgery, at the same time affording valuable aid at a time when it is most needed.

GUNSHOT WOUNDS OF THE CHEST.

Obviously during the war there were unusual opportunities for gaining a wide experience in surgery, and of course some valuable lessons have been learned. Perhaps the lessons have been neither so numerous nor so valuable as the duration and severity of the fighting appear to have warranted. Speaking in a general way, the wounds exhibited a very considerable degree of sameness. On the other hand contrary to expectation, that is, contrary to the expectation of many medical men and the majority of the population at large, there was little rough and ready surgery. After the war had been in progress for a few months, on the western front at any rate, the medical organization was excellent and the treatment of the wounded went on like clockwork. There was little or no undue hurry; the equipment of all the hospitals was good; the supply of skilled surgeons was, on the whole, adequate, and the services rendered to the injured from the surgical point of view were almost all that could be desired.

With regard to the surgical aspects of chest wounds, the urgent problem in the great war had always been that of checking the spread of infection carried into the wound in so large a proportion of cases. This was the problem that surgery did at last solve, to a great extent, by improved and appropriate operative measures.

At the recent special clinical meeting of the British Medical Association held in London, Colonel G. G. Gask read an illuminating paper on the surgical aspects of gunshot wounds of the chest. He pointed out that nearly 100 per cent. of all such wounds were contaminated, and there was a period of some hours between the time of contamination and infection. Antiseptics in themselves were of little avail to prevent sepsis. According to Gask, when a patient was admitted suffering from a chest wound he should be put to bed and allowed to rest undisturbed for one or two hours to recover from shock, except when there was active bleeding or a sucking wound. Indications for early operation were: 1, A ragged wound of the soft parts; 2, compound fracture of the ribs; 3, continued bleeding, whether from the inside or out; 4, suction of air into the pleural cavity; 5, retention of a large foreign body; 6, pain out of all proportion to the apparent severity of the injury; 7, rapidly increasing pneumothorax, due to a valvelike opening into the pleural cavity. The best time for operation was found to be as soon as possible after the patient had recovered from the initial shock. The form of anesthesia was of no great moment provided the administration was skillful.

The objects to be aimed at in operating were: 1, Excision of the wounds of the soft parts; 2, excision of the broken bones, ribs or scapula; 3, cleansing of the pleural cavity from blood, missile, and fragments of bone or clothing; 4, excision, when possible, of the damaged area of the lung; 5, suture of the lung; 6, closure of the thoracic cavity.

As said before, the guiding principle of surgical interference of gunshot wounds of the chest is to stay or rather to stop the spread of infection. It is the only method by which life can be saved, for if infection is allowed to set in and to gain a firm hold of the system, the chances are a thousand to one that the outcome will be fatal. Therefore, the closure and repair of the thoracic wall are absolutely essential as parts of the operative procedure, and the success of such measures has often prevented infection from creeping inward to the pleural cavity at a later date, as was formerly the case, particularly in the form of a dangerous streptococcal invasion.

As for the forms of operative procedures for gunshot wounds of the chest, these of course must depend largely on the nature of the injury. Speaking broadly, however, it may be said that the form of operation should be such as to interfere as little as possible with the internal organs; or, perhaps it would be more correct to say, to expose them as little as possible; in short, while performing the operation effectively, to do it with the greatest amount of delicacy.

Dr. Willy Meyer was the first to introduce into this country an operative procedure for dealing with certain severe wounds of the chest with the slightest degree of interference. The war will have been of benefit to medicine and surgery in so far as lessons learned during its progress can be successfully applied to civilian practice. Colonel Gask in considering this phase of the subject pointed out that crushed or "stove in" chests occurred in civilian practice. When associated with severe laceration of the lung by indriven fragments of bone, thoracotomy might be of service. As to the question of the use of thoracotomy for the cure of intrathoracic carcinoma of the esophagus, the author said he had spoken to Meyer and that he was pessimistic with regard to its practical utility. Gask, however, thought that the treatment of empyema could be improved in this direction. In certain cases, particularly of children with a pneumococcal empyema, the pleural cavity might be washed out and the chest closed without the use of a drainage tube. On the whole, the outcome of surgery in the treatment of gunshot wounds of the chest has been encouraging and excites the hope that better results may be attained in the future.

BLOOD RATHER THAN RENAL TESTS FOR SUGAR.

In every department of medicine as in any other practical sphere there is a remarkable slowness of appreciation of inner unobserved factors and a tendency to consider only the more obvious ones which lie more easily at hand. So the elimination of sugar in the urine has satisfied clinicians too long as a sufficient test for diabetes or other disturbance. The reasonableness of proceeding regularly and insistently to the blood for the conclusive test as to the patient's condition appears convincingly in certain recent studies which serve to promote this method of procedure. Williams and Humphreys [Clinical Significance of Blood Sugar in Nephritis and Other Diseases; The Clinical Significance of Blood Sugar in Diabetes Mellitus, *Archives of Internal Medicine*, May 15, 1919] have sought to bring this into greater prominence in the light of definite clinical and control tests made recently in regard to the blood sugar threshold in various diseases, particularly those in which the sugar content is of greatest importance.

They found that the average digestion blood sugar level in 113 normal individuals was 0.107 per cent., while a group of miscellaneous diseases showed a slight or moderate elevation. These included carcinoma, gastrointestinal disorders, and pernicious anemia. Similar results were obtained in groups of infectious and cardiovascular diseases. In nephritis the blood sugar as a rule remains normal in the earlier stages but rises very high in the last stages. These patients are little influenced by restriction to a diabetic diet and yet may be mistakenly consigned to it, since occasionally some of this sugar content escapes into the urine and is detected there.

It is urgent in diabetes to keep in mind the distinction between the blood and the renal sugar thresholds. The former is the real test for the presence and the grade of the diabetes. The blood sugar level is often either much higher or much lower than the renal threshold, which is that blood threshold at which sugar can be appreciably determined in the urine, as numerous case studies are introduced to show. This threshold for renal excretion rises with advancing years and also as the disease progresses. There may be therefore in very serious conditions very little sugar in the urine although there is a high percentage in the blood. If the diabetes is mild the high blood content will probably mean the presence of some complication. While there may be a physiological advantage in this high level in that it conserves food material, the writers believe that the persistence of such a

level is exhausting and deleterious. They therefore advocate the regulation of food through constant watching of this blood sugar level and not by the urinary output; this might appear to allow of a dangerous liberality of diet. Experience has proved that tolerance of food may be increased in the end by this mode of procedure. If the high blood sugar level persists in spite of such treatment the prognosis is unfavorable.

THERE'S NOTHING NEW.

There was considerable tempest in a teapot a year ago over the report of ground glass placed in food by enemy plotters. Experiments upon animals were forthcoming which seemed to prove the harmlessness of such a substance in the alimentary tract. Doubtless these laboratory workers congratulated themselves on being the first to bring this suspect to experimental trial, but it seems otherwise.

In the delightful autobiography of Benvenuto Cellini we learn that ground glass and other similar substances were tried out in the sixteenth century in the laboratory of every day life. In Book I, Chapter XXV, we read:

That Misser Durante, from Brescia, plotted with that soldier, the Prato druggist, to give me some liquor to consume in my food which was deadly, though not immediate; it would act at the end of four or five months. They set about planning to put some powdered diamond in my food [Cellini was in prison] the which is not in itself poisonous in any sort of way, but through its extreme hardness remains with very sharp angles, and does not act like other stones; for in the case of all other stones that very delicate sharpness does not remain when pounded, rather they become as rounded; and the diamond alone remains with that sharpness (of edge): in such a way that, when entering the stomach along with the other nourishment, during that revolution which food makes in the process of digestion, this diamond clings to the cartilages of the stomach and of the guts, and as the fresh food gradually pushes it further forward, the diamond (dust) clinging to them, in no long space of time perforates them; and from that cause one dies; whereas no other kind of stones or glass mixed in the food has the power to cling, and so disappears with the food.

The author goes on to relate how in his case, a diamond intended for himself was given to a poor goldsmith to grind for the purpose, but the said goldsmith, though a "great enemy" of Cellini, substituted the fragments of a greenish beryl of little value. This was "put in all the viands and I had it in the salad, in the ragout, and in the soup." When his teeth crunched upon the stone the victim was frightened into religious devotion in expectancy

of his end, but on testing some of the splinters between his knife and an iron bar, he took new heart and said "It is a poor kind of stone, which cannot do me any harm in the world."

Cellini was an accomplished liar when occasion required, but he was also a wonderful jeweler and it is not unlikely that his "report" is based on the best of evidence. Ground glass in food is an occurrence, not uncommon, of every day peace times, for, from the splintering of the tops of milk bottles bits of glass in considerable number are frequently poured over cereals or into foods which are being cooked. These fragments are especially common where metal caps are used by dairies. If glass in food was really harmful numerous cases of the bad results from it would be reported. It is unlikely that many of us will ever suffer from the injection of diamond dust, unless we evoke the enmity of a millionaire.

PSEUDOCONTRACTURES IN PRIMARY MYOPATHY.

During the evolution of myopathy fibrotendinous retractions are not uncommonly met with. These retractions are, however, generally late in their appearance and are disseminated, but nevertheless they principally involve the flexor muscles of the forearm and leg. These pseudocontractures are readily distinguished from true contracture produced by lesions of the pyramidal tract. In point of fact they are not accompanied by spinal trepidations or Babinski's sign and they do not disappear under chloroform narcosis, and, lastly, microscopical examination confirms their myosclerotic origin.

Occasionally these contractures may arise early in the evolution of the myopathy and may become generalized, involving all the segments of the body, and in these circumstances they may be familial, that is, occurring in several members of the same family at the same epoch and with the same clinical aspect. The latter may form a particular type that can be called the fibrous type, as has been shown by Cestan and Lejonne. This type is truly characteristic, because these generalized contractures change the aspect of the patient, likewise his state of equilibrium, quite as much static as kinetic and cause certain problems of diagnosis to come up which are not usual in the diagnosis of myopathy, that is, a differential diagnosis between the spastic affections of childhood, progressive chronic fibrous rheumatism, and the polyneuritides. This familial fibrous type deserves a place beside other types of myopathy, but like them it in reality only forms a clinical variety of the morbid entity—myopathy.

The pathogenesis of these pseudocontractures has long been a much mooted subject, some maintaining that they result from a tonic contracture of the muscles, at least as far as early contractures are concerned. Others look upon them as the consequence of a retraction of the interstitial fibrous tissue of the involved muscle. But it would appear that a mixed theory should be adopted since the histological examinations of Cestan and Lejonne seem to show that there is first deformity from a predominating action of the muscles the least involved by the myopathic process, and then, in a second phase, a definitive maintenance of this position by the development and evolution of the sclerous interstitial tissue of the contracted muscles..

HEALTH BONDS.

If a town wants to build a bridge it issues bonds and places them on the market. It then proceeds to erect the bridge, the principal and interest on the bonds being gradually collected in taxes covering a period of years. Thus the cost is distributed between the present generation and posterity and the community becomes possessed of a good, working utility. If a town wants health, it is the custom to have a hysterical clean up campaign to inaugurate a movement for a modern health department and then to find that the city is without funds to finance the scheme. Even if a health department gets under way, its financial existence is extremely precarious and little attention is paid to its real usefulness. If every citizen had a definite tangible investment in the health department he would display a very vital interest in its affairs. If the enthusiasm resulting from the health drive was turned to the sale of bonds for the maintenance of the health department, it would be much more effective in its final results than a spasmodic conversion to sanitary righteousness produced by the revival methods of the early seventies.

Sanitary revivals are likely to be followed by sanitary backslidings, but when a community has invested its funds in its health department the effect of the drive has greater chances of permanency. Furthermore, if the health department has its own funds, it is to a certain extent freed from the whims of city councils and bodies similarly actuated by the requirements of vote getting. The community profits by the plan because the money which is raised for health purposes cannot be diverted to other ends. Furthermore, expenditures will be made more judiciously when the health department is directly accountable to the people.

AMERICAN STUDENTS AT FRENCH UNIVERSITIES.

Two hundred and ninety-eight Americans in khaki are studying at the University of Bordeaux, sixty of them in the College of Medicine. They come from forty-four States of the union, Canada, and Nicaragua, the New York delegation leading off with twenty-seven members, and they are alumni of universities from Harvard to Washington. There are 1,200 of them at the University of Toulouse, but the *Journal de médecine de Bordeaux* comforts itself with attributing to the "très sympathique Lieutenant Wildermann," in charge of athletics among his compatriots, the reflection that one American at Bordeaux is worth five at Toulouse, so that the advantage is with Bordeaux.

Meanwhile the Bordelais seem to be divided between friendliness for and amusement over the visitors. The American students had been at the university only a few weeks when they had their own paper, which goes under the name of *Voilà*. They conclude that the labyrinth of Crete had nothing on Bordeaux, and their opinion of the climate is summed up in the weather prediction from the first page of *Voilà*: "Tomorrow, rain. Remainder of the week, rain"; the following issue eight days later bore the announcement, "No change."

The French universities are filled with youth again after the long emptiness of the war. It is appropriate that some of the American youth who helped save French culture should mingle with the returning throng.

PHYSICAL EXAMINATIONS.

When a patient is in condition for an overhauling no physical examination can be too thorough. Errors in diagnosis are more often due to lack of careful examination than to ignorance on the part of the physician. There should be no hesitancy in getting down to the bare facts—that is, to the skin, and the examiner should not forget that the patient has a back as well as front and sides to his body. The physician need not consume great time in his examination, in fact he should school himself to see, feel, and hear much in a short space of time, but he will do well to take all the time necessary. The patient appreciates his carefulness and is usually willing to pay accordingly.

When the patient is not in condition for such a going over, however, it is most unwise to subject him to more than the most superficial examination. More than this, in fact, may jeopardize the chances of recovery of the sick. The daily examination in a case of lobar pneumonia to discover just how much lung is involved helps not in the least toward the patient's recovery and may be the means of ending his earthly career. Whether the patient is dangerously ill or not, a superfluous examination is neither useful to the physician nor impressive to the patient, the latter beginning to suspect that he is worse off than is really the case. This matter of the extent and frequency of examinations is often a nice one to determine. As in treatment, the physician should stop short of doing harm, in which case he will be sufficiently thorough without being too thorough.

Obituary.

EDWARD LINDEMAN, M. D.,
of New York.

Dr. Edward Lindeman, of New York, inventor of the syringe cannula method of blood transfusion, was drowned on June 12th in the surf at Atlantic City while in bathing. He was attending the convention of the American Medical Association, where he was to deliver an address on the subject of transfusion. His death is thought to have been due indirectly to heart disease, from which he had suffered for several years. He was forty years of age. Doctor Lindeman was graduated from the Sheffield Scientific School at Yale in 1905 and from Johns Hopkins in 1908. He came to this city and was for a time resident physician in the children's medical service of Bellevue Hospital. During this period he began studies in blood transfusion and evolved the syringe cannula method, by which it was found unnecessary to supply blood directly from the arteries of the healthy subject. In 1914 he directed his experimentation to the field of tuberculosis and since then had transfused healthy blood into several hundred tuberculosis patients.

JOHN T. NAGLE, M. D.,
of New York.

Dr. John T. Nagle, for several years an official of the Department of Health of the City of New York and a specialist in contagious diseases, died at his home in New York, on June 14th. He was seventy-eight years of age. Doctor Nagle was graduated from the New York Ophthalmic Hospital. During the Civil War he served as an assistant surgeon in the medical department of the federal army and later as chief medical officer to a cavalry brigade, being recommended for bravery in action. In 1868 he was graduated from the College of Physicians and Surgeons and afterward studied abroad. In 1869 he became assistant sanitary inspector for the Health Department, then he was made sanitary inspector and finally register of deeds. He was recognized as an authority on cholera and yellow fever, which he helped to combat in the 70's.

News Items.

Greek Physicians Demobilized.—Physicians of the reserve, from the oldest classes up to 1900, have been demobilized by order of the Greek Government.

New York Doctors Honored.—At the commencement exercises at Rutgers College on June 10th the degree of Doctor of Science was conferred on Lieutenant Colonel Walter Sherwood and Dr. Louis Faugères Bishop, both of New York.

Foundation of a Pasteur Institute at Athens.—A donation for the foundation of a Pasteur Institute at Athens has been made to the Greek Government by M. Zacharoff. The new institute will be founded on the same lines as the Pasteur Institute in Paris.

Average Stay of Soldier Hospital Patients.—The average stay of wounded soldiers from overseas in the twenty-one general hospitals in this country is 32.18 days, according to a canvass just completed. General Hospital No. 35 at West Baden, Ind., is the lowest with an average of sixteen days.

Wounded Czechs Being Treated Here.—One hundred members of the Czech army are in the city receiving medical treatment from their own and American doctors at the War Camp Community Service Unit No. 5. The men have been severely injured in the Siberian warfare, and more than half of them have lost either an arm or a leg.

Victory Meeting of Buffalo Alumni.—The forty-fourth annual meeting, known as the Victory Meeting, of the Alumni Association of the medical department, University of Buffalo, was held June 19th-21st at Buffalo. A symposium on war medicine and surgery was held in addition to the general scientific sessions and the class and fraternity reunions.

No Alcohol for Cancer Patients.—Dr. Ralph Bernstein, professor of skin disease at Hahnemann Hospital, Philadelphia, stated at the seventy-fifth annual convention of the National Institute of Homeopathy at Asbury Park, N. J., that alcoholic beverages must be entirely eliminated and a vegetable diet adopted in the case of sufferers from cancer.

To Regulate Sale of Hoffman's Anodyne.—A request to federal and State authorities for the regulation of the sale of Hoffman's anodyne was made by Dr. John N. Ryan, city health officer of Passaic, N. J. Hoffman's drops, as the medicine is popularly called, is said to have a widespread use among mill workers and to cause the school children to appear "doped."

Low Venereal Disease Rate.—The Fifth Division, A. E. F., reported only one case of syphilis and one case of gonorrhea among 11,658 men during the month of November, 1918, says the May issue of the *Social Hygiene Bulletin*. It is doubtful whether a lower rate than this has ever been reported for so large a body of troops in so long a period of time.

Cornell Medical College Commencement.—Twenty-nine men and women were graduated from Cornell University Medical College at its twentieth commencement on June 12th. Seven prizes were awarded, two of them being given for the first time this year. These were prizes in gynecology in memory of the late Dr. William M. Polk, dean of the college. The graduation address was delivered by Dr. Edward L. Keyes, Jr., professor of urology.

Section Officers of the A. M. A.—At the annual election the following officers for the Section in Nervous and Mental Diseases were elected to serve for the ensuing year: Chairman, Dr. Elmer E. Southard, of Boston; vice-chairman, Dr. Arthur S. Hamilton, of Minneapolis; secretary, Dr. Charles W. Hitchcock, of Detroit; delegate to House of Delegates, Dr. Hugh T. Patrick, of Chicago; executive committee, Dr. Bernard Sachs, of New York, Dr. C. Eugene Riggs, of St. Paul, and Dr. Archibald Church, of Chicago.

Convalescent Athletics.—At the Memorial Day celebration at General Hospital No. 3, in Colonia, N. J., convalescent soldiers on crutches demonstrated their ability to play football and men on artificial legs ran races. The great success of the day was a water fight, in which each team of convalescents had a huge fire hose with the water on at a pressure capable of carrying five or six men off their feet at one sweep. The program lasted for the entire day, included 350 participants, and was watched by 3,000 spectators.

\$1,500,000 Asked to Fight Influenza.—The American Medical Association at its closing session at Atlantic City passed a resolution calling upon Congress to provide a fund of at least \$1,500,000 to finance measures for the prevention of influenza epidemics. The resolution stated that there was grave danger of more destructive outbreaks of the disease. If provided the fund will be used in research work by the Public Health Service, officials of which told the delegates that the causes of the disease were still a matter of speculation.

Hospitals Planning Airplane Ambulances.—Airplane ambulances will be one of the next steps in the conquest of disease. The pattern has been standardized so as to meet all requirements and to contain equipment of the regular motor ambulance, with some improvements. By use of the airplane skilled treatment can be given quickly to persons living a considerable distance from the hospitals. Municipal landing fields can be used and much time saved, even if a transfer must be made to a motor ambulance for a short distance between field and hospital.

Treatment of Osteomyelitis.—A course of instruction in the special treatment of osteomyelitis is being given at United States Army Embarkation Hospital No. 4 (Polyclinic Building), 345 West Fiftieth Street, New York, under the direction of Dr. Pedro Chutro, late chief surgeon, Hospital Buffon, Paris, and Lieutenant Colonel George W. Hawley, Medical Corps, United States Army. Operations are performed every Monday, Wednesday, and Friday at ten a. m., ward dressings daily from nine to eleven a. m., and lectures and x ray demonstrations daily, except Saturdays, from two to four p. m.

Influenza in Alaska Decreasing.—Conditions in Alaska with regard to the epidemic of influenza are improving, according to a report received by the Navy Department. During the winter of 1918-19 800 Eskimos were carried off by the epidemic on Seward Peninsula. A report states that had it not been for the effective work of the Coast Guard crew and the citizens of Nome generally, the entire native population of the peninsula would have perished. One member of the crew, Surfman Levi E. Ashton, covered 160 miles across a trackless waste of snow with a dog team, visiting a dozen villages and attending 200 influenza victims. At some villages all the natives were found dead. The naval hospital ship *Comfort* will soon leave Charleston, S. C., for the Pacific coast to take on additional medical supplies for Alaska, and the U. S. S. *Minneapolis* is being held in readiness on the west coast in case it becomes necessary to send additional help.

The Medical Profession and W. S. S.—An appeal to physicians to join the thrift movement has been issued by the savings division of the Treasury Department. It states that the American people are seeking to perpetuate the habit of thrift acquired under the stress and strain of the war period, and that the community today looks to the physician for public service as a part of his job. The appeal is in connection with the campaign for the sale of thrift and war savings stamps.

Red Cross Aid to Balkans.—American Red Cross work in the Balkans is of constantly growing importance. The destitution left by the war is being combated and material relief and medical attention are being extended. Sarajevo is now the headquarters of both the Red Cross and the United States Food Administration, and Red Cross relief stations are also maintained at Ragusa, Spalato, Fiume, and Mostar. In Greece infant welfare clinics have been established at which young Greek women are trained as nurses' aides to go among the poor of Athens and elsewhere in Greece.

Medical Editors' Election.—The American Medical Editors Association, at its golden anniversary meeting held on June 9th and 10th, in Atlantic City, under the presidency of Dr. George W. Kosmak, of New York, elected the following officers for the ensuing year: President, Dr. Seale Harris, of Birmingham, Ala.; first vice-president, Dr. Franklin Martin, of Chicago; second vice-president, Dr. H. S. Baketel, of New York; secretary, Dr. Joseph MacDonald, Jr., of New York, (reelected); executive committee, Dr. George W. Kosmak, of New York; Dr. S. H. Lewis, of New York, and Dr. D. S. Fairchild, of Clinton, Ia.

Personal.—Dr. A. L. Soresi has returned to New York after four years' service in the Italian Army and has resumed his consultation practice, which is limited to surgical cases, at 49 East Fifty-seventh Street.

Rear Admiral A. M. D. McCormick, Medical Corps, U. S. Navy, who has been head of the department of hygiene at the U. S. Naval Academy, Annapolis, Md., has been appointed supervisor of naval hospitals on the Asiatic Station.

Dr. L. Miller Kahn has resumed the practice of surgery at 29 East Ninety-third Street, New York.

Army Hospitals Discontinued.—Five army hospitals—General Hospitals No. 40 at St. Louis, No. 22 at Philadelphia, No. 11 at Cape May, No. 10 at Boston, and No. 32 at Chicago—were ordered to be discontinued during the month of June. General Hospital No. 14 at Fort Oglethorpe, Ga., with a bed capacity of 1,000, is to be discontinued as a general hospital and will hereafter be conducted as a 100 bed post hospital. General Hospital No. 34 at East Norfolk, Mass., will be transferred to the Public Health Service on or before June 30th. Eleven hospitals at various army camps which have been operated as base hospitals are to function hereafter as camp hospitals with reduced bed capacity and personnel. They are Camp Devens, Mass.; Dix, N. J.; Grant, Ill.; Lee, Va.; Lewis, Wash.; Meade, Md.; Pike, Ark.; Sherman, Ohio; Taylor, Ky.; Upton, N. Y., and Kearny, Cal.

Woman Public Health Aid.—Miss Ruth Emerson, formerly in charge of medical social service work in United States hospitals, has been appointed director of the Red Cross Home Service over all of the hospitals operated by the United States Public Health Service. Her work will consist in providing supplemental comforts and recreations for persons under treatment in the thirty-two hospitals operated by the service, the arrangement being primarily in the interest of discharged soldiers, sailors, and marines who are being cared for at these institutions.

Drug Addiction and the New York Health Department.—A difference of opinion as to the methods to be used in the control of drug users has arisen between the members of the Medical Society of the County of New York and Health Commissioner Royal S. Copeland. A special meeting of the society will be held on the evening of June 23d to protest against Doctor Copeland's proposed plan to fingerprint, photograph, and brand 250,000 habitual drug users. Doctor Copeland is reported to have said that he had no intention of doing any of these things and that his measures had been abandoned when it was found that the State Narcotic Commission was preparing to deal with addicts. Members of the medical society, however, have little faith in the State Narcotic Commission.

Brooklyn to Experiment in Prevention of Tuberculosis.—The Brooklyn Committee on the Prevention of Tuberculosis has established a health centre at 439 Hicks Street, where an interesting experiment in the prevention of tuberculosis is being carried on. A certain section of the city, about ten blocks square, will be mapped off and two nurses will make a complete survey of the district, reporting the home conditions of individuals afflicted with incipient or advanced tuberculosis. A part time doctor conducts examinations free of charge between the hours of ten and twelve, Tuesdays, Thursdays, and Saturdays. Although the work of the health centre is preventive rather than remedial, seventy undernourished boys will be taken to a camp on Long Island, and 100 children will be given an outing each week.

District Health Officers for Vermont.—One of the most important public health laws enacted in Vermont has recently been signed by the governor of that State. The law provides that on July 1, 1919, the system of local health officers, which has been in effect for thirty years, shall be abolished. The State is to be divided into ten sanitary districts, and at the head of each district will be a district health officer who must be a reputable physician and who will devote his entire time to public health work. The district health officers are to be appointed and may be removed by the State Board of Health. Authority is also given to appoint assistant district health officers when the occasion requires. Physicians attending cases of communicable diseases will be required to report such cases to the district health officer. Medical inspection of schools will be furnished without expense to towns desiring it. Cities and towns of over 5,000 inhabitants may have a local health officer if they make provision for his salary and expenses.



CONVENTION PHOTOGRAPH OF ATLANTIC CITY TAKEN FROM AN AEROPLANE.

THE AMERICAN MEDICAL ASSOCIATION

Seventieth Annual Meeting

Held in Atlantic City, N. J., June 9 to 13, 1919

(Continued from page 1055.)

The Scientific Proceedings

We present below abstracts of some of the more important of the papers read at the various section meetings and shall publish additional abstracts in later issues.

SECTION IN OBSTETRICS, GYNECOLOGY, AND ABDOMINAL SURGERY.

Chairman's Address: Gynecology and Abdominal Surgery.—Dr. THOMAS J. WATKINS, of Chicago, expressed satisfaction concerning recent progress in gynecology. Much knowledge had accrued and much that was mere talk had been eliminated. Great advances had been made in plastic surgery for cystocele and prolapsus uteri. Operations for vesicovaginal fistulas had been simplified. The importance of lacerations had been proven to be chiefly related to erosions. Curettage had been found to be of little direct value except for diagnostic purposes. Operations for uterine displacement had lost much of their interest, being actually of little importance in uncomplicated displacement. The treatment for acute pelvic inflammation had proved to be chiefly medical; surgical measures were useful simply for overcoming the residues of infection. Acquired immunity was the important factor in these cases. This conception had also influenced the treatment of infections elsewhere, e. g., in the chest. The ductless glands had elucidated the obscure symptomatology of certain gynecological cases. Radium had been demonstrated to be of great value. There were still marked opportunities for research in gynecology. As a matter of fact, much poor pelvic and abdominal surgery

had been done, with disappointing results. There should be definite indications for operative procedures. Surgical tinkering with the tubes and ovaries was often a failure, and subsequent operations were required. Operations were too often exclusively determined by the pathological conditions instead of being adapted to the individual case. A thorough history was important, and patients should be kept under observation until a complete cure had been obtained; this was especially necessary in the neurasthenic type of patient. There had been too much ground for comparing the attitude of the surgeon to that of the Christian scientist. The latter would say, referring to pain and other difficulties, "Forget it," while the surgeon would say, "Cut it out." In hospitals there should be provided assistantships for the training of selected men along special lines, instead of placing young men under the necessity of learning their special work in practice. Surgical material should be concentrated for the benefit of special men. Dispersal of the cases in a given line to a large number of men resulted in their being of little value to any one, whereas if grouped together for the observation of a certain few, much greater benefit from their study would accrue. Certain hospitals at present were improperly organized, the inference from the conditions existing in them being that while experts in special lines were considered essential for teaching, they were not essential for practical work. The establishment of groups of men working along special lines was beneficial, and would have the result of extending specialized surgery to the smaller communities. Such groups would relieve the special surgeons of annoying nonsurgical details and reduce commercialism.

Analysis of Fifty Cases of Uterine Bleeding from Causes Other than Malignancy or Myoma Treated by Radium.—Dr. SAMUEL M. D. CLARK, of New Orleans, pointed out that radium treatment had not yet reached its maturity and was still running the gamut of criticism. Among the various opinions concerning it, a midposition seemed best. As for the clinical facts already established, three groups of cases could be recognized. Group I was that of hemorrhages occurring in young women, with decided constitutional impairment from great loss of blood. Curetting and organotherapy had failed, and sometimes certain organs had to be surgically removed in order to save the patient. This type of case would present a valuable field for radium. In one out of five such cases treated, small, graded amounts of radium had reduced the flow of blood to normal. Group II included cases of aggravated and intractable dysmenorrhea, with the general health much impaired. The patients were of the neurotic type, without anything anatomically wrong. They were unmarried women, many of them teachers. Endocrine treatment, pessaries, etc., might fail, and eventually, to procure relief, menstruation might have to be stopped. In such instances radium was the best agent. In twelve cases all patients obtained relief, chiefly through complete suppression of menstruation, though in one instance bleeding was merely reduced to normal. Radium here presented definite advantages over operation; yet radium should not be resorted to until other nonsurgical measures had failed. Group III was that of chronic metritis, usually in patients thirty-six to fifty-six years of age; among these patients chronic

cervicitis was generally present. Curettage was performed repeatedly without avail. Packing became necessary. An attempt to eliminate infection was made and opiates given, but only complete removal would give relief. Radium would produce the same effect without danger to life. In thirty-six cases of this group radium brought relief in all but one. Discomfort sometimes resulted for twenty-four to thirty-six hours after the use of radium, but this was negligible as compared to operation.

Treatment of Myoma Uteri with Radium.—Dr. JOHN G. CLARK, of Philadelphia, reported on 137 cases of pure fibroma of the uterus treated with radium. The treatment had its limitations and a "blanket policy" with respect to it was pernicious. It was indicated chiefly for women about to undergo the menopause. One of the prerequisites for radium treatment was proper diagnosis. The selection of cases for it depended upon the one symptom, hemorrhage, together with the size of the tumor.

It was suitable in cases of tumor under a three or four months' pregnancy size; in larger tumors it was inadvisable because of the frequency of complicating factors. If an inflammatory lesion existed, no radiation should be attempted. In two or three unsuitable cases discreditable results had been noted in the form of flareups of inflammation. The tumors must be causing hemorrhage if they were to be treated with radium. Pressure symptoms did not constitute an indication for radium, because reduction in size under it was slow and might not bring relief. In sarcoma radium was a valuable agent. Secondary sarcoma as an objection to radium treatment was purely a myth. Among 800 cases there had been but 0.1 per cent. of sarcoma. In thousands of cases there had not yet been one instance of recurring sarcoma in a cervical stump. Some cases of cancer, however, might occur, and

therefore one should regularly curette to find out if the growth was of cancerous nature. As for the disadvantages of radium, nausea following its use was neither persistent nor serious, and the morphine used might actually be its cause. Pain was, again, an objection of negative value. Many cases associated with pain showed no relief even where the tumor became smaller and hemorrhage ceased. In the series there had been eight failures, requiring subsequent operation. In one case, radium had no effect. An impression was gained that in patients treated with radium the menopause might be slightly more prolonged and pronounced than normal.

Dr. H. C. BAILEY, of New York, in the discussion, referred particularly to the relationship of radium to the cancer problem. Here the

desiderata were to apply the agent in such an amount as would be effective without causing a deep slough or fistula, and also to reach all parts involved, including the parametrial tissues. The first desideratum was easily fulfilled by the use of radium in a capsule. As for the second, an attempt might be made to secure it by repeated applications to the same areas in the canal; yet even this plan was seldom effective. The needs here were best met by using large amounts of radium, such as one gram, both in the posterior fornix and over the skin surface. Cautious experimentation was necessary for determining precisely the proper amount. Fundus cases should be operated in preferably after a radium application and then radium again used after the operation. In selecting the cases of fibroids for radium treatment, large or pedunculated fibroids should be ruled out, and likewise those with postcervical nodules. The possibility should be borne in mind that the mortality from radium treat-



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ment plus that arising from undiagnosed complications might be as high as that in operative cases, in which any complications present would be detected.

Dr. E. C. SAMUEL, of New Orleans, agreed with Doctor Clark, of Philadelphia, as to the indications for radium treatment and as to the bearing of sarcoma on the question. He had found, however, that the preliminary use of morphine had cut down nausea from radium treatment by seventy-five per cent. He had given up the use of gas in the introduction of the radium. In 125 cases treated with radium, only three patients had subsequently come to operation. One patient had shown no result from large amounts of radium, and he had had three experiences with the lighting up of infection after radium. The menopause had not been found to be a little sharper after radium; in fact, it had seemed a little slower and more prolonged after its use. Large doses had been discarded by him in the treatment of malignancy. If, after three cycles of three treatment each, radium gave no appreciable results, its use was discontinued.

Dr. A. H. CURTIS, of Chicago, reported 229 cases treated with radium. In forty-six cases with uterine cancer there had been palliative relief. Marked symptomatic amelioration had been obtained in fourteen cases. In no case, however, was a permanent cure anticipated. Relief might last many months, but eventually the patient succumbed. For the protection of the bladder and rectum during radium treatment, rubber dam gave the best results. It was put in place easily, and the adhesions sometimes met with after the use of the gauze pack never occurred. In cases in which an operation was necessary, it should be done twenty-four hours before an inflammatory reaction took place, or else one should wait three weeks for an immunity to become established. In noncancerous cases one should nearly always effect a cure with radium where indicated. In small or moderate sized growths, 1,200 milligram hours usually gave a satisfactory result, but there was a tendency to subsequent hot flushes. Therefore recently the applications in such cases had been reduced to 1,000 milligram hours or less. In idiopathic hemorrhage in young women even less than this sometimes sufficed. In all nonmalignant cases bleeding was apt to persist for several weeks or two months after radium treatment, yet one was almost sure of an ultimate cure. Again, a watery discharge might occur and persist sometimes three or four months, yet ultimately ceased. The speaker was optimistic as to the use of radium in intractable leucorrhœas of cervical origin, with hypertrophy of the cervix. The procedure here was to insert radium to the internal os and suture in position for twelve to sixteen hours.

Dr. LEROY BROWN, of New York, stated that among 1,560 cases of fibroids in which operation had been performed in nine years, there had been ninety cases of necrotic condition of the tumor, twenty-five of calcareous degeneration, and thirty-five of malignant change in the fundus. Eight per cent. of the cases had been complicated by conditions rendering radium treatment inadvisable. Three per cent. had shown ovarian complications

and seven per cent. tubal complications. Herein lay the danger of radium treatment—inability to secure a cleancut diagnosis.

Dr. J. O. POLAK, of Brooklyn, agreed that diagnosis was the keynote of proper radium treatment. In seventy-six cases of metritis or subinvolution near the time of the menopause, accompanied with hemorrhage, radium had brought about a cure in all. Three had had repeated administrations.

Doctor SCHMITZ, of Chicago, asserted that the reason that some growths did not disappear under radium, while others did, was that the latter showed fibroblasts and highly differentiated fibrous tissue. As to the dose, twenty-five to thirty-five milligrams for from ten to twelve hours was sufficient, especially in patients near the menopause. If leucorrhœa sometimes continued afterward for three or four months or more, large amounts were responsible for this. In regard to carcinoma, the point should be remembered that radium was used in hopeless cases and was therefore at a disadvantage in comparison with surgical treatment.

The End Result in Over One Hundred Operations for Uterine Myoma (Operative versus Röntgen Ray Treatment).—Dr. ARTHUR STEIN, of New York, emphasized the superiority of surgical treatment of uterine myoma compared with the x ray method on the basis of a series of 120 cases with very favorable operative results. His experience with these cases and the findings of others had not caused him to modify his views as expressed in a preceding publication on the comparative value of surgery and x rays in the treatment of these patients. In the interval the objections to x ray treatment had not been overcome, the foremost being the impossibility of recognizing associated gynecological complications which occurred in 50.8 per cent. of his series imperatively demanding operation.

The speaker's argument was supported by several instructive case reports, notably an observation on sarcoma of both ovaries in a young woman who was operated upon and fortunately not x rayed for the mistaken diagnosis of a fibroid tumor of the uterus.

Surgery was safe, simple, and efficient, while radiotherapy was at best unreliable, complicated, slow and expensive. Time was never a negligible factor in the recovery of health. Accordingly he remained a convinced adherent of the operative treatment for uterine myoma and did not advocate in these cases radiotherapy of any kind or form.

Dr. G. E. PFAHLER, of Philadelphia, expressed his disappointment at the impression left by the preceding papers as to ray treatment. The diagnosis was certainly the province of the gynecologist, and where he received patients from physicians other than gynecologists, he sent them to the gynecologists for diagnosis. One hundred and fifty cases without malignancy had been treated by him, and his conclusion was that treatment should not be too radical. In only two of his cases had operation subsequently been required because of complications, and the latter had consisted merely of abscess of the uterus, coupled in one instance with myocarditis and in other with severe anemia.

Dr. J. RIDDLE GOFFE, of New York, maintained that the relative value of operative work in these cases had not been sufficiently emphasized. The mortality of operation was now very low. In a series of 262 cases operation had been performed with a mortality of but about 1.5 per cent. Operation in these patients was actually a simple matter. They left the hospital in ten to fifteen days, passed through convalescence with absolute comfort, and were relieved. Recovery was even more prompt than after the use of the x rays.

Dr. P. B. SALATICH, of New Orleans, emphasized the uniformity of good results after operation. In many cases in which radium had been tried, reapplication had been necessary. In one case, in which an infection had been lighted up, the results had been disastrous. At operation a friability of the surrounding tissues and rectum had been found; drainage had been instituted, and a fistula followed. The use of radium should be limited to inoperable cases. As to the cause of fibroids, Doctor Salatich maintained that syphilis played a part in it. Many cases were in young, unmarried, and sterile women. The condition was more frequent among the colored than among the whites, as was also syphilis. The Wassermann reaction in colored women with fibroids was generally positive.

Dr. MILES F. PORTER, of Fort Wayne, Ind., pointed out that in experimental work on cancer it had been found that whereas large doses of rays inhibited carcinomatous and sarcomatous growth,

prove their diagnoses so that they could differentiate complicated myoma cases from others. The latter should then be treated by radium, but not by x rays.

The Teaching Function of the Hospital, with Especial Reference to Gynecology.—Dr. GEORGE GRAY WARD, Jr., of New York, stated that the hos-



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mild doses stimulated these tumors. Clinically, therefore, the dose should be regulated according to whether there existed malignancy or not. Until this question of the proper dose had been settled, one should bear in mind that by operation a mortality of less than one per cent. could be obtained. Doctor Stein, closing the discussion, stated that all must im-

pitals had been losing sight of their teaching functions. The duty of contributing to medical knowledge by scientific research was an essential feature of their activity. Even hospitals not connected with medical schools should exert such functions. All hospitals should, in this sense, be teaching hospitals. Too often, internships were taken up and followed through without helpful superior guidance, with consequent loss of opportunities and of due instruction. The interns should be made to feel they were being supervised, and the responsibility of their work brought home to them. They should be made to obtain proper histories of cases and to work out necessary and practical subjects pertaining to the patients under observation. Some one person in every hospital should be held responsible for the work of the interns. Similar considerations applied in the teaching of nurses. Standing orders in hospitals were often faulty and confusing. There should be in every hospital one set of standardized orders; such a plan had been tried with success at the Woman's Hospital, New York. Patients should remain longer in the hospital before operation, for better preliminary study. Quality rather than quantity should be the object in hospital work. Each hospital should have a library. Periodical staff conferences, for the exchange of ideas and discussion of problems, were of great value. At the Woman's Hospital weekly meetings had been found a marked stimulus to useful work. Clinical research by the entire hospital staff should be required, and not optional. Promotion to the attending staff should

be, as far as possible, by way of the out patient department.

Doctor STONE, of Washington, asserted that to be a staff surgeon, it was advisable to require candidates to be fellows of the American College of Surgeons, or to have written satisfactory papers for the standard medical journals. Of what value was a staff member who never expected to write?

Doctor POLAK, of Brooklyn, said that the success of a hospital depended not upon its mortality, but upon its morbidity. Organization meant diagnosis. Sufficient preoperative study of cases was necessary in order that a complete operation might be carried out. Conferences of the hospital staff once a week had been actually found to result in a gradual reduction of morbidities and mortalities.

Doctor NEWMAN, of San Diego, advised that hospitals be held responsible for the work they did and the resulting data kept accessible to the general public.

Doctor CANTRELL, of Texas, stressed the necessity of educating the people, including especially the trustees of hospitals, in order that they might be able to follow and assist the progress to be made by hospital studies.

Doctor BUBIS, of Cleveland, asserted that the connection between hospitals and dispensaries was often insufficient. Each patient should pass through a routine examination in all departments. Accessory dental work was especially necessary.

Alternating Periodical Swellings of the Ovary.—Dr. EMIL RIES, of Chicago, referred to patients exhibiting some menstrual disorder and showing, upon examination, swelling at one side of the uterus with more or less pain. The uterus was otherwise normal, and during examination the tumor disappeared. Sometimes such patients were rushed to the hospital for operation. The findings would be: A little bloody serum, nothing wrong with the tubes or uterus, and the actual condition a corpus luteum cyst of the ovary. In a second type of case, the patient's menstruation would come a week late and keep on going. A swelling would be noted on one side. Operation showed, not an extrauterine pregnancy, but a corpus luteum cyst. In a third type, menstrual disorder would appear, an ovarian cyst on the left side be found, and operation recommended. Upon reexamination later, no tumor would be found, and at another reexamination, a tumor on the right side. A case of the first type had been diagnosed as "tumor of the right appendages" and examined over forty-five times in the course of seven years. The patient would have pain on the right side and a soft mass found in the right ovary. After menstruation the tumor would disappear, and later the left side show enlargement. Such alternations had occurred in this case twenty times altogether. Finally the patient had developed pain in one knee, and consented to operation. Extensive adhesions of the appendix and other structures had been found, with enlargements of both ovaries, which showed multitudes of corpus luteum cysts. Upon effecting the necessary removal of affected structures, recovery followed. Two other illustrative cases were reported. To account for the condition, the female generative organs were compared to a clock, in which the spring was repre-

sented by the ovaries, the hands by the uterus, and the pendulum by the corpus luteum, which gave rhythm to the machine. If the corpus luteum went wrong, irregular bleeding resulted. Treatment might consist of removing the affected organs, but this was not always necessary. In one case, during examination, he had burst the cyst; nothing had happened and the pain had ceased.

Dr. E. NOVAK, of Baltimore, questioned whether, in one of the three cases, the condition might not have been simply a lutein cyst rather than a corpus luteum cyst. Such a condition had been observed in connection with hydatidiform mole.

Doctor SPALDING, of San Francisco, asserted that such patients were difficult to handle. Surgical suspension of the ovary seemed alone to succeed, affording relief for a considerable time. Varicocele was probably responsible for the pain in these cases.

Dr. P. B. SALATICH, of New Orleans, pointed out that many patients complained of premenstrual pain greater on one side than the other. Patients with greater pain on one side showed a more profuse menstruation, with more clots, at the time. In operating in such cases, one was likely to find an ovary to be cystic. He always saved a piece of ovary from the side on which pain was not complained of.

Doctor REIS, in closing, emphasized that the swellings he described were not swellings of an ordinary ovary, but swellings of the size of a fist or goose egg. The important feature was that they were returning tumors. For this reason they were puzzling at first. This returning type of tumor was not described in any textbook.

Uterine Retrodisplacement as a Cause of Reflex Neuroses.—Dr. PETER B. SALATICH, of New Orleans, laid stress on the neurovascular disturbances occurring during menstruation. In the causation of reflex neuroses one should take into account both an essential neurotic constitution and the marked exaggeration of neurotic symptoms occurring upon development of a pelvic lesion. The harmful factor in the latter might consist, for example, in an immobilization of organs in the pelvis because of adhesions, or in a retrodisplacement of the uterus. Among the probable causes of nervous trouble, also, were pressure of the uterus on sympathetic nerves; cystic ovaries resulting in a lack of necessary internal secretion; congestion of the pelvic organs, throwing more hormones into the circulation than normal, or one or more of these factors combined with prejudicial effects of syphilis or alcoholism. Cystic ovaries apparently explained some disturbances in unmarried girls. The corpus luteum seemed at times to play an important rôle in the condition. In a case of retroverted uterus in a nervous woman with insanity in the family, katatonia had developed. A faintly positive Wassermann reaction was obtained and some improvement had followed salvarsan medication. When thyroid substance had been given, however, her scanty menstruation had shown definite betterment, and when menstruation set in, her mental condition had completely changed, returning to normal. In general, not much result had been obtained by the essayist with stock tablets of corpus luteum. In another case referred to, insanity was cured in

three weeks after correction of a retroversion of the uterus. In still another, spasmodic movements of the head had been proved due to adhesions in the pelvis.

Dr. E. E. MONTGOMERY, of Philadelphia, found



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it difficult to see how displacement of so small an organ as the uterus could cause nervous symptoms unless the displacement were complicated by inflammation. In insanity the condition present was often exclusively psychic rather than related to an organic change, and any measure producing a serious impression on the patient might relieve the nervous condition. In a case with suicidal tendencies removal of fibroids had resulted in complete recovery for three years, yet at the end of that time the tendency had recurred and the patient killed herself. Improvement after an operation did not mean a definite cure. Nevertheless, it was of considerable importance to correct any prejudicial influence being exerted on the nervous system, in order that the patient might have the best possible chance of improvement. In some instances in which progressive degeneration of nervous tissue seemed inevitable to the neurologist, operative treatment was perhaps unwise.

Dr. J. H. CARSTENS, of Detroit, Mich., said there was no doubt that retroversion sometimes did cause nervous symptoms and that its correction would relieve symptoms. It was essential to remember, however, that a woman often had several different lesions, and that usually it was difficult to find out which one was at the bottom of the nervous symptoms. For this reason one should never definitely promise anything to a patient as regards the relief of nervous symptoms to be obtained from a pelvic operation. Sometimes an operation relieving but one of several conditions present was sufficient to place the patient in a position such that the neurologist could cure her.

If Possible, Prevent Sterilization in Young Women When Operating for Tuberculous Peritonitis.—Dr. J. HENRY CARSTENS, of Detroit, stated that some surgeons had been removing the Fallopian tubes in tuberculous peritonitis in order to prevent tubercle bacilli in the generative tract from passing into the abdominal cavity. As a matter of fact, large masses of tubercles in the abdomen were absorbed and disappeared after celiotomy, and since the same process would occur in the tubes, there was no need to remove the latter. No well authenticated case of tuberculous peritonitis coming from the tubes was on record. In but one out of hundreds of cases had any tubercle been found in the uterus. The tubes should be removed only if there had been other infection which had converted them into pus tubes. Two cases were reported which showed that patients with tuberculous peritonitis treated by celiotomy might subsequently become pregnant. In operating, he said he no longer sutured the skin, as infection often developed in skin sutures. He held the skin merely with adhesive plaster, and the wound healed promptly. The underlying tissues of the abdominal wall were, of course, sutured in layers with plain catgut.

Dr. J. SHELTON HORSLEY, of Richmond, Va., maintained that the reason for the favorable effect of celiotomy in tuberculous peritonitis was the production of hyperemia of the tissues. Drainage was important; but did not act by virtue of a draining effect, but merely as an irritant. Nature, in striving to remove the tube, caused reversal of the lymph current, and elimination of the toxic agent.



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The Specialty of Obstetrics.—Dr. HENRY P. NEWMAN, of San Diego, Cal., pointed out that while the mortality of the child has, through modern obstetrical work, been reduced to about four per cent., much remained to be done to reduce the high morbidity among parturient women. The

number of specialists in obstetrics was extremely small. Among the extensive membership of the American Medical Association there were but twenty-four obstetricians. Obviously it was not the specialists who were responsible for the faulty obstetrical work of the day. The reason for the neglect of this specialty was that misconceptions concerning it were so prevalent and its associations were so indiscriminate. One disliked to be disputing the ground with midwives and constantly at grips with accumulated ignorance and prejudice. A new movement for better obstetrical work by the general practitioner should be inaugurated, and new stress laid on the specialty of obstetrics. Cases must be handled as individuals rather than along lines dictated by generalizations. The condition of the mothers should be under careful observation throughout the period of gestation. Cooperation between obstetrical societies and the various institutions for child welfare was necessary. All hospitals should keep complete records of obstetrical cases on file and these rendered accessible to the public at all times. No special obstetrical work should be done except in institutions suitably equipped. Hospital standardization could do a great deal for obstetrical progress.

Dr. EDWARD P. DAVIS, of Philadelphia, stated that the present was a favorable time for the improvement of obstetrics. There had been noticed at times a disposition among the laity to discourage refinements of obstetrical work on the ground that additional children were unwelcome. No improvement in general obstetrical work could be expected until the laity believed the difficult confinement to be as important an emergency as an operation for appendicitis or other acute surgical disease. Such an improvement would in the future come about for several reasons: through the economic need of additional human beings; through improvement in the general living conditions of workers, which would lead them to marry early and likewise, through special State aid. Institutions doing obstetrical work should have State support. The student must be impressed with the gravity of obstetrical operations and diagnosis.

Dr. JOHN F. MORAN, of Washington, D. C., maintained that too many practitioners were mere male midwives, rendered additionally dangerous through their use of instruments and anesthetics. Greater emphasis should be laid upon obstetrics in the medical school curriculum. Some of the time now spent in the surgical amphitheatre should be devoted to obstetrics instead.

The Newer Methods of Cæsarean Section.—

Dr. J. B. DE LEE, of Chicago, said that the classic Cæsarean section was widely practised. Encouraged by the reports of hundreds of cases with a minimum mortality, surgeons and operators throughout the United States were performing many Cæsarean sections. There was, however, a high mortality in spite of the favorable reports, and every accoucheur knew of deaths which were not recorded in the literature. In addition, classic Cæsarean section had a considerable morbidity in the shape of uterine abscess, partial paralytic ileus, gastric dilatation, peritonitis, adhesions, etc. At-

tempts to improve the classic Cæsarean section had not fully succeeded until Frank, in 1906, disinterred the old extraperitoneal methods. Nicholson gathered together all these methods and published them in February, 1914. They depended upon certain changes which occur during pregnancy and labor in the relations of the cervix and lower uterine segment to the bladder and vesical peritoneum. The operation, briefly, consisted in exposing the lower uterine segment and dilated cervix in an area large enough for the extraction of the child and pushing down the bladder; or incision in this thinned and dilated area of the uterine and cervical musculature; delivery of the child; sewing together of the musculature and covering it with the peritoneum and bladder which had been retracted.

There were two methods, one of which opened the peritoneal cavity over the cervix and the other did not, but pushed up the peritoneum from off the lower uterine segment, drew the bladder to the right, and extracted the child directly outside of the peritoneal cavity. The operation was described on the screen by means of lantern slides. The indications for the new operations showed that three methods of Cæsarean section must be considered when the question of abdominal delivery arose. We now have Cæsarean section performed in the body of the uterus, corporeal; and, second, cervical Cæsarean section, and of the cervical, there were two kinds, the transperitoneal or perperitoneal and the direct extraperitoneal. The question that arose when an indication for abdominal delivery presented itself was, which one of the three methods shall be used?

The objections to the classical Cæsarean section were: first, the mortality; second, the abdominal complications; third, adhesions; fourth, rupture of the uterus in subsequent labor; and, fifth, its limitation to clean cases and the necessity for the expansion of the field for abdominal delivery. Statistics showed that the extra and transperitoneal cervical Cæsarean section had a lower mortality than the old classical Cæsarean section. Experience also showed that adhesions were almost always absent in the newer methods of Cæsarean section, and almost always present in the old methods. Abdominal complications also were less frequent in the newer methods of Cæsarean section. Contrary to what had previously been urged as an objection to the cervical Cæsarean section, the classic Cæsarean section subsequently offered more cases of rupture of the uterus than the cervical. And experience with the vaginal Cæsarean section in which the incision was made in the same portion of the uterus showed that this danger was not to be feared, but the contrary. Most important of all, however, was the possibility of extending the indication for the abdominal delivery to those cases where there was a suspicion of infection, even where slight infection was present; the child could be delivered abdominally and its life saved, thus avoiding craniotomy on the living baby. Forty-four cases of the newer methods of Cæsarean section were presented without fetal or maternal mortality.

Dr. JAMES W. MARKOE, of New York, laid stress on the "unknown mortality" of Cæsarean section

from streptococcic infection. He thought the cervical operation had distinct possibilities of replacing the classical operation in all cases.

Rational Surgery of Visceroptosis.—Dr. ROLAND HAZEN, of Paris, Ill., said that rational surgery utilized the principles and methods of nature. Defective fusion of the colon to the flank in the fetus was a primary and fundamental cause of visceroptosis. Primarily, therefore, an anatomically correct replacement and fusion was induced after the pattern of the normal subject. The hepatic flexure and ascending colon were the heart of the situation. Primary ptosis of this portion resulted in secondary ptosis of other portions of the viscera. Clinical types and production of symptoms were explained, also the technic of operation for primary and secondary defects. Doctor Hazen gave the results of eight years' experience with the above principles and questionnaire of afterresults in over 100 operations.

SECTION IN SURGERY, GENERAL AND ABDOMINAL.

The Babcock Method for the Immediate Sterilization and Closure of Chronic Infected Wounds of Bones and Soft Tissues.—Dr. W. WAYNE BABCOCK, of Philadelphia, described this method, referred to in an editorial article on page 1085, as follows:

1. *Skin preparation.*—If possible the wound area should be prepared by daily shaving, washing with soap and water, removal of all scabs and crusts, and the application of two per cent. yellow oxide of mercury ointment for three days preceding the operation.

2. *Wound sterilization.*—On the operating table, the skin is: a. Thoroughly scrubbed with "B" solution (Liquor cresolis compound 2, turpentine 10, and gasoline 88 parts). b. Painted with three per cent. solution tincture of iodine. c. Sterilized by a saturated chloride of zinc solution, thoroughly injected under pressure into all sinuses and cavities, applied to all unhealed and granulating surfaces, and rubbed over the scar and skin adjacent to the wound. Five minutes are allowed for the penetration of the zinc solution, and great care is taken that every recess of the wound is reached.

3. *Color delineation.*—The following antiseptic staining solution is then thoroughly applied to all eroded surfaces, and injected under pressure into all cavities and sinuses:

Saturated alcoholic solution of methylene blue..	20
Caustic potash	3
Phenol	5
Ether to make.....	100

As soon as this solution has evaporated, the exposed granulating surfaces are left dark blue black, dry, bloodless on manipulation, and sterile. If a section is made through the sinus, it will be found that the coloring has penetrated to a depth of one to three millimetres. Outside of this is a much wider zone of a vascular, greyish white tissue that has been sterilized and devitalized by the zinc chloride. (Even sequestra removed from deep bone cavities produce no growth on culture media.)

4. *Excision of infected area.*—The entire field is again painted with tincture of iodine and a very

free skin incision made, so planned as to permit later closure and to surround and be well outside of all scars and sinuses, which are to be excised as near as possible *en bloc*. The instruments are now changed, the skin margins well separated from the adherent underlying tissues by traction with sharp retractors, and dry towels or gauze clipped in position to protect all skin margins. The incision is now deepened to the bone; the periosteum is freely incised, retracted, protected by towels or gauze, and, beginning some distance from the disease, with sharp chisels, the infected bone is freely excised with the attached overlying skin, scars, and sinuses. Care is taken not to completely divide the bone.

A blue color indicates that all infected areas have not been excised, and the incision is to be continued. The operator should work outside the septic focus and use very sharp knives, gouge, and chisels, rather than curettes, which tempt one to work from within out. If possible, all soft tissues and bone should be removed to a distance of at least one centimetre external to the blue coloration. The bone incisions are so placed as to leave smooth surfaces with no holes, gutters, cups, or pockets that will remain as "dead" spaces when the soft tissues are closed, and the incision should leave only well vascularized bone and soft tissue—free from bone chips and splinters.

5. *Wound closure.*—The muscles and soft tissues are sufficiently freed from the skin, bone, and each other, to fit into the bone defects. Bleeding is carefully controlled with the smallest amount of plain catgut. If necessary a few fine catgut sutures are used to unite the deeper tissue layers, and the skin is closed with silkworm gut. In very large wounds, one or two small tube drains may be left between stitches to drain the depths of the wound for the first twenty-four or forty-eight hours. Only a dry technic is to be employed. Any excess of zinc chloride may, if necessary, be neutralized by a ten per cent. solution of sodium bicarbonate. This is rarely necessary. Voluminous very wet boric alcohol dressings are applied until all tissue reaction has subsided and healing has occurred.

The National Medical Museum.—Dr. CHARLES H. MAYO, of Rochester, Minn., said that the medical profession might justly be proud of the record made by organized medicine during the war. In this war there were two deaths from injury to one of disease; the world lauded the strategy developed by commanding officers, yet the real strategy was the control of disease by the medical corps. A wonderful medical organization was created by former Surgeon General Gorgas. In France the practical application of the active work of the medical department was carried on under the efficient direction of Surgeon General Ireland.

The Government in the past had been at no expense in the training of its medical officers. In organizing the American medical profession for service in the war, no account was taken of the fact that the men in the Medical Reserve Corps had had an average training of at least twenty years and that their university and medical courses had cost not less than \$5,000 for each individual. Rank according to responsibility was withheld in most instances

until the war was nearly over. The necessity of higher rank was essential only as it represented authority. The protection against disease and the care of the health of the men in service during the training for war and during the war had stimulated the



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demand for nation wide safeguarding of the health of the people.

Undoubtedly great good would come through educational publicity by the development of the National Medical Museum in Washington, which now housed the splendid medical library of the Surgeon General's Office. A series of like departments was visualized; one would be devoted to the various diseases, contagious, preventable, and controllable, from acute and chronic infections, and those diseases of both man and animal, also the insect carriers of disease; one to the missiles of the present war and the character of wounds produced by them, etc. The dentists would have a department to demonstrate the dangers of focal infections. All this would mark an epoch in the teaching of preventive medicine and surgery. It was Surgeon General Ireland's desire to coordinate the hospital work at the Walter Reed Hospital with medical instruction for army officers and with the work in the laboratories of the National Medical Museum.

England was establishing a ministry of health with supervision of all educational problems relating to health, sanitation, and preventive medicine. Medicine had been tried and proved to a large degree that would enable it to stand comparison with any other effectual work of our Government. Why not, therefore, establish a cabinet officer of health and unite, or at least harmonize with efficiency of management, all of the diverse medical activities now distributed among many Cabinet departments and subdepartments?

SECTION IN NERVOUS AND MENTAL DISEASES.

The Mechanism of Referred Pain, Hyperalgesia (Causalgia), and Alcoholic Injections for the Relief of Neuralgia.—Dr. JOSEPH BYRNE, of New York, after referring his hearers to his former contributions for a detailed account of his theory of the mechanism of pain in general, defined referred pain as that due to lesion of the somatic sensory pathways anywhere from the periphery to the optic thalamus, the resulting sensation being referred to the peripheral area of distribution of the injured pathway. This type of pain was to be distinguished from the reflected variety wherein disease of a viscus was attended by pain and hyperalgesia in certain related somatic areas. In the peripheral nerves two separate systems were found: 1, the affective system, which mediated the "hurt" element of prick, heat, and cold, and, 2, the critical system, which mediated the critical elements, that is those elements which involved in some way comparison and analysis. The axones of the affective system were unmyelinated and sprang from the smaller neurone bodies of the dorsal root ganglia, whereas the axones of the critical system were myelinated and sprang from the larger neurone bodies of the spinal ganglia. Notwithstanding an apparent community of function at the periphery these two systems were anatomically and functionally separate until the optic thalamus was reached, and here for the first time the critical system by means of collaterals or main stems impinged upon the affective system, controlling this latter in the interests of cognitive or reasoned methods of protection from noxious stimulation, e. g., by analysis, judgment, and forethought. Through the medium of the propicient receptor mechanisms noxious objects were avoided without risking actual bodily contact.

The localization of pain arising from any cause was a function of the critical system. Sensation of the purely affective type, such as alone was mediated through the affective system, represented merely the hurt element of painful stimuli and was attended by overreaction radiation, reference, poor localization, and inability to name the stimulus. Under normal conditions the critical system exercised inhibitory control over the affective system. This was well seen in the stage of recovery after nerve section and suture. Here hyperalgesia (protopathic sensibility) appeared owing to the more rapid rate of regeneration in the affective system. This persisted for some time and then subsided, step by step, as function became restored in the critical system. The dynamic factor underlying pathological pain and tenderness resided in the neurone bodies of the dorsal root ganglia, since nerve section distal to the spinal ganglion did not always relieve pain, whereas section of the pain paths anywhere proximal to the ganglia gave lasting relief. In experimental injuries, e. g., by section of the sciatic nerve in cats or injections of alcohol into the nerve, the changes observed were axonal reaction phenomena in the neurone bodies, especially the smaller ones, in the spinal ganglia. These changes consisted of:

1. Pallor of the cytoplasm, chromatolysis, lateral

displacement of the nucleus, etc., all denoting suspended functional activity in the neurone. These changes began to appear a few days after the injury and were at the maximum about the fourteenth day, when they commenced to decline.

2. In the proximal stump at the site of section, besides the small area of complete degeneration there occurred the usual dichotomous division and subdivision of the outgrowing lateral branches of the axones. Only a few of the fifty or more branches springing from each axone under chemiotactic influence reached the distal stump, the remainder turning aside and backward, thus helping to form the neuroma that usually appeared near the site of section.

3. In the distal stump the fibres degenerated, the myelin and axone processes undergoing fragmentation and absorption. Soon, however, the neurolemma cells of both myelinated and unmyelinated fibres began to multiply. At the same time the protoplasm increased. In this way were formed about the old degenerating axone the nucleated protoplasmic bands of Büngner. These bands later underwent tubulization for the reception of the outgrowing branches from the proximal stump. Lesions in any part of the critical system, from the periphery to the thalamus, might cause impairment of the control normally exerted by the critical upon the affective system, with the result that the neurone bodies of this latter system situated in the spinal ganglia took on relative functional hyperactivity (hypermetabolism) with consequent excessive elaboration and storage of neural energy (kinetoplasm). As a consequence of these altered metabolic conditions, the affective neurones might discharge impulses brainward spontaneously or upon the slightest provocation. In the former condition there resulted spontaneous pain referred to the area of distribution of the particular neurones involved. In the latter condition there resulted hyperalgesia in the parts supplied by the hyperfunctioning affective neurones.

Where the lesion occurred in the peripheral nerves, both the critical and affective systems were involved. Direct involvement of the affective system stirred the damaged neurones to still greater hyperfunctioning, which at first concerned itself with the more primitive, embryonic processes of growth and repair and later with the more specialized process of the discharge of nerve impulses. In the spinal cord and train stem extramedullary tumors might by compression affect the critical system before blocking the affective system. In such cases there resulted the same sensory dissociation that occurred in the hyperalgesic stage of recovery after nerve section and suture and in lesions of the ventrolateral aspect of the thalamus.

The induction of specific hyperfunctioning in the affective neurone bodies of the spinal ganglia in the manner described was the gist of the mechanism involved in referred pain and in hyperalgesia (causalgia) following nerve injuries. In alcoholic injections for the relief of neuralgia the *modus operandi* was by the induction of axonal reaction phenomena in the neurones of the spinal ganglia. This was indicative of temporary cessation of

specific function in these neurones which were hyperfunctioning in the neuralgic condition preceding the injection. The speaker cited briefly many illustrative cases of nerve injuries and toxic neuritis which exhibited pain and hyperalgesia and insisted



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upon the necessity of regarding the pathological processes in all such cases as not merely confined to the manifest locus of injury but as involving the peripheral neurone in its totality.

SECTION IN ORTHOPEDIC SURGERY.

Some of the Things that Orthopedic Surgery Has Done for the War and that the War Has Done for Orthopedic Surgery.—Dr. EMIL S. GEIST, of Minneapolis, said that while few today would agree with Hippocrates that war was the only proper school for the surgeon, nevertheless wars as a rule had furthered the progress of medical science. It was premature to predict what changes in medicine would result from the great war, but one could say with little fear of contradiction that the Carrel-Dakin principle of wound sterilization had come to stay, and that orthopedic surgery as a specialty had fully justified itself and was here to stay. From now on orthopedic surgery would have to face the cripple problem; not only the child cripple but the industrial cripple, not only the actual but the potential cripple.

In 1914 the orthopedic surgeons of England were noted more for quality than quantity, and it was necessary to send over a large group of Americans for purposes of temporary relief. Standardization was attempted and achieved in many orthopedic fields. Standardization of splints was perhaps the most noteworthy example in this country, while in England operative methods and post-operative care had been perhaps most successfully standardized. Many new types of splint and new methods of cure had been found efficient. Most of

them were the product of the fight against infection. Fortunately, we had less occasion to meet this enemy in civilian life and terms such as débridement, primary suture, secondary suture, and guillotine would occupy a minor though necessary place in our applicable stock of knowledge.

If the war had lasted longer, the vexatious foot problem might have been solved and standardized. The very multiplicity of solutions for this problem argued here as elsewhere in medicine that the real answer had not yet been found. It would appear that the anterior heel described a long time ago by Ansel G. Cook had found almost universal favor in certain disorders, and its originator ought to get the credit for it. Fractures were to a great extent put under the care of the orthopedic surgeon in American overseas hospitals. For this reason there existed a remarkably small percentage of preventable deformities in the cases which reached this side of the Atlantic. There was no doubt that in future civilian practice the orthopedic surgeon would be called upon to treat an increasing number of fractured bones.

It was almost providential that as a result of peace time efforts orthopedic surgeons were prepared to take charge of two important types of cases—the bone graft, and the tendon operation. In numerous cases of peripheral nerve injury, tendon transplant and tendon fixation operations had yielded definite, well anticipated results. It might be safely said that for every case demonstrably improved by operations on nerve tissue, ten had been bettered by some form of tendon operation. The knowledge applied in paralytic cases in the prevention of deformity and the prevention of muscle stretching had been gained from the study of thousands of cases of infantile paralysis in the decade preceding the war.

Improvised Orthopedic Exercising Apparatus.—Dr. RUDOLPH S. REICH, of Cleveland, described methods of treating soldiers suffering from orthopedic defects by means of specialized calisthenic exercise supplemented by the employment of improvised orthopedic apparatus. For exercising the lower extremities, hurdles, pedaling machines, bicycles, and pronation boards were improvised. Improvised arm exercisers, shoulder circumduction appliance, forearm pronation and supination apparatus, and wrist circumduction machine were employed for the upper extremity. Doctor Reich said that the purpose of this review was to demonstrate the practical application of devised orthopedic apparatus, and its approach to occupational therapy.

An Operation for Claw Foot.—Dr. RUSSELL A. HIBBS, of New York, said that by this operation an attempt had been made to improve the condition known as claw foot by changing the anteroposterior muscle balance of the foot. This was accomplished by inserting the tendons of all the common extensors of the toes at one point in the dorsum of the foot, usually the middle or external cuneiform bone; thus changing their function to that of dorsal flexors of the foot only, which avoided antagonistic muscular action.

SECTION IN GENITOURINARY DISEASES.

Hematogenous Infections of the Kidney.—Dr. WILLIAM J. MAYO, of Rochester, Minn., said that Bright's disease involved both kidneys and occurred in two forms which were often confused: Type one, so-called acute parenchymatous nephritis, and type two, the chronic interstitial nephritis. Type one was a true nephritis involving the kidney filter chiefly and was caused by specific toxins the result of infections usually derived from lesions of the skin and mucous membranes, as for example scarlet fever and diphtheria. The kidneys were large, white, and soft. In the acute phase edema from chloride retention was frequent. The urine was loaded with albumin, casts, and blood corpuscles. Sometimes the disease began subacutely and pursued a chronic course with irregular deposits of connective tissue in the kidney, and sometimes type one nephritis was grafted on the chronic contracted organ (type two), causing confusion of type.

The chronic form (type two) which involved the connective tissue and bloodvessels chiefly was not a true nephritis. Its cause, so far as was known, was not connected with infections, and the disease was incurable. The kidneys were contracted, hard, and granular from deposits of connective tissue. The vascular system was always involved to a greater or less extent, and the heart was so often affected as to make the appellation of cardiorenal disease appropriate in some cases. The urine was usually clear and abundant, especially at night; it was of low specific gravity and sometimes contained albumin and casts. The clinical course of the chronic form was marked by hypertension and uremia from retention of urea and other compounds. The disease might exist in the latent form for many years.

Hematogenous infection of the kidney caused a third type of nephritis which, in its chronic form, had in the past been confused with Bright's disease, and in the acute form with inflammatory conditions in the abdomen. Hematogenous nephritis was an infection with living microorganisms. The disease might involve the kidneys unequally, or it might be unilateral. Congenital or acquired defects in a kidney rendered it more vulnerable to the infecting agents, which varied greatly in virulence. In the fulminating forms, if both kidneys were involved, as with streptococcus, death resulted; if the involvement was unilateral, early nephrectomy might save life. In the subacute forms septic infarcts and cortical abscesses might necessitate nephrectomy, or the spontaneous evacuation of a cortical abscess in the fatty tissues might lead to a perinephritic abscess, or the whole kidney might be destroyed, causing a pyonephrosis. Since the cause of hematogenous nephritis was a pus producing coccus of relatively short life, no living organisms might be found in the later stages, and the varying results of the infection—scar tissue and other evidences introduced in the process of repair of the damage—might produce pictures confusing to the pathologist, especially if the infection was implanted on a kidney already the subject of Bright's disease.

In many instances the kidney might recover its function, and after this process if painful scars re-

maintained the pain might be relieved by capsulotomy. At times carbonate of calcium was deposited in the infected area in the process of cure; this produced x ray shadows which might be mistaken for the ordinary kidney stone. The surgeon today was as much interested in the pathology of the kidney as was the internist, and the surgeon's work tended to bring forward the pathology of the kidney in the living for comparison with the clinical findings. Heretofore attempts had been made to correlate the clinical with the postmortem findings, which often did not show the true condition during life but rather the terminal condition which caused death.

SECTION IN DISEASES OF CHILDREN.

The Deleterious Effect of Alkalinization of Infants' Food.—Dr. ALFRED F. HESS, of New York, said that in the preparation of infants' food no attention was paid to its reaction, and such substances as sodium bicarbonate were added without thought in this regard. The same was true in respect to proprietary foods. Most of these foods were of alkaline reaction, some of them in high degree. Doctor Hess found that the antiscorbutic vitamine was peculiarly sensitive to an alkaline reaction and deteriorated rapidly in milk which had been rendered alkaline. He believed that the frequent occurrence of infantile scurvy after the use of malt soup preparations was due to the potassium carbonate which it contained. Experiments on animals seemed to confirm his conclusions. He suggested that potassium citrate be used by the manufacturers of proprietary foods instead of the alkaline potassium carbonate. He also suggested that this question of reaction might play an important rôle as regards other vitamins, and that it might not be innocuous that codliver oil was rendered alkaline in the preparation of the emulsions commonly employed.

The Work of the Children's Bureau of the American Red Cross in Lyons, France.—Dr. Clifford G. Grulee, of Chicago, said that the work of this bureau had been developed as an emergency measure to meet a special situation. It had, however, some ideas which might be used to advantage in the development of children's work in communities in America. The chief obstacle to such development would be the same as that which was encountered in France; namely, the tendency of each charitable organization to wish to go "on its own" without regard to other organizations. It was possible to control the situation in France because the exigencies of war rendered it necessary that outside aid be given local charitable institutions.

The Abuse of Catharsis and Laxatives in Infancy and Childhood.—Dr. LOUIS FISCHER, of New York, said that the daily administration of laxatives to infants and children was a common practice among many mothers and nurses. Indiscriminate drugging to cleanse the intestine and empty the liver was a daily routine and the abuse was founded on the enormous amount of advertising matter which impressed the laity with the necessity of so doing. This practice was so common that it was rare to hear of infants or children whose bowels functioned normally. It was not an exaggeration to speak of this as an abuse of catharsis in children.

The daily use of drugs to stimulate the internal secretions and cleanse the gastrointestinal tract was necessary in acute febrile conditions. It was indicated in toxic and septic conditions, also in traumatic conditions and emergencies. It was well known that many glands lost their functional activity during fever and their function could be stimulated by catharsis. Stagnant residue and fermenting particles of food require elimination. This was especially true in intestinal intoxication accompanied by fever caused by excessive fat or protein feeding. In this class of cases the subnormal condition caused by the fever demanded especial attention.

The speaker called attention to the infant or child who was given a daily laxative to modify constipation, obstipation, or coprostasis as a routine practice, instead of modifying and adapting the diet to correct the condition.

It did not require deep research to understand that by the constant use of laxatives functional activity of the

intestinal canal would soon be impaired and the tone gradually be lost. Peristalsis could be stimulated and aided in many ways other than by drugs. While the object of cleansing and eliminating fecal particles might be attained by the use of cathartics, the normal process of digestion and assimilation was frequently interfered with and the system deprived of nutrition intended for growth.

Doctor Fischer believed that excessive purgation weakened the glandular functions and robbed the system of ferments and enzymes necessary for the proper assimilation of food, thus indirectly inviting rickets and weakened structures due to faulty metabolism.

Rachitic atony of the musculature simulated constipation. The stagnant fecal contents would be propelled only by stimulation of the gut and restoration of the needed tone. Cod liver oil was efficacious in such cases.

Doctor Fischer said that the well known results



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of thyroid therapy in sporadic cretinism and the specific action on the accompanying constipation needed no emphasis. The administration of one quarter grain thyroid three times a day gradually increasing the dose until one grain was given three times a day, had proved beneficial in a number of cases. The daily administration of a warm soap water enema should be condemned. The warm water relaxed the muscles of the intestines and if persisted in would produce atony of the intestines with a tendency to prolapse. A cold enema with a temperature of sixty to seventy degrees had a stimulating and tonic effect. Not more than one pint was given at bed time or before the second morning feeding.

The importance of water in the diet was not sufficiently emphasized. Fresh cold water would

reflex activity, and delirium were inaugural features of perhaps the majority of acute infections of any degree of severity. Only when these symptoms of meningeal irritation were prolonged and severe did they ordinarily attract attention. Recorded determinations of globulin, cell counts, etc., in cases of meningismus, were surprisingly few. The cerebrospinal fluid of pneumonia had been fairly well studied by Voisin. Others had found pleocytosis, globulin increase, and pressure changes in isolated examples, or rarely in a small series of cases of scarlet fever, mumps, enteric fever, pertussis, measles, rabies, diphtheria, sepsis with or without meningismus.

The speakers had examined the cerebrospinal fluid of over one hundred miscellaneous medical conditions with symptoms of meningeal irritation



PHOTOGRAPH OF THE INLET, ATLANTIC CITY, TAKEN FROM AN AEROPLANE.

aid in eliminating food residue if given between meals several times a day. Water added to the food was not sufficient.

For the older child mechanical stimulus in the atonic gut could be given to food by the addition of bran to cereals or by the use of figs, raisins, or whole wheat bread and coarse cereals such as oatmeal. Vegetables such as chopped spinach or chopped string beans should be given and green rather than starchy cereals such as potato.

Observations on the Spinal Fluid of Acute Disease.—Dr. W. W. HERRICK, of New York, and Dr. A. M. DANNENBERG, of Philadelphia, presented a study of the meningeal choroidal complex in relation to miscellaneous acute diseases other than meningitis and poliomyelitis. Known facts about the anatomy, physiology, and pathology were reviewed briefly. The clinical significance of this complex and its reactions was then considered. Headache, irritability, hyperesthesia, exaggerated

and had correlated their findings with other clinical and laboratory features of the diseases studied—as temperature, leucocytosis in the blood, degree of meningeal irritation and prognosis. No direct relation of the reaction of the subarachnoid system to any of these features was apparent. In twelve cases of lobar pneumonia examined, a cellular reaction in the cerebrospinal fluid of from twelve to 200 cells was observed in seven and a globulin increase in eight. In fourteen cases of bronchopneumonia, a pleocytosis of from twelve to thirty cells was observed in five. Of fourteen cases of influenza, five showed from fourteen to forty cells; only three had globulin increase. In three cases of follicular tonsillitis there was pleocytosis, one showing 172 cells. Of twenty-eight miscellaneous acute medical conditions, seventeen showed cerebrospinal fluid pleocytosis, four globulin increase. Among these were examples of sepsis, scarlet fever, small pox and measles.

CONCLUSIONS.

1. Review of the literature and personal study of seventy-six cases not resulting in meningitis showed beyond question that the cerebrospinal fluid often gave evidence in increased pressure, pleocytosis, and heightened globulin content of a reaction on the part of the leptomeninges to the infective agents or toxins of a large number of miscellaneous acute diseases, not ordinarily causing true meningitis.

2. These diseases were lobar pneumonia and bronchopneumonia, influenza, tonsillitis; the exanthemata, scarlet fever, measles, variola; herpes zoster, parotitis, enteric fever, sepsis, arthritis, pleurisy, migraine, reaction to typhoid inoculation and others.

3. The cerebrospinal fluid showed variation from the normal in about one third of the cases studied.

4. Most, but by no means all, of the patients with subarachnoid reaction had clinical meningismus (meningitis serosa Dupre). On the other hand, many examples of meningismus were without pronounced changes in the cerebrospinal fluid.

5. The greatest caution should be used in making a diagnosis of meningitis or poliomyelitis from fever, meningismus, and the changes in the cerebrospinal fluid mentioned. Cases with less than 100 cells should be viewed with skepticism, unless clinical, epidemiological or other laboratory evidence was decisive.

SECTION IN MISCELLANEOUS TOPICS.

The Need for Leadership in Medicine.—Dr. OTTO P. GEIER, of Cincinnati, said that the experience of the profession in the last four years, while demonstrating devotion to the cause and a desire to serve the sick and wounded, showed a lack both of scientific attainment and of administrative ability. When called upon suddenly to establish large hospitals with all of the professional facilities and physical equipment needed to have them function properly, it was found that the doctor was an individualist and never thought in terms of group action. Perhaps one of the most valuable by-products of the war would be the realization by physicians of the import of preventive medicine and the necessity for better organization of the medical profession by groups.

In no way could the benefits of modern medicine be brought so quickly to the assistance of the great mass of people as through the prompt training of a large group of industrial physicians and surgeons to be placed in executive positions in industry. The sanitary workshop, free from occupational hazards, dust, lead, bad light, and preventable accidents, with reasonable accommodations for the comfort of the worker, had proved a good investment. Physical examination of the employes with medical supervision of their health, prompt and intelligent care of the injured, and modern employment methods were favorable factors in lower labor turnover, lessened absenteeism, lowered cost of production, increased output and higher wages. For several months a group of physicians, business and labor men had been evolving a plan of action. Their report diagnosed the slowing down of industry as caused by excessive labor turnover, physical breakdown of the worker, absence from

work, and lack of output because of those killed or permanently disabled. It stated furthermore that the principles of industrial medicine and surgery intelligently applied could reduce the six per cent. loss through these causes to three per cent., and it recommended provision against unnecessary human waste in industry, increased output by maintaining workers in good health, restoration of the sick and injured to full producing power in the shortest possible time, and provision of healthful places in which to work and healthful homes and communities in which to live. These principles would be applied by means of: 1. Good home conditions, heredity, proper food, proper housing and living, teaching of personal hygiene. 2. Good school conditions, physical examinations, remedying of defects, clinics (health education by schools). 3. Good working conditions, hours of labor, sanitary shops, good relations between employer and employed, sufficient wage, medical and surgical care (health education by employer). 4. Good community conditions, clean food, milk, water. Protection against contagion; sewage and waste disposal (health education by health department). 5. Good medical colleges, to keep up the supply of highly trained physicians, who along with dentists, nurses, hospitals, institutions, and clinics, care for ill health since the first four agencies fail to produce 100 per cent. results.

Doctor Geier outlined a plan of education in industrial medicine, to be tried out in the College of Medicine of the University of Cincinnati, by which students will spend part of the time in lectures and laboratory work and part in field work at the plants themselves. Field work would consist of sanitary inspections of plants and of research into special occupational hazards. Such a course would not only graduate doctors of public health and industrial medicine but would be a check on the commercializing of medical science, would discourage quackery, and make the latest diagnostic facilities available to all the profession instead of the favored few.

The Enlarged Program of the United States Public Health Division of Industrial Hygiene and Medicine.—Dr. JOSEPH W. SCHERSCHLEWSKY, of Washington, D. C., said that the lessons of the war showed the urgent necessity of the Federal Government's resuming leadership in improving industrial medicine and the practice of industrial hygiene. This leadership should be conducted along the following lines: 1, Continuation and extension of health service in industries to determine the extent and means of health correction hazards; 2, national development of an adequate system of medical and surgical supervision of employees; 3, adequate reports of the prevalence of disease among employees and sanitary conditions in industrial establishments and communities; 4, establishment by the Public Health Service of minimum standards in industrial hygiene and the prevention of occupational diseases; 5, improvement of sanitation in industrial communities by cooperating with State and local health authorities and other agencies; 6, medical and sanitary supervision by the Public Health Service of industrial establishments owned or operated by the government.

SECTION IN OPHTHALMOLOGY.

Ophthalmologist and Physician.—Dr. CHARLES P. EMERSON, of Indianapolis, presented the interrelation of the two from the viewpoint of the physician. He held that eyestrain had been so much blamed for any and every complaint "from heterodoxy in religion to ingrowing toe nail," that its real value in the causation of symptoms had been unnecessarily minimized. He would avoid emphasizing eyestrain as the sole cause of any symptom, because several factors were apt to enter into its production and the real cause was likely to be found in the neuropathic disposition of the patient himself. Many of these symptoms represented a psychical reaction rather than a direct strain, and some of them explained important nervous and mental features. Many could be greatly relieved by the proper correction of errors of refraction, but as a whole these patients could not be helped by the ophthalmologist alone, any more than by the internist alone. They required the conjoint efforts of both. The problem usually was one of the person, not of the eyestrain. The speaker said that the commonest symptom was headache, and particular stress was placed upon sick headache, with some reference to other nervous symptoms. It should be remembered that these symptoms resulted from the interaction of various factors, so that while the eyestrain would be relieved as one of these factors, that relief should not be depended on for a cure. In doing this the ophthalmologist should strive to help the patient to see with less strain, less expenditure of nerve force, rather than to fit him with glasses which would enable him to see better. He pleaded for an accurate determination of the static error and the use of atropine rather than of homatropine in its determination. The formula of the error does not mathematically determine the formula for the glasses; the latter should depend on the estimation of the condition of the patient as a whole in neurological cases, and he believed that better results might be obtained by cooperation between the ophthalmologist and the physician.

Necessary but Often Neglected Refinements in the Examination of Ocular Refraction.—Dr. WALTER L. PYLE, of Philadelphia, emphasized the importance of the utmost accuracy in the correction of errors of refraction. In some of those who suffered most from eyestrain there were very slight optical errors, and the correction must be very accurate or the condition of the patient might be made worse instead of better. The optician's work should be very carefully supervised, as errors were commonly made in the glasses. Test lenses even were apt to be imperfect, so each glass should be thoroughly investigated. The most common faults were in centering and in axis marking of the cylindrical lenses. Puzzling errors could thus be explained. It was also necessary to pay attention to the trial frames, which often were faulty in construction, thus holding a lens in a different position from that which was intended. The test types should be properly illuminated, and light reflexes from the surfaces of the test lenses prevented. The patients should be requested to return for another examination after two or three months, as the

sudden relaxation of the strain might be followed by a change in the astigmatism.

The Present Status of Refraction Work.—Dr. EDWIN J. GARDINER, of Chicago, pointed out that in spite of the fact that better refraction work was done in the United States than anywhere else in the world, there was still a great deal of bad work being done here by persons unfitted to practise the art. Much careless work was done because of ignorance and inadequate training, but more because of undue reliance on mechanical appliances. The study of the individual was paramount. A diagnosis was made by brain cells, not by instruments. The assignment of the refraction work to assistants was condemned; such work could not be supervised except by doing the work over, and an incompetent assistant was apt to do much harm. Another cause of unsatisfactory refraction work was the correction of simply the manifest error. The main cause of the trouble was lack of, or inadequate, training, the existence of which was proved by the fact that at the conclave of the American College of Surgeons in 1917 the poorest papers came from the eye, ear, nose, and throat men, only two per cent. of whom were admitted to fellowship. Postgraduate schools and institutions should refuse to give certificates after a few weeks' attendance and should establish courses of several months, with the final requirement of successfully passing an examination in all branches of ophthalmology prior to the issuance of a certificate. Schools of ophthalmology also should be established, similar to the one in Denver.

The Correction of the Muscular Anomalies of the Eye of Only Less Importance than That of Their Faults of Refraction.—Dr. SAMUEL THEOBALD, of Baltimore, held that ophthalmologists as a class were inclined to minimize the importance of latent muscular anomalies of the eyes and to regard exclusively the errors of refraction. This theory was borne out by the few cases reported from our largest hospitals. One reason doubtless was that in many cases faulty balance of the ocular muscles was due to ametropia, but there were many cases in which this was not true. When they were not due to ametropia they were just as capable of producing trouble as ametropia itself and demanded equal attention. Hence the ophthalmologist should search for errors of refraction and for muscle imbalance with equal assiduity. How to deal with the heterophoria depended on the condition present. One point of great practical importance was that unless the muscle balance at the reading distance was known the existence of subnormal accommodative power could not be recognized.

Dr. EDWARD JACKSON, of Denver, who opened the discussion said that he thought at times a new point of view was more important than a new collection of facts. We needed to be lifted out of our ruts. Headache and similar symptoms were not things thrust into tissues, but were reactions, to be understood only when considered as something brought about for the good of the organism. A patient did not have headache simply because of eyestrain, but because of a number of factors of

which eyestrain might be one. In regard to Doctor Emerson's suggestion that in nervous patients the ophthalmologist should try to ease the strain rather than to improve the vision, Doctor Jackson maintained that in most cases the greatest easing of strain was attained through securing the best vision. Accuracy was an important factor in the relieving of strain. There was a strain that came from trying to see under new conditions, but the best that we could do in most cases was to correct accurately all errors of both the refraction and the muscle balance.

Dr. A. E. BULSON, of Fort Wayne, said that the correction of errors of refraction required much skill and accuracy, but that much poor work was turned out. In fitting glasses to neurotic patients an exhaustive examination should be made not only of the eyes, but of the general condition. All objective findings should be checked up by a subjective examination, and the balance of the muscles should be tested for both distant and near vision. Homatropine was sufficient in many cases, but it could not be relied upon to produce cycloplegia; he considered atropine necessary in such cases as those referred to by Doctor Emerson. Finally, it was necessary to consider the health, the temperament, and occupation when prescribing glasses.

Dr. T. B. HOLLOWAY, of Philadelphia, considered that the same careful study should be made of the patient in prescribing glasses as in the case of an inflamed eye. In spite of the fact that bad work continued to be turned out he believed that the character of refraction work was steadily improving. The worst he had seen was done by general practitioners who put test cases in their offices. Assistants in ophthalmologists' offices should have had thorough fundamental training. Neurotic patients should be examined under a cycloplegic, atropine or scopolamine, not homatropine. Postgraduate courses should not be short; the teaching should be of fundamentals rather than the witnessing of clinical operations, and examinations should be held to determine the fitness of the pupils to practise ophthalmology.

Dr. ISAAC HARTSHORNE, of New York, spoke of the frequency with which muscle faults were overlooked because not looked for. A common fault was insufficiency of the convergence, which might be detected by an abnormal ratio between the abduction and adduction, given usually as 1:3, but in his opinion practically approaching 1:2. A lack of convergent power might be apparent immediately after putting on a pair of plus glasses. Muscle weakness might be due to muscle fatigue, or staleness. Many persons with insufficiency of convergence had oblique astigmatism. An imperfect fusion power might be the important factor, rather than any local defect. The treatment of cases of insufficiency or convergence must depend on the results of the study of individual cases.

Dr. W. H. WILDER, of Chicago, was of the opinion that the internist as well as the ophthalmologist needed to recognize that ophthalmology was only a branch of medicine, and that nerve fatigue must be reckoned with, for in convalescence he seemed to think that the patient could read and use his mus-

cles of accommodation as much as he desired, which was wrong.

Dr. ALEXANDER DUANE, of New York, said that we should look beyond the obvious cause and study the patient in every way in all cases of headache. He advocated the use of homatropine and the checking up of the findings by subjective examination.

Dr. W. W. KAHN, of Detroit, believed all eyes to be astigmatic, and said that we should get our patients into the best of health before fitting them with glasses.

Doctor LEMERE, of Omaha, called attention to the effects of the lighting in our offices. The result of a nervously exhausted patient and a badly illuminated test chart was not good. The illumination should be such as to cast no shadows. He asserted that changes in the refraction took place constantly from minute changes in the macular region.

Dr. LINN EMERSON, of Orange, N. J., protested against the fashionable library and windsor styles of spectacle frames because: 1, They are hideous; 2, the lenses are too large; 3, the lenses turn in their frames, thus continually placing cylindrical lenses at wrong axes.

Dr. DUNBAR ROY, of Atlanta, Ga., said that men of long experience studied their patients and correlated their symptoms. Homatropine he considered simply a mydriatic, not a cycloplegic. If we were to learn the full static refraction of an eye we must use atropine, which was a cycloplegic.

Dr. A. E. DAVIS, of New York, did not think it good practice to use a cycloplegic as a routine measure in any except certain selected cases. He also thought that sittings should not be unduly prolonged, as the patient became so confused he did not know what he saw and the doctor became uncertain of what he knew.

In closing Doctor Emerson insisted that the ophthalmologist ought not to try to ascertain the cause of the asthenia of his patients but should refer them to the internist, and that the two should study the cases together. Doctor Pyle stated that no specialist was getting into closer relation with general medicine than the ophthalmologist. Each patient must be studied individually. Doctor Gardiner insisted that no patient could be refracted until the muscle of accommodation was paralyzed by a true cycloplegic.

The Control of Trachoma Among the Alien Labor Companies of the British and American Expeditionary Forces.—Dr. GEORGE S. DERBY, of Boston, was with the B. E. F. for several months where he became familiar with the methods used there. The question was not of so great proportions in the A. E. F. and the methods of dealing with it were taken from the B. E. F. They had not been adopted when the armistice was signed but a start had been made. The treatment was not undertaken to cure the disease but to keep it under control, and was given so as not to interfere with the work of the men. In the B. E. F. the labor companies, mainly Chinese, were inspected and divided into three lots, the clean eyed, those with conjunctivitis or suspected trachoma, and those with trachoma. The first class could be sent anywhere, the others were sent to restricted areas. The sec-

ond and third classes were kept apart, properly treated, and frequently reinspected. In this way the spread of the disease was prevented.

The Organization and Activities of the Ophthalmic Service in the American Expeditionary Forces.—Dr. ALLEN GREENWOOD, of Boston, described the ophthalmological equipment and needs of the American hospitals in France. He spoke of the personnel and equipment for eye work in the A. E. F., the work of the consultants in organizing the service, the care of the blind, changes in standards of visual classification, the use of magnets, trachoma, eye work in the army of occupation, etc. Several suggestions for the future were made, one that in view of the wide usefulness of magnets in removing foreign bodies from the interior of the eye, every base hospital in any expeditionary force should be supplied with a giant and a small magnet. Another recommendation was that a considerable number of ophthalmologists was needed by any expeditionary force—larger than the probable supply. At the time the armistice was signed at least 150 ophthalmologists could have been used to advantage. A central eye hospital was needed. Suggested changes in the army eye instrument cases and equipment were also pointed out.

Group Study, a Necessity in Ophthalmic Research.—Dr. F. PARK LEWIS, of Buffalo, said that a correct understanding of the nature of any eye disease necessitated a correlation of the clinical and laboratory findings. An important fact which had not been sufficiently emphasized was that, with few exceptions, the most serious inflammatory and degenerative intraocular diseases found their origin outside of the eye itself and in a large majority of cases in tissues which did not come within the field of the ophthalmologist's explorations. While the practical ophthalmologist must understand laboratory methods, he has had neither the leisure nor the practical skill to employ them in his daily work. To understand fully the conditions which he was called upon to treat, it therefore became necessary for him to secure the assistance of a group of co-workers upon whose conclusions many of his own findings must be based. For persons in moderate circumstances the cost of obtaining so much skilled service was prohibitory. Some method must be devised by which such group diagnoses could be made readily available not only to the rich and the poor but to all classes of people. This could not be done under existing methods. The speaker urged that the section through its representative propose in the House of Delegates that a committee be appointed to devise practical measures for the development of group diagnostic clinics, as only in this way could the welfare of the sick be subserved and the science of medicine advanced.

Dr. W. R. PARKER, of Detroit, thought that the day of diagnostic units might be at hand. A distinction must be made between group study and group practice. Some group centres for practice had proved successful, others had not. Organization alone would not suffice, neither would anything other than scientific education. He considered the suggestion of Federal control to be of questionable value, although there must be some authority over

the suggested groups to enforce proper ethical procedure. His own experience was that he had been able to secure examinations as soon as he felt that they were needed, and he was inclined to think that what was required was something to stimulate ophthalmologists to insist on the needed examinations.

Dr. ALEXANDER DUANE, of New York, declared that group study was not only desirable but necessary. The ordinary purse was not long enough to secure all the help needed in many cases. He suggested the advisability of diagnostic institutions and thought the best means would be a central institution completely equipped for diagnosis and research, as advocated by Francis Bacon 300 years ago.

Dr. A. E. BULSON, of Fort Wayne, said he realized that we must avail ourselves of the skill of other specialists. Patients are divided into several classes: The wealthy, who were able to pay for all consultations required; the moderately circumstanced, who formed the great bulk of practice and who could only partly meet such expenses, and the charity patients, who should be referred to clinics and teaching institutions. Precautions must be taken against paternalistic medicine, in considering group study.

Doctor TWINEN, of Chicago, considered that the paper should have been read before a joint meeting of ophthalmologists and general practitioners, for an ophthalmologist was commonly thought to be a thing apart, and internists and surgeons were quite as much to blame as any one for this misconception. A campaign of education and propaganda was needed.

Daylight Illumination of Interiors.—Dr. EDWARD JACKSON, of Denver, presented a new problem in the lighting of rooms, the mechanical details of which he left to be worked out by illuminating engineers and architects. He started with the assumption that the human eye was intended to work in daylight rather than artificial light, and that the daylight should come from above. The sidelight from windows was much inferior. His suggestion was to change the direction of the light entering the windows by means of reflectors so that it would be thrown on the ceiling, by which means it would be diffused throughout the room.

Uveitis, with Special Reference to the Etiology and Treatment in the Chronic and Malignant Types.—Dr. A. EDWARD DAVIS, of New York, referred briefly to the literature of the subject and then considered its etiology, the opinion being expressed that probably every case of uveitis was of septic or toxic origin.

In a general way, the causes of uveitis might be grouped under three headings: 1, Those that were associated with, or produced by infectious diseases, as syphilis, tuberculosis, gonorrhea, influenza, rheumatism; 2, perverted metabolism, as in gout, arthritis (so-called uric acid diathesis), diabetes, nephritis, anemia, hypothyroidism, etc.; 3, those cases of autointoxication from focal infections, which might be situated in the gastrointestinal tract, nasopharynx, nasal accessory sinuses, teeth, and alveolar processes, tonsils, genitourinary tract, or the skin.

Modern laboratory methods with complement

fixation tests for investigating these cases were contrasted with the older methods of examination, where the clinical symptoms were chiefly relied upon to establish the diagnosis. While the different diathesis should not be lost sight of, the examination should extend further, and our ignorance should not be shielded by such terms as rheumatism when the true and underlying cause has not been discovered. Especial reference was made to intestinal autotoxemia as a cause of chronic uveitis, and attention was also called to a less frequently noted factor in the etiology of these cases—the condition of hypothyroidism. As to treatment, the foundation of all treatment, of course, rested on finding the cause, and if possible removing it.

The Action of Radium on Cataracts.—Dr. MARTIN COHEN and Dr. ISAAC LEVIN, of New York, presented a report on twenty-four cases of immature cataract which had been treated with radium for periods varying from two years down to three months and the results tabulated. It was stated that when radium was used in proper quantity, quality, and dose, no harm could accrue to the eye. The statement in the paper that “there is no other agent in the therapeutic armamentarium which can influence the development of cataract in any degree at all” called forth a storm of protest. Doctor Greenwood was the first to object and stated that he obtained equally good results from the intermittent use of dionin. Dr. E. L. Jones likewise had obtained just as good results with dionin. Dr. J. E. Weeks maintained that equally good results were to be obtained from anything that would stimulate the circulation in the anterior segment of the globe. He used a mixture of glycerine, boric acid and water for this purpose. In a certain proportion of cases such treatment would arrest the development of cataract, in others it would retard the development, and in still others it would fail to accomplish anything. Dr. F. Park Lewis considered that there was danger in letting the idea that there was a cure for cataract go out. The use of radium in this manner seemed to him empirical rather than scientific. Dr. S. I. Risley was accustomed to rely on treatment to promote circulatory activity in the ciliary vessels, correction of systemic disorders, and the careful correction of refractive errors and muscle imbalance. Under such treatment many of his cases of immature cataract had never advanced. Dr. G. C. Savage said that he had found many cases checked by the administration of 1/100 grain bichloride of mercury with one grain of potassic iodide for five weeks, followed by a week of rest and this process repeated several times. Dr. A. S. Green, of San Francisco, had obtained improvement in sixty per cent. of his cases in which vision was 20/40 or better by subconjunctival injections of cyanide of mercury, followed by eyebaths of one per cent. solution of potassic iodide every other day alternating with dionin. Doctor Ziegler added a word of warning that radium might prove dangerous to the eye, as it had been demonstrated that bad results were obtained from the x rays. Doctor Cohen stated that the soft rays of radium improperly applied would burn the cornea.

(To be continued.)

SECTION IN PREVENTIVE MEDICINE AND PUBLIC HEALTH.

The Influence of the War on Preventive Medicine and Public Health.—Dr. C. ST. CLAIR DRAKE, of Springfield, Ill., said that progress in preventive medicine and sanitation during the war had been as great as that of military surgery and would mark a distinct turning point in American public health activity. In spite of the necessities for creating a vast army in the shortest possible time, more attention was given during the past war to the individual health of the soldier than ever before in military history, while the fact that the United States was virtually the treasury and source of supplies of the Allies necessitated the safeguarding and protection of the industrial army and civil population. The findings of exemption boards and medical examiners disclosed an astonishing prevalence of preventable illness and disability, particularly due to tuberculosis and venereal disease, and prompted an educational and restrictive warfare against these diseases which was entirely new to the American people and which would continue in the future. The fact that all other communicable diseases had greatly decreased or been practically eliminated since the American Civil War while venereal diseases had shown a marked increase indicated the imperative necessity of abandoning our attitude of silence in regard to these social ailments. The prevention of tuberculosis and venereal disease has been advanced twenty years on account of the revelations of the war.

The acute demand for repopulation of the warring nations, both for the purpose of replacing the men lost in battle and for the great problems of reconstruction, had shown the necessity of either increasing the birth rate or decreasing the death rate. This situation had made the prevention of infant mortality a paramount issue throughout the world and would have a tremendous influence in shaping the policies of public health administration in the future.

Public health activities in the United States would be greatly influenced by the return of thousands of medical officers who had received thorough training in preventive medicine and sanitation, and this influence would be strengthened by the fact that hundreds of thousands of American young men have had impressed upon them through army experience the necessity for disease prevention and health promotion.

General Health Activities and Their Influence on Tuberculosis Mortality.—Dr. GEORGE T. PALMER, of Springfield, Ill., said that in spite of the pessimistic attitude assumed toward tuberculosis in the past, a study of mortality statistics indicated that there had been a steady and decided decrease in the tuberculosis death rate for a period of a hundred years and that during that time the tuberculosis mortality had fallen from 450 to the 100,000 of population to about 150 to each 100,000, or a decrease of about sixty-six and two thirds per cent. Comparing the mortalities from communicable diseases during the past fifteen years, it was found that the record in the warfare against tuberculosis

was more gratifying than that against any other communicable disease for which science had found no specific preventive, with the one exception of scarlet fever. Since the discovery of the tubercle bacillus there had been a tendency on the part of public health authorities to attempt to deal with tuberculosis as they would with other contagious and infectious diseases, while even the special anti-tuberculosis agencies have conducted a warfare which has been too much directed toward the avoidance of specific infection.

In view of the fact that tuberculosis was almost invariably due to childhood infection and that tuberculous disease was developed not only through this infection but from condition reducing resistance, it was quite likely that those activities which had been directed toward the promotion of individual and public health have had as much to do with the reduction of tuberculosis mortalities as combat against the germ. This assumption was borne out by the fact that while the reduction of tuberculosis mortality had been most gratifying within recent years, it was also pronounced prior to the discovery of the tubercle bacillus. Accepting the fact of childhood infection as the chief source of tuberculous disease in adults, it was clear that the programs directed toward the protection of infants and children included in the so-called child welfare campaigns were an essential part of every comprehensive antituberculosis program, which must also include housing, the prevention and relief of poverty, the prevention of communicable diseases, and all other phases of general health promotion.

Lethargic Encephalitis.—Dr. JOSEPHINE B. NEAL, of New York, said that lethargic encephalitis must be diagnosed most commonly from tuberculous meningitis, brain tumor, and syphilitic involvement of the central nervous system. From a study of forty cases it was observed that there was a wide age distribution from twelve weeks to over fifty years. By far the largest number were in males, thirty-three out of the forty cases. The onset was usually slow and was preceded in twenty-seven cases by an attack clinically considered influenza. Lethargy and asthenia were practically constant symptoms, but cranial nerve palsies were absent in a large proportion of cases, particularly among children. The spinal fluid findings were the same as in poliomyelitis, not because the diseases were necessarily identical or even closely allied but because in each case they represented the reaction of the meninges to an inflammation of the brain substance. The blood count was practically normal, and blood cultures were negative. Efforts to transmit this disease to monkeys had been generally unsuccessful, but Strauss, Hirshfeld, and Loewe had obtained encouraging results.

Lethargic encephalitis belonged to the class of inflammatory diseases of the brain, to which belonged also poliomyelitis, syphilitic lesions of the brain, and trypanosomiasis. The pathological pictures, therefore, had certain points of resemblance to these other diseases, but it had also certain more or less characteristic features, e. g., tendency to

localize in the mesencephalon, its hemorrhagic character, and the absence of endarteritis. Three theories had been advanced to explain the appearance of the epidemic: that it was due to food poisoning of some kind; that it was a form of poliomyelitis, and that it was connected in some way with influenza. The first theory had been definitely discarded; the second had not been proved in any way and did not seem tenable; there were reasons for accepting the third, though what the connection might be was still entirely problematical.

Progress of Venereal Disease Control.—A brief outline of the national program for control of venereal diseases was given by Dr. C. C. PIERCE, of Washington, D. C. The act of Congress approved July 9, 1918, entitled The Chamberlain-Kahn Bill was explained and the distribution of the appropriation of one million dollars to State boards of health under the terms of this act described. The bill emphasized the State board of health as the unit through which it was necessary to work in undertaking a national health program.

The prevalence of venereal diseases was referred to and recent statistics just made available were quoted to show that of approximately the second million drafted men, 5.4 per cent. were found to be infected with venereal diseases upon the examination given upon their arrival at camps. Statistical data presented showed that during the past few months a total of 65,783 venereally infected persons have been treated at the various free clinics operated by State boards of health in cooperation with the service. Forty-four States were now co-operating with the Public Health Service in this important public health work. The main features of the program were: medical measures, educational campaign, and law enforcement activities. It was emphasized that the ultimate success of the campaign depended upon the active cooperation and support of the medical profession. The importance of hospital facilities for treating venereally infected persons was pointed out, and the statement was made that all interested agencies were greatly encouraged with the progress that has already been made.

New Jersey's Work in Mosquito Control.—Dr. WILLIAM EDGAR DARNALL, of Atlantic City, referred to the unenviable notoriety of the Jersey mosquito and said that the same problem existed in other seaboard States having large areas of salt marsh land. After detailing the progress of the movement for mosquito extermination in New Jersey, the speaker went on to speak of the work done during the war. Camp Merritt, which was situated in a malaria district, presented a situation of the utmost importance, inasmuch as soldiers came there from all parts of the country. Conditions would have been ripe for a continuous epidemic of malaria which would have been carried not only to American troops abroad but to the Allied forces. Consequently the Bergen County Commission made a complete survey of the territory and found that while the camp stood on high ground, it was almost completely surrounded by sluggish streams and overgrown swamps. Anopheles breeding was found along the edges of the slow moving streams

and ponds. The Public Health Service and the commission combined forces to push the work rapidly and a total area of fifteen square miles was controlled. The result was that although there were some recurrent cases of malaria among troops coming from a distance, there was not one case of malaria during the summer of 1918 which originated at Camp Merritt. In speeding up the protection of other camps from disease, it was to New Jersey and the New Jersey Mosquito Association that the government called for help.

A remarkable example of what could be done with little expense was illustrated a few years ago at Princeton, during an epidemic of malaria. The low lying basins about Princeton were found to be prolific breeders of *Anopheles quadrimaculatus*, and \$10,000 was raised to combat the menace. In a year the number of cases dropped from 257 to eight, and the following year there was none. Malaria was the only mosquito borne disease found in New Jersey and that in comparatively few places. Of the forty different species of mosquitoes the only ones of economic importance were the local types known as Pipiens or the house mosquito and the malarial anopheles group. About 16,000,000 feet of standard ten by thirty inch ditching had already been cut on the salt marches in the State; there were in the State 296,000 acres of salt marsh, of which 150,000 acres still remained to be treated. This whole area would be drained during the next five years, according to the plans now laid. After the work was completed, its maintenance was of supreme importance. It was estimated that the maintenance cost an acre for a year would average 35 cents. An area of 937 square miles and a population of 2,188,063 already enjoyed protection from the mosquito, at a per capita cost of about 15 cents.

County units which undertook the work were organized as follows: A commission of six men was invested with the responsibility, and a superintendent was the active head. The superintendent and his assistant had full charge of the office, the various gangs of salt marsh workers, and the local inspectors of the fresh water work. It was necessary for the chief inspector to be an expert on mosquitoes and a practical executive. The work on the marshes was done by ditching machines which cut ten by thirty inch ditches at the rate of 4,000 to 5,000 feet a day. Machine gangs consisted of five men and a foreman. These ditches, which were placed about 100 feet apart, drained into open thoroughfares and bays, allowing the tides to come and go, and at the same time allowing millions of the small killy fish, which feed on mosquito larvæ, to run up the ditches and into the pools. As the tide receded, the meadow land between the ditches was drained by seepage. Constant patrol was given this stretch of marsh, and ineffective or clogged ditches and mosquito breeding places were charted daily.

The fresh water or local types of mosquitoes were handled under the same executive organization. All property was inspected every ten days in the mosquito season and breeding was reported. Such breeding as might be found in rain barrels or

tin cans was eliminated. Stagnant water under a house or in other locality was attended to by the ditching or the oiling squad, the water being oiled only if drainage was not possible. Oiling was done regularly every ten days. A large map of the city showed every spot on which mosquito breeding had been eliminated. By systematic organization of this sort and careful follow up work, knowing the kind of mosquito to be dealt with and its life habits and proclivities, any community could rid itself of this enemy to health with a comparatively small expenditure. In many communities there were engineering problems such as tide gates, dikes and other methods of handling drainage besides ditching. All these might be overcome by intelligent cooperation and intensive study.

SECTION IN THE PRACTICE OF MEDICINE.

The Work of the Group Consultant.—Dr. JOSEPH SAILER, of Philadelphia, said that the clinical consultants at base hospital centres were somewhat hampered in their work by the lack of knowledge of the exact nature of their duties. It was found that the classification of medical cases, their grouping, and the application, as far as possible, of routine treatment was a distinct advantage in handling such a large number of patients. Some interesting facts in relation to pneumonia were observed at the Vichy Hospital Centre, particularly in relation to cerebral hemorrhage and infection of the accessory sinuses of the nose. It was felt as a result of the work at this centre and in other centres that to a certain extent the clinical work of the A. E. F. was subordinate to administrative work, with some impairment of efficiency.

Possibilities of Physical Development by Means of Graded Exercises.—Dr. BERTNARD SMITH, of Los Angeles, Cal., gave his observations on the results of graded exercises in 300 cases of effort syndrome at U. S. Army General Hospital No. 9, Lakewood, N. J. Estimations of general strength were made by the Martin test before and after the course in graded work and the strengths compared with estimations made on 100 normal soldiers.

The degree of improvement depended on the co-operation of the subject. This was best secured and maintained by carefully graded work and slow advancement in the classes. The subject must be guarded from general symptoms through the lower grades. The type of chronic physical invalidism could secure an increase in strength, with loss of symptoms, that would enable him to take up a more active civil occupation. Because progress was slow the training should be a civil problem and should be undertaken during the time of peace and not during a military emergency.

Men who developed the effort syndrome during active warfare gained their normal strength in shorter time than cases with symptoms before entering the army. The more severe forms of the acute type did not develop among the American troops. Cases that developed after infectious disease improved as rapidly as those following nervous and physical strain. Graded work should have an important place in the late treatment of infections.

Miscellany from Home and Foreign Journals

Treatment of Gonorrhea.—H. E. Gibson (*Lancet*, May 3, 1919) shows that the earlier the treatment is commenced the better is the chance of recovery and the less the danger of the development of complications. He believes that the ideal treatment is to combine the local curative measures with general treatment to build up the patient's resistance. Local treatment should be by means of irrigations of the anterior urethra with antiseptics which are as nonirritating and as highly antiseptic as possible. For this purpose the best seems to be flavine in strengths of 1:6,000 to 1:8,000. Irrigation should be employed rather than syringing because larger volumes of the solution can be used, the urethral folds are opened out better, and the entrenched organisms are more thoroughly reached and destroyed. Infected material should not be driven back into the posterior urethra early in the disease, either by instrumentation, or by complete irrigations. The individual's resistance to the disease is best raised by the use of large and constantly increasing doses of vaccine, given twice weekly. The initial dose should be twenty million gonococci, and the dose ultimately reached may be as high as 400 million gonococci with 2,000 million mixed staphylococci, or 1,000 million gonococci alone. Medicines internally are of value only to alleviate certain symptoms such as dysuria, and have no curative effects.

Significance and Value of Certain Abdominal Reflexes.—David Ligat (*Lancet*, May 3, 1919) describes what he terms the "viscerosensory reflex," showing that it is based upon the production in the spinal cord of areas of hyperirritability as a result of disease of the abdominal organs. The reflex consists in the presence of pain or disturbed sensation in definite abdominal skin areas and is elicited by picking up folds of the skin and firmly pinching them between the fingers. It is entirely independent of tenderness on pressure, which is due to inflammation of the parietal peritoneum, and is, in fact, never produced by peritoneal inflammation. Tenderness on pressure is always located over the area of inflamed peritoneum and bears no necessary relation to the diseased organ which causes it. On the other hand, the viscerosensory reflex from each organ is always found in a constant location, irrespective of the location of that organ. The area of the viscerosensory reflex for any organ extends but little laterally from the point of maximum intensity while its spread in the vertical direction is considerable and is greater downward than upward. There are six of these areas as follows: For the stomach and duodenum the area lies in the middle line midway between the ensiform and the umbilicus; that for the small intestine at the junction of the upper and adjacent fourths of a line between the ensiform and symphysis pubis; for the large intestine at the junction of the lower and adjacent fourths of the same line; that for the gall-bladder at the junction of a horizontal line through the tip of the tenth rib with a line midway between the nipple line and the middle line of the body; for

the appendix the area lies at the junction of the inner and middle thirds of a line between the umbilicus and right anterior superior spine of the ileum; and those for the fallopian tubes on either side at the junction of the lowest and adjacent fourths of a line from the middle of Poupart's ligament to the umbilicus. When two viscera are diseased there may be two areas of the reflex but these will always be found to be separated by a normal area. While the presence of the reflex is positive indication of disease of the organ corresponding to the area involved, the converse is not necessarily true, for any of the abdominal organs may be diseased without production of the reflex. The precise mechanism of the reflex is not known, but the author offers some theories to explain it. However, the value of the reflex is definite and should not be overlooked. Several illustrative cases are cited to illustrate its occurrence and significance.

The Psychology of Internment.—R. Bing and A. L. Vischer (*Lancet*, April 26, 1919) contend that any path of life which diverges from the ordinary, and along which bodies of men are forced to travel, will soon affect the mentality of the men. Under the conditions of prolonged internment a very definite psychoneurosis develops, to which the name "barbed-wire disease" has been given. Three abnormal conditions react upon prisoners of war: The deprivation of liberty; the close herding together; and the uncertainty of the duration of their internment. To these should be added the limitation of all activities and pursuits by strict regulations, and the constant waiting for letters and parcels from home. There is also the fact that the men are cut off from all relations with the opposite sex, which soon makes them prey to their unrealized desires. In spite of a variety of occupations and diversions which are commonly provided, a large number of such prisoners develop a neurasthenia *sui generis*, and in about ten per cent. of all who have been prisoners for over six months the symptoms reach a high level of intensity. The first symptom is increased irritability; the men will not suffer the least contradiction; they become irascible, argumentative, obstinate, and they are characteristically lacking in judgment. They lose the power of concentration to a large extent and become easily fatigued by the slightest effort to concentrate. Very characteristic and striking is the loss of memory of people and places relating to prewar events. Insomnia, diminished vision, the development of suspicions and pessimism, and sexual impotence are among the commoner secondary symptoms. Many of these symptoms diminish or disappear upon change from enemy to neutral internment, but intellectual instability and loss of concentration tend to persist for a long time, and the loss of memory remains very pronounced. In many cases the personalities of the men become radically changed, so that their families find them completely altered, and many of the intellectual men show a decided aggravation in their sensitiveness after removal to neutral internment.

Stumps and Their Aftertreatment.—W. McAdam Eccles (*West London Medical Journal*, April 1, 1919) considers that there are three stumps which are of prime importance, the painful stump, the conical stump, and the inflamed stump. Painfulness of a stump is commonly due to a bulbous nerve ending or a filament caught in the scar tissue; the treatment is merely to remove the bulbous end or free the pressed on filament. A conical stump is the outcome of two conditions: an overgrowth of bone or a retraction of soft parts. If an amputation is performed through the arm or leg in a child the bone will tend to lengthen from its growing epiphysis until it pushes its way to the end of the stump; this is best treated by timely reamputation. A conical stump from retraction of soft parts is generally the result of sepsis and may or may not require reoperation, depending on whether or not there is pain or loss of function. In the great war the importance of the temporary artificial leg or pylon was well shown, as thereby the patient gets about early without crutches, he has confidence in his progress, and the stump is enabled to consolidate more rapidly. Inflamed stumps arise from septic ligatures, carious or necrosed bone or the presence of a foreign body; these conditions require active and thorough operative treatment.

Painless Treatment of Furuncles with Pure Phenol.—Angelo A. Soresi (*Presse médicale*, March 24, 1919) notes that a furuncle results from infection of a pilosebaceous follicle with staphylococci. The object of the phenol treatment is to kill all the germs in the affected follicle. A small syringe with an easily sliding piston is used, preferably a glass Luer syringe. A fine needle is attached and a few drops of pure phenol drawn up, care being taken that the syringe contains no other fluid. When the syringe is now held vertically, a droplet of phenol should appear at the needle point; if not, the needle should be unblocked or another needle used. The point bearing the droplet is then brought to rest over the exact centre of the boil, from which generally issues a hair, and gently allowed to enter the follicle, down to its very bottom. Next the needle is withdrawn and its point watched to see if another droplet of phenol exudes. If not, pressure is made on the piston to free the needle. Finally, the needle is reinserted to the bottom of the follicle, and to and fro movements may be imparted to the needle to bring about complete impregnation of the tissues with the phenol. The needle should not only enter the follicle easily but should cause no pain, the phenol previously brought in contact having anesthetized the tissues. After the injection the area is covered with a little gauze and rest of the part ordered. Pain preceding the procedure disappears immediately after the treatment. After two or more days, recovery will be complete. The phenol treatment is contraindicated where the infective process has already sufficiently advanced to destroy the pilosebaceous follicle; under such conditions the phenol could not be expected to kill all the staphylococci, but would merely hamper the local defensive process. In applying treatment, alcohol should be kept at hand in case phenol should drop upon the skin.

Myxedema and Hypothyroidism.—George Dock, (*Journal of the Missouri State Medical Association*, May, 1919) discusses some of the common difficulties in the diagnosis of myxedema. This condition is frequently mistaken for nephritis, although the swollen lips, the boardlike hardness of the swelling, the dry, rough skin should put one on guard. Changes in hair growth are like those of senility but come on before the usual senile age; they may be alopecia, especially at the edges of the scalp, and thinning of the outer part of the eyebrows. An important symptom is the sensation of coldness or the sensibility to cold, with actual low internal temperature. The speech is slow and the voice muffled or leathery. The writer's practice is to begin with a small dose of thyroid extract, about one grain three times a day, increasing rapidly until physiological effects appear and then reducing until the desired condition is reached.

Lung Puncture in Treatment of Influenzal Pneumonia.—M. Benaroya (*Lancet*, May 3, 1919) has employed this treatment in a series of forty-one patients, many very seriously ill, with favorable results in all. Following the puncture the temperature may be expected to fall, and in many cases it becomes normal within twenty-four hours. If the temperature should rise again after a few days a new patch of pneumonia may be found and this should be punctured. The rise, however, may be due to heart complications, when the treatment should be directed to the relief of that condition. The puncture is made under conditions of strict asepsis and consists merely in puncturing the consolidated area with a large size needle or trocar which is allowed to remain in the lung for thirty seconds. The seat of election for the puncture is either the axillary or the scapular line, but it may be made elsewhere. The rationale of the method is the production of a local accumulation of polynuclear leucocytes and in that way stimulating phagocytosis through the production of an area of focal irritation in the inflamed lung. It is the same as Kraske's method of treating erysipelas, at least in principle.

Water Hemlock Poisoning.—Mary R Stratton (*Colorado Medicine*, May, 1919) reports the simultaneous accidental poisoning of eleven boys from eating the root of the water hemlock, two of the cases proving fatal. The symptoms began with acute cramp or severe pain in the stomach, vomiting, diarrhea, and these were soon followed by the most violent general convulsions and unconsciousness. The convulsions were tonic and were accompanied by cyanosis and frothing at the mouth. In the more severe cases the convulsions were repeated so frequently as to be almost continuous. The treatment which seemed most effective was immediate lavage or the administration of an emetic to remove any remaining portions of the root, the use of hydrated chloral, chloroform, or morphine to control the convulsions, and the administration of stimulants and purgatives. Apomorphine was found to be the best emetic. The author reviews the entire subject of water hemlock poisoning clearly and comprehensively, giving a good description of the plant, its distribution, and bringing together all cases reported in Colorado during 1914.

Diagnosis of Retropharyngeal Abscess in Children.—H. E. Irish (*Illinois Medical Journal*, May, 1919) states that the difficulty of making a satisfactory inspection of a small child's throat is a factor in the failure to diagnose this condition. Retropharyngeal abscesses divide themselves into three classes from an etiological standpoint; tuberculous cervical caries, the lodgment of foreign bodies in the pharyngeal mucosa, and catarrhal rhinitis or pharyngitis of grippe, influenza, scarlet fever, diphtheria and measles. Formerly regarded as a cellulitis, it is now pretty generally admitted that they are really an adenitis of the retropharyngeal glands. These glands have as afferents almost all the collectors coming from the mucous membrane of the nasal fossæ and the cavities connected with the nose. Salient points aiding in the diagnosis are an antecedent history of an inflammation in a tissue tributary to the retropharyngeal glands; a cry resembling the quack of a duck; difficult breathing and swallowing; noisy breathing; sometimes orthopnea; dry, hacking cough; holding of the head erect and backward. Examination of the throat is best made in these cases by standing directly behind the child, which is held in a sitting position, and then with a minimum amount of tongue depression the examiner can look down just past the edge of the upper incisor teeth to the pharynx. Palpation may be done in the same position of all concerned and then the finger must be passed quickly to the posterior wall of the pharynx and quickly withdrawn as the child will gag, vomit, or become cyanosed if the examination is prolonged. The diagnosis will not be so frequently missed if this technic for throat examination is observed and it is remembered that these abscesses are comparatively frequent in children under three.

Intussusception of Transverse Colon.—G. Nyström (*Uppsala Läkareförenings Förhandlingar*, January 20, 1919) reports a case of acute intussusception of the transverse colon, commenting that while the majority of intussusception cases occur in children and take their origin from the ileocecal region, the infrequency of colon invaginations in adults as compared with children is a matter of record, and he cites Leichtenstern, who in 743 cases found that only 10.7 per cent. of the total number of cases were colon invaginations occurring in adults over twenty, while Weiss found that of 321 cases twenty-seven per cent. were colon invaginations in those past the age of puberty, sixteen per cent. of these being acute and eleven per cent. chronic. The patient, a man of thirty-eight, heretofore well, presented the symptoms of steady pain over the symphysis pubis, diarrhea with increasing admixture of blood, vomiting and dysuria, a distinct tumor being noted to the left of the umbilicus. The case went to operation on the fourth day and the condition revealed was an extensive invagination of the end of the transverse colon and a part of the descending colon, the apex of the intussusceptum reaching down into the upper rectum, where it had become very much engorged and adherent, so that its liberation was accomplished with some difficulty. To prevent recurrence the gut was enveloped in the omentum and sutured fast. Con-

valescence, though marked by high temperature the day after operation, proceeded to complete recovery. The author raises the question as to the cause of the dysuria, which was a prominent feature of the case, whether the pressure of the rectum with its invaginated contents could be responsible, but he considers this theory as hardly tenable, and is forced to explain the urinary inhibition as being of reflex origin.

Treatment of Hemorrhagic Accidents in Hemophilia.—M. M. Escudero (*Cronica Medico-Quirurgica de la Habana*, January, 1919) divides the treatment into different sections. Prophylactic methods consist in the avoidance of every injury, outdoor life in mild climate, hydrotherapy and a milk and vegetable diet. The anemia should be combatted by mercury and arsenic. Preparatory treatment for operations consists in giving remedies to shorten the coagulation time of the blood, as for instance, calcium chloride in doses of two to three grams three times a day for six to eight days. Symptomatic treatment: Small hemorrhages may be controlled by pressure, large ones by compresses of antipyrin, adrenalin, or peroxide of hydrogen. If the wound is deep tampons may be used of a solution of calcium chloride of six per cent. strength, or of sterilized gelatine. Other measures are the internal administration of calcium chloride, ergotin, and hepatic extract; the intravenous injection of animal serum should be used in grave cases, also blood transfusion. Hemorrhages after dental extraction may be treated by tampons of iodine, tannic acid, or adrenalin and by cauterization.

Tests of the Functional Capacity of the Circulation.—Morris H. Kahn (*American Journal of the Medical Sciences*, May, 1919) made comparative functional tests of the circulation in 233 cases, including the normal, the various tachycardias, sinus bradycardia, thyrotoxic conditions, and neurocirculatory asthenia. The normal changes of pulse rate and blood pressure are presented in detail and are used as standards for comparison both graphically and in the individual analyses. The characteristic finding in simple tachycardia, in compensated mitral regurgitation, and in sinus bradycardia, is the absence of any effect upon, or only very slight increase of the pulse rate after exercise. In the thyrotoxic heart the characteristic effects are marked instability of the pulse rate, with great increase after exercise, associated with an instability of the diastolic blood pressure. A similar effect, but less marked, is found in neurocirculatory asthenia, in which it is noted that the thrill disappears when the relationship of the apex beat to the chest wall is disturbed or distorted on auscultation. The tremogram is recorded as a differential point between neurocirculatory asthenia and thyrotoxic conditions. Hypertonicity of the heart muscle is the physiological basis of the cardiac signs in neurocirculatory asthenia. Thyrotoxic conditions and nephritic hypertension lessen the functional circulatory capacity. Aortic regurgitation and congenital heart lesions give fairly distinct features, but further studies along the lines indicated are suggested to establish the results in congenital heart troubles.

Axillary Dullness in the Diagnosis of Pleural Disorders.—G. Mouriquand (*Presse médicale*, March 24, 1919) calls attention to the utility of percussion in the axilla and infraaxillary region in the early diagnosis of certain pleural conditions. Metapneumonic pleurisy was at times detected in the serous stage by this means, one or two days before the process became purulent. The lives of some patients were saved, furthermore, through the detection of purulent effusions previously overlooked because of the absence of symptoms. From experience in over a thousand cases, the writer asserts that, given posterior thoracic dullness, axillary or even infraaxillary dullness should direct attention to the possibility of an effusion or adhesive process in the pleura. In acute or subacute chest affections, dullness in the axilla, i. e., above the transverse nipple line, indicates in over three fourths of all cases the presence of fluid, especially when the level of axillary dullness is higher than that posteriorly. Infraaxillary dullness alone indicates, under similar conditions, the presence of fluid in about one half of all cases. Observation of axillary dullness should always incite the practitioner to the performance of exploratory puncture which, by revealing effusion early, permits of prompt surgical treatment where infection exists. The puncture should be done first in the posterior dull area, then in the axillary and infraaxillary area. In some purulent effusions, with or without accompanying pulmonary disease, axillary puncture alone gave positive results. In such instances, in which the pleura had early become adherent at the base but remained free laterally, the infraaxillary type of drainage recommended by Bérard gave promptly successful results.

Experimental Studies with Small Doses of X Rays.—S. Russ, Helen Chambers, Gladwys M. Scott, and J. C. Mottram (*Lancet*, April 26, 1919) show that exposure of a rat to the influence of even rather small doses of the x ray leads to a rapid and marked diminution of the lymphocytes present in the blood. This diminution is, however, not due to a destruction of the lymphocytes, nor to a local effect upon the tissues. When very small doses are given repeatedly at intervals of a fortnight a decided lymphocytosis can be produced in the rat. When Jensen's rat sarcoma is inoculated into rats which have been previously immunized, the failure of the sarcoma to grow is associated with some special activity on the part of the lymphocytes, and if such immune rats be given a dose of x rays sufficient to produce lymphopenia the tumor can be made to grow. The lymphocytes therefore play an important part in determining whether inoculated sarcoma cells can grow into a tumor, but the number of the lymphocytes present in the circulation is not the important feature. Some mechanism is apparently present in the immune animal which brings the lymphocytes to the sarcoma, and this mechanism is absent in the normal animal. Thus rats with extremely high lymphocyte counts can grow the tumors, while those with normal counts may be immune. Small daily doses of x rays do not cause much increase in the lymphocytes, but their use is followed by the development of a

marked degree of immunity to the growth of implanted sarcoma cells. Thus the x rays are capable of producing diametrically opposed effects: Large doses favor the growth of the tumor; small daily doses may overcome the growth of the tumor by producing an immunity. These experiments would seem to indicate that in man when a tumor is given an adequate dose for its destruction, the x rays may be acting on the blood at the same time in such a way as to lower natural resistance and thus favor the growth of metastases, especially if the dose is repeated at intervals of two weeks. It may be possible that by using small doses of the rays at frequent intervals the resistance of man can be increased, but neither of these possibilities has yet been proved to be the fact in man.

Hemostasis in Resection of Portions of the Liver.—Leonard Freeman (*Colorado Medicine*, May, 1919) records a case in which he obtained perfect hemostasis during and after resection of a portion of the liver by using strips of fresh fascia lata obtained from the same patient. The strips were cut about the width of the finger, folded once, and were used to replace tape. The strips were pulled through the organ from behind forward by means of long alligator forceps and were then firmly tied. Such strips not only are flexible, but they are very strong, tie easily, check hemorrhage from the places through which they are pulled, and do not require removal. To guard against the fascial strips slipping off the smooth stump of the liver it is well to anchor them by a few catgut stitches passed through the capsule and tied over the strips.

Ten Thousand Recruits with Doubtful Heart Conditions.—S. Russell Wells (*British Medical Journal*, May 3, 1919) concludes from this extensive investigation that the two important causes of aortic insufficiency in men between the ages of eighteen and forty-one years are rheumatic fever and strain. There is no definite correlation between the aortic lesion and syphilis, tonsillitis, scarlet fever, diphtheria, pneumonia, gonorrhea, or growing pains, and the evidence is against any relation to influenza. The results suggest that chorea may be a cause, but the figures studied were too small, and the history of rheumatic fever in those who had had chorea was so frequent that the relationship of the latter could not be definitely determined.

Spinal Injury with Retention of Urine.—P. N. Vellacott discusses (*Lancet*, May 3, 1919) the danger to life of infection of the urinary tract in these cases and reviews the several methods of dealing with the retention of the urine. He advocates the practice of manual expression of the distended bladder as the most satisfactory in avoiding infection and promoting the development of the "automatic bladder," but he calls attention to several instances of rupture of the viscus by this method. He has found that temporary paralysis of the bladder sphincter by the passage of a large instrument greatly facilitates subsequent expression of the urine and he suggests its utilization in all cases in which difficulty is encountered.

A New Pathogenic Coccobacillus.—Debré and Hundeshagen (*Presse médicale*, March 13, 1919) found in a case of purulent pleuritis, probably influenzal in origin, an unusual coccobacillus, both in the pharynx and pleural pus. In pus the organism resembled the Pfeiffer bacillus, but in the blood of inoculated animals exhibited the spindle shape, with clear centre and stained extremities, characteristic of the pasteurilla organisms or of the plague bacillus. The organism proved extremely virulent in laboratory animals and is undoubtedly pathogenic in man, giving a positive serum diagnosis and Bordet-Gengou reaction.

Fluoroscopy of the Cerebral Ventricles.—Walter E. Dandy (*Bulletin of the Johns Hopkins Hospital*, February, 1919) reports very satisfactory results from the study of the lateral cerebral ventricles, which, when filled with air, can be well seen under the fluoroscope. To obtain the best results, the patient should be in a recumbent position and the vertical rays should be used. Twenty-five patients were studied by this method, with as good results in adults as in children. Cases of hydrocephalus may be diagnosed at all stages of development by the fluoroscope. One case is described in which the diagnosis of ventriculocele, or false ventricular hernia, associated with an advanced hydrocephalus, was established by this method of diagnosis. In this child the air from the ventricle was seen to pass directly into the swelling. The diagnosis was later confirmed by autopsy. The results obtained by fluoroscopic study and ventriculography are very similar, and following the injection of air into the ventricles both methods should be employed.

Streptococcus Oral Sepsis.—Nathaniel Bowditch Potter, Samuel Bradbury, and Archibald McNeill (*Chicago Medical Recorder*, April, 1919) call attention to the rapidly accumulating evidence of the importance of focal streptococcal infections in a wide range of diseases, but they emphasize the difficulty in fixing the responsibility upon the elusive organism. With the hope of improving specific diagnosis in these conditions they have subjected a large number of patients to examination by a complement fixation test, the technic of which is exactly the same as that of the classical Wassermann test, except that the antigen is made up of as many different strains as possible of streptococci isolated from various clinical cases of infection. The ice box method of binding is employed, since it gives positive results in greater dilution than does the incubator method. This test proved definitely positive in the great majority of cases suspected or proved to be harboring focal infections by the streptococcus and were proved not to give cross fixation with other types of pyogenic organisms. Several patients suffering from such infections were observed for two years or more, during which time they very largely recovered or were materially improved as a result of the elimination of the foci of chronic infection. Further studies were made upon a series of these cases of focal infection and it was found that there was nothing in the blood picture which was either abnormal or characteristic. The only suggestive feature was the frequent occurrence of a high normal proportion of lymphocytes.

Influence of Temperature on Phagocytosis.—Madsen (*Presse médicale*, March 10, 1919) studied *in vitro* the phagocytic activity of leucocytes from different animals and human subjects under varying conditions. In general, at a given temperature phagocytosis, after a short period of incubation during which it was nil, progressively increased, following a regular curve. The lower the temperature, the more prolonged the incubation stage and the less pronounced the rise in phagocytic activity. As the temperature is raised, the stage of incubation becomes shorter and the rise of phagocytic activity is accelerated, up to an optimal point which coincides with the normal temperature of the body. In subjects with beginning fever, the optimal point is always the temperature existing at the moment the leucocytes have been collected. In cold blooded animals there is no optimal temperature for phagocytic activity.

Births, Marriages, and Deaths.

Born.

ALEXANDER.—In Park Ridge, N. J., on Saturday, June 14th, to Dr. Samuel Alexander and Mrs. Alexander, a daughter.

LEWIS.—In Brest, France, on Monday, May 19th, to Dr. Augustus T. Lewis, Captain, Medical Corps, U. S. Army, and Mrs. Lewis, a daughter.

Married.

EILER-SULLIVAN.—In Philadelphia, Pa., on Thursday, April 10th, Dr. Ernest E. Eiler, Captain, Medical Corps, U. S. Army, and Miss Mabel Marie Sullivan.

UNGER-KLEINMAN.—In New York, N. Y., on Sunday, June 1st, Dr. Leon Unger, of Chicago, and Miss Nina Kleinman.

SANDERSON-HIGGINS.—In Washington, D. C., on Wednesday, June 11th, Dr. Richard Oulahan Sanderson, Captain, Medical Corps, U. S. Army, and Miss Marie Higgins.

Died.

BECKER.—In Philadelphia, Pa., on Sunday, June 8th, Dr. T. Henry Becker, of Bluefield, W. Va., aged thirty-four years.

BERRY.—In Ashley, Ill., on Tuesday, May 27th, Dr. Sumner G. Berry, aged fifty-two years.

BURNS.—In Philadelphia, Pa., on Sunday, June 8th, Dr. William A. Burns, aged seventy-six years.

GREENLEAF.—In Gardner, Mass., on Friday, June 6th, Dr. John Ruggles Greenleaf, aged seventy-eight years.

HARTVIGSON.—In New York, N. Y., on Friday, June 6th, Dr. Max Hartvigson, aged sixty-five years.

HOTTLE.—In Wayne, Pa., on Sunday, June 8th, Dr. Edward T. Hottle, of Philadelphia, aged seventy-one years.

LINDEMAN.—In Atlantic City, N. J., on Thursday, June 12th, Dr. Edward Lindeman, of New York, aged forty years.

LUTZ.—In Philadelphia, Pa., on Sunday, June 8th, Dr. Hiram L. Lutz, aged forty years.

NAGLE.—In New York, N. Y., on Saturday, June 14th, Dr. John T. Nagle, aged seventy-eight years.

PAYNE.—In Bozeman, Mont., on Wednesday, June 4th, Dr. William Clark Payne, of Marshalltown, Ia., aged ninety years.

PHILIP.—In Stamford, Conn., on Wednesday, June 11th, Dr. Rosavelle Gardner Philip, aged seventy-two years.

SMITH.—In Folsom, Cal., on Tuesday, May 27th, Dr. H. Watson Smith, aged seventy-four years.

STOWELL.—In Rochester, N. Y., on Sunday, June 8th, Dr. Henry Fowler Stowell, aged seventy-one years.

WATERS.—In New York, N. Y., on Tuesday, June 10th, Dr. Joseph Waters, aged fifty-two years.

WHELPLEY.—In Howard City, Mich., on Wednesday, May 28th, Dr. Jay D. Whelpley, aged fifty years.

WILLIAMS.—In Spring Garden, Ill., on Wednesday, May 28th, Dr. Silas L. Williams, aged eighty years.

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Original Communications

FACTS AND FANCIES IN PSYCHOANALYTICAL TREATMENT.*

BY A. A. BRILL, PH. B., M. D.,
New York.

There are many reasons why I selected at this time the topic of facts and fancies in psychoanalytical treatment. When I published my first paper on psychoanalysis in 1908 (1) I little anticipated what would happen in the short space of a decade. To be sure, Professor Freud apprised me of the dangers and vicissitudes to which one would undoubtedly be exposed who would be his disciple and translator, but in my enthusiasm, and I might say ignorance, I could not take his admonitions seriously. Having been thoroughly disappointed with mental medicine and particularly with its therapeutics results, Freud gave me new life and hope. I felt like a blind man who suddenly began to see, nor did all the predictions given by Professor Freud and others come true. From the very beginning hostile criticism was tempered by mild praise, and it is pleasing to note that on the whole we were favorably received, not with open arms—for to be sure we had our opponents some of whom still exist—but somehow their impressions remained superficial. Psychoanalysis has been flourishing luxuriously in this new land. The old timers still look at us with eyes askant; their calm dignity has been more than ruffled by our seemingly bold statements but no one seems to care. The open minded examine their cases psychoanalytically and are amply rewarded for it, and even those who state that they disagree with us now pay attention to dreams and to most of the other Freudian mechanisms, although they are breaking their heads to camouflage them under peculiar names and terms. The purely psychological part of Freud's work has been taken up by nonmedical workers and their application of it to literature, psychology, sociology, and other fields has already borne rich fruit. I do not think that I exaggerate when I say that no other subject in medicine has made greater strides in ten years, judging by the constantly increasing interest as displayed in medical literature. In 1908 there was no work on psychoanalysis available to the English reader. Now we have a good library of Freud's original works as well as those of his pupils, which I am pleased to say, are widely read.

Many of our former opponents are now strict adherents. Works on neurology and psychiatry, even of the most orthodox type, are forced to take note of us; we are constantly discussed at dinner parties; we are parodied in the theatre and the press; and quacks, in the form of psychotic old maids and disappointed litterateurs are reaping a rich harvest through psychoanalytical treatment. Last but not least I very often see patients who were psychoanalytically studied by their family physicians and many of the patients were certainly benefited by such management.

Such a rapid development is bound to produce some confusion, and indeed I am often astounded and chagrined at the psychoanalytical material that I hear and read. Even persons of the highest standing in neurology and psychiatry, who are sympathetic to psychoanalysis, often show a marked ignorance of its basic principles. Thus of late when one reads so much of the war neuroses many writers see fit to compare the relative merits of the different treatments, and a number of them have come to the conclusion that suggestion, of the psychic or electric kind, produces better and quicker results in those cases than does psychoanalysis. Without discussing the permanence of such cures I wish to say that Professor Freud expressly stated over and over again that psychoanalysis does not lend itself to the treatment of any acute states; and any one who understands the mechanisms of acute neurotic outbreaks readily realizes why psychoanalysis would be as impotent in removing acute states of shell shock as it would be in removing hernias. Psychoanalytical treatment has its limitations. The patients selected for psychoanalysis must not only be of normal intelligence and of good character, but they must have passed over their acute attacks. (From my records up to 1916, I found that out of eleven patients sent to me for psychoanalytic treatment only one was really a suitable case for it.) As a matter of fact I rarely see an acute case, say, of a few weeks' or a few months' duration, usually it is a question of years, sometimes of twenty or thirty years and longer. I do not mean to say that one who treats psychoanalytically should take no other cases. The principles of psychoanalysis can be applied in any case, and in the trained hand will always yield good results in so far as insight into the case is concerned, but we should be careful to distinguish between such pa-

*Read before the New York Neurological Society on April 1, 1919.

tients and those who are selected for treatment with the object of curing. For years I have treated psychoanalytically cases of depression which ordinarily belong to manic depressive insanity. I have had very good results with some and no result whatever with others. I can say the same of the incipient precoxes. But in taking such patients for treatment the relatives should be told the exact truth of the situation. The treatment certainly does no harm if given by those trained in psychiatry and psychoanalysis. The following case I consider typical of the patients who usually come for psychoanalytic treatment:

CASE I.—At five years John, an only son, a bright, nervous child, had been treated for night terrors by the family doctor. The symptom subsided but never entirely disappeared, and at the age of from six to seven years John began to show all sorts of phobias, e. g., he was morbidly afraid of being left in the street or in the park.

When he was nine the well known neurologist X. was consulted because the patient was afraid to go to school and evinced many distinct phobias, as well as stomach trouble and headaches. Dr. X. stated that the patient would outgrow these symptoms and recommended that he be treated like any other boy; that no attention should be paid to his complaints, and that he should be forced to do the very things he feared. He also prescribed tonic treatment and a very strict diet. The treatment was so strictly followed by the parents that on one occasion when the patient had an attack of scarlet fever no attention was paid to his complaints until he actually collapsed, when it was discovered that he had a temperature of 105° F.

At the age of fourteen, there was another acute exacerbation of fears and obsessions, and Dr. X. ordered a private school, massage and electricity and gave sedative medicaments. The patient became calmer but he was afraid of poisons and filth (mysophobia) which he saw everywhere.

At eighteen Dr. X. sent the patient to Europe to Bad Rippoldsau because he thought that all his troubles were due to anemia. The patient was almost drowned in ferruginous fountains and received a good supply of iron pills to take with him at the end of treatment, but the symptoms remained unchanged. John showed at that time a well flourishing compulsion neurosis.

At twenty the family became dissatisfied with Dr. X., and took John to Dr. Y., another famous neurologist. Dr. Y. for the first time suggested a sanatorium, which only accentuated the symptoms, as the patient became convinced that he was really insane. Dr. X., to whom he returned resorted to a new treatment, hypodermic injections of "tonic serum." As this gave no result John finally left Dr. X. and consulted Dr. Z., another well known neurologist, who put the patient to bed for six weeks and gave him high frequency electric massage and later high rectal enemas.

Beside the neurologists mentioned John was seen by numerous specialists in other fields and finally came to me at the age of twenty-nine years. This patient was under my care for nine months and has been perfectly well for over five years.

This case is typical of the kind referred for psychoanalysis, and I feel that very few if any such cases can ever be cured by any other method. The chronic psychoneurotics of normal mental makeup furnish the best cases for psychoanalytical therapy, and some of the most profound hysterics and compulsive neurotics have been cured after every other form of therapy has been tried in vain.

As it is impossible to go into the details of a single case I will mention briefly a few of this type of patient who still report to me from time to time.

CASE II.—Mr. W. V. was referred to me by Dr. S. Reynolds and Doctor Hayden, in 1909. He was suffering from a mixed neurosis, the chief symptom being psychosexual impotence. He was discharged as cured after five months treatment and has remained well ever since.

CASE III.—Mr. V. was referred to me by Dr. Frederick Peterson, in 1910. He was a chronic sufferer (compulsion neurosis on a homosexual basis) but made good recovery after about a year's treatment.

CASE IV.—Miss H., a chronic hysteric, was referred to me by Dr. Israel Strauss, in 1911. For years she had been totally incapacitated through severe headaches and disturbances of locomotion for which an organic origin was suspected. After about six months of psychoanalytical treatment she was discharged as cured. She has been well ever since.

CASE V.—Mr. K. C. was referred to me by Dr. Morton Prince, in 1911. This patient suffered from a compulsion neurosis on a homosexual basis. After about seven months of treatment he left me as cured. I saw him last in 1916 when he reported to me that he was perfectly well.

CASE VI.—Mr. D. was referred to me by Doctor Stiles and Doctor Broad, in 1914. This patient had been ill for over four years having suffered from a severe mixed neurosis, which incapacitated him altogether. He left me as cured after about six months' treatment and has remained perfectly well since.

I selected those cases at random from my records—all of them show chronic histories similar to that of John mentioned above. On looking over the cases sent to me during the first years of my practice I found that over sixty per cent. were referred just because the patient spoke of sex or the doctor suspected it. This of course is no accident. In the beginning psychoanalysis was synonymous with sex, and even today most physicians still think that psychoanalysis consists of sexual discussions with the patients. What an enormous amount of nonsense has been said and written about sex and psychoanalysis! I feel that the whole trouble lies in the fact that very few physicians have received an adequate education in biology and sexology. It is taken for granted that whatever one finds of sex in psychoanalytical literature was entirely discovered by Professor Freud. Most physicians never heard of perversions and inversions until they read Freud. As a matter of fact Freud based his interpretation largely on the findings of sexologists like Havelock Ellis and others. To understand the strange manifestations frequently found in men,

e. g., abnormal fancy formation, and the actual perversions, etc., one has to know that the sex impulse consists of many components and partial impulses which are congenital and develop with the individual; in other words, one must realize that to the cultured person sex stands for much more than just the sexual act.

Some years ago a patient was referred to me because of serious difficulties with his eyes. He had been treated for years by many oculists who finally told him that he was suffering from a nervous affection. He was in constant fear of becoming blind. Now it would be quite impossible to give the analysis of this interesting patient who has been well for over two years. His neurosis was the negative of the perversion. In fact he was constantly fluctuating between his neurosis and his perversion. He either spent his time as a *voyeur*, or indulged in the most extravagant fancies of sexual exhibitionism, or he feared blindness. But the neurosis was formed on the basis of sexual looking which is a part of the sex impulse and perfectly normal within normal limits.

Conceived in this broad sense one has no difficulty in talking about an infantile sexuality and one can even state boldly that no neurosis, even in a child, is possible in a normal sexual life. To illustrate, a child aged three and a half, continued to be very nervous and resistive for weeks and no sedatives or other therapy helped. As I had no fear in assuming that as the organic origin had been excluded, the trouble must be sexual, I soon found the following facts. The child was the younger of two; she became nervous very soon after the parents had separated and the mother's place was taken by a governess who could not possibly supply her the love she was accustomed to receive from her mother. In our language the child had a floating libido detached from her mother which needed adjustment. The child was cured as soon as the father consented to allow her to be with her mother every other day.

A great many patients sent to us do not require psychoanalysis and could easily be cured if the family physician knew something about the cause and effect of psychosexual disturbances. A young married woman complained of irritability and depression as well as of many hypochondriacal symptoms. On closer investigation she stated that by far the most distressing symptom was sexual fancies which almost constantly obsessed her. She entertained genuine love and respect for her husband, she considered herself happily married, but the sexual fancies always referred to strange men. To my question she stated that marital relations were very infrequent, only once every few months. I interviewed her husband, an intelligent person of academic education, and he explained the rarity of his marital activities as being due to a fear of losing too much blood. He calculated that a certain amount of seminal fluid is equal to so many quarts of blood, and as he was a brain worker he could ill afford to lose so much blood. (This knowledge was culled from a lecture on sex at college.) Incidentally it may be mentioned that like his wife he showed a marked sexual hyperesthesia. The

patient recovered very soon after her husband became convinced that his ideas were foolish.

About two months ago a woman, aged thirty-four, was brought to me by her husband. She showed all the symptoms of acute anxiety. Her chief complaints were insomnia, twitchings in her arm, palpitation, and thumping in the head. She had been treated for over six months by a number of doctors the last being a good neurologist under whose care she had been for over four months. Characteristic of her type she brought copies of the prescription given her by her physicians. I read them with a great deal of interest; the last physician began with sedatives and ended up with a hundredth of a grain of hyoscine b. i. d. The patient insisted that she "did not close an eye" for months. At the second interview when she came without her husband I discovered that for four years she had been carrying on an affair which caused her great mental anguish. She was frigid with her husband but "this party" made a strong sexual appeal to her. In brief there was marked frustrated excitement without any outlet accompanied by a strong feeling of reproach, the typical etiology of anxiety. Her symptoms disappeared a few weeks after she broke her relations with her paramour.

I asked her why she did not tell her last physician about her love affair and her answer was: "Why, I couldn't have talked to him, he is as distant as you are sympathetic." Her answer gave me an ambivalent feeling. I was sorry that nervous patients should still have to entertain fear toward their physician and I was pleased that her relation to me was sympathetic. As you know we always endeavor to bring about a good *rapprochement* between us and our patients, a mechanism which we designate as *transference* and concerning which there is so much misunderstanding.

It is wrongly assumed that an effort is made by the physician to have the patient fall in love with him. Nothing is further from the truth. The mechanism of transference consists in the fact that during the treatment the patient continually applies to the physician hostile and tender emotions which have no foundation in the actual relation, but are derived from the patient's unconscious fancies. This phenomenon is constantly seen in every day life, especially in the practice of medicine. I believe it was Mœbius who showed that even a drug like quinine could react differently on the patient when administered in the same doses by two physicians one of whom is sympathetic to the patient and the other indifferent. Transference is a very delicate mechanism and must be managed with a great deal of tact and skill because no relation between two persons, be they of the same or the opposite sex, can be good if it is invested with a large amount of hostile or tender feelings. This tendency is always found in neurotics who come to us with a floating libido which they are ever ready to fix on some one. They identify us with the good father who spoiled them and expect the same of us or with the rejected lover and treat us accordingly. The same mechanism is constantly found in normal life, upon which is based attraction and repulsion.

and in the insane asylum where the doctor is consciously mistaken for the father, husband or lover and treated as such by the patient. It is my opinion that the moral laws are as strictly observed by physicians practising psychoanalysis as by any other class of persons. We naturally disclaim all responsibility for the actions of quacks who practise psychoanalysis even with the connivance of physicians. They do an enormous amount of harm.

There is one thing I would like to impress upon you, and that is, that it isn't a matter of choice with us to discuss sex with our patients. It is a strange phenomenon that we should still have to repeat that we all have sexual lives which are absolutely interwoven with all our emotions. I feel that Freud has done a very great service to the world just because he called attention to the importance of studying the sex impulse. It would seem hardly necessary to speak of the importance of making a diagnosis in cases sent for analysis, but I am sure that my colleagues will agree with me that very often we are asked to analyze cases that are not psychic. It is therefore essential that one who practises psychoanalysis should have a thorough knowledge of the mechanisms of hysteria and the other psychoneuroses as well as a good knowledge of neurology and psychiatry. I feel that only those possessing such qualifications should prepare themselves for psychoanalytical work.

It would be interesting to give you the many experiences that I had with wrong diagnoses but I will mention just two: About a year ago I was asked by two good internists to take a patient for analysis. They assured me that he was a hysteric and that all his complaints were neurotic. Their diagnosis seemed also to be confirmed by the fact that this patient had once been a patient of mine and undoubtedly was neurotic in temperament. My examination, however, convinced me that his present ailment was organic and I refused to treat him. Only about two months ago he was operated upon in the Roosevelt Hospital. All his symptoms were readily explained by Doctor Peck on the basis of a tuberculous condition of the ileocecal valve. Just one other case: Two years ago a hysterical patient showed all the symptoms of an ulcer of the stomach. She was thoroughly examined by three very competent physicians who made the positive diagnosis of ulcer or ulcers. For about ten days the patient continued to get worse, and two of the physicians, one a prominent consultant and the other a stomach specialist, urged immediate operation. I insisted that we dealt with a case of hysteria, and as another stomach specialist agreed with my diagnosis it was decided not to operate. The patient was out of bed and enjoyed full meals within a week. I could multiply such cases showing the enormous importance of making a thorough diagnosis; very often despite all care mistakes are made. This is particularly true of a class of cases which I have recently described as paraphrenics. They resemble very much the psychoneurotic conditions but their mechanisms are quite different and although they seemingly react to the treatment it makes very little or no impression on them. They are of the paranoid type. I

would therefore urge that those who wish to practise psychoanalysis should first acquire a thorough knowledge of mental conditions. The more I deal with psychoneurotics and psychotics the more it is impressed upon me that they are only an exaggeration of the normal, but then every normal is a potential psychotic. What I mean to say is that following the studies of Hoch and others we know that a personality always reacts to the world in a definite way, it is either of the manic type, or the depressive type, or the paranoid type, or some other recognized mental affliction. In order to be able to analyze a person one should know the normal and abnormal psychic reactions of such a personality; psychoanalysis is therefore no subject to be played with by defective laymen.

There are a great many other points that one could discuss, but I just wished to bring before you those few which I feel have given rise to a great many misunderstandings, hoping that you may be stimulated through a discussion of them to take a keener interest in a subject which is in the strictest sense a part of mental medicine and which deserves your sympathetic encouragement.

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BACTERIOLOGY OF SUMMER DIARRHEA OF INFANTS.*

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In recording the résumé of the bacteriology of summer diarrhea of infants, interesting phases of the question are the study of the bacteriological flora of the normal intestinal canal and the part played by the changes in the food after the breast feeding period, or the period when artificial feeding takes place.

As is well known, the meconium is usually sterile, but after a few hours, ten to eighteen, various bacteria are found in the stools. Meconium in itself is a very poor culture medium, but mixed with agar, a pabulum is formed which serves well for bacterial growth of various species. It has been observed that organisms of the type of *Bacillus coli* appear as early as ten hours after birth, while proteolytic bacteria in the meconium cease abruptly with the onset of the milk stool period. At or about the same time, another very constant organism is found called the *Bacillus bifidus* and this anaerobic bacterium, it is asserted, gains access through the anus of the child, while other organisms as staphylococci and various spore bearing types gain access through the mouth. It is affirmed that the *Bacillus coli* also gains entrance through the anus of the infant. The *Bacillus aerogenes capsulatus* and the *Bacillus putrificus coli* have likewise been demonstrated in the meconium.

It is held that the poor nutrient character of the meconium may be due in part to its inspissation and in part to the relatively high content of bile

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acids, which would tend to prevent the rapid multiplication of invading organisms. It may, therefore, be regarded as possessing physiological functions of restriction instead of being an indifferent substance, excluding numerous foreign types of bacteria, and the encouragement of those organisms which are destined to become permanent inhabitants of the nursing's digestive tract.

That the intestinal contents can be kept sterile has been demonstrated by different observers, and one experiment by Nuttall and Thierfelder may be quoted. They removed a fetus from a pregnant guineapig under aseptic conditions, kept it in a sterile atmosphere, and fed it upon sterilized milk every hour day and night. The guineapig consumed 330 c. c. of milk and at the end of eight days was as active and healthy as other guineapigs of the same age. The animal was sacrificed and a careful bacteriological examination of the intestinal contents failed to show the presence of any form of microorganism.

These observations extended over a very short time and can hardly be held to prove that bacteria are essential or nonessential to the maintenance of prolonged health. Kuster was able to raise lambs under sterile conditions up to thirty-five days and the animals were said to have developed normally. The studies of Levin on animals of the Arctic region, as the polar bear, seals, reindeer, eider ducks, and penguins showed the digestive tract to be in most instances entirely sterile; while in one white bear and ten seals very small numbers of bacilli, resembling the colon bacillus, were found. It is said that the intestinal canal of the parrot is comparatively free from bacteria. Schottelius found that chickens fed on sterile food were retarded in growth and showed normal growth when fed on food containing bacteria. Experiments conducted by Madame Metchnikoff on tadpoles and by Moro on the larvæ of the turtle led to the conclusion that intestinal bacteria are necessary to normal nutrition.

A large proportion of the organisms obtained from the feces of the nursing child are gram positive and these are mostly made up of *Bacillus bifidus* of Tissier and the organisms known as *Bacillus acidophilus* of Moro. The latter grows readily on a strongly acid medium. In addition to these two organisms the *Bacillus aerogenes capsulatus* is also found while the chief gram negative bacteria are represented by organisms of the *Bacillus coli* and *Bacillus lactis aerogenes* groups. It is also possible that another gram positive organism described as a diplococcus, which frequently forms in chains, is the same organism described by Escherich, Tavel, Eguet, and Besson, which Thiercelin designated as the enterococcus. It has also been termed the micrococcus ovalis.

It is very probable that on their way through the large intestine many bacteria undergo autolysis and disappear. Between the lower ileum and anus and the ileocecal region more bacteria are present capable of being cultivated than in the contents of the lower colon. It is also known that in the duodenum few bacteria are found owing to the short time food remains in this part of the intestinal

tract. The reaction of the feces seems to play very little if any part as to the number of bacteria found in the stools. Taking *Bacillus coli* as the most common intestinal organism, it appears that its presence is essential to the life of the individual mammal as a defense against bacterial foes which it is impractical to wholly exclude from the digestive tract, and not as an agent in directly facilitating the processes of digestion in the narrow sense. In some other conditions the *Bacillus coli* multiplies to such an extent that it proves harmful, in promoting fermentation and putrefaction, especially if the intestinal contents are alkaline and peptones be present.

It is well known that the initiation of putrefactive decomposition in the digestive tract, as elsewhere, depends very largely, though probably not exclusively, on the activities of obligate anaerobes and that an important portion of the digestive tract is most of the time under partly anaerobic conditions. The observation of Bienstock proved this in the case of *Bacillus putrificus coli* which alone is able to break down proteids and the same can also be said of *Bacillus aerogenes capsulatus*. These experiments were confirmed by Rettger and by Herter who, in addition, demonstrated that the ordinary facultative anaerobes such as *Bacillus lactis aerogenes*, *Bacillus coli*, *Bacillus alcaligenes fetidus*, streptococci, and *Bacillus proteus vulgaris* were incapable of attacking native proteids. These organisms, however, attack albumoses and peptones and symbiotically act with the strict anaerobes.

Again, it may be mentioned that bacteria may penetrate the healthy mucous membrane as recorded by Ficker, Hilgermann and Ravenel, and that the factors of hunger, errors in diet, and fatigue facilitate this process of penetration. It has also been proven experimentally that hunger or starvation plays a part in the number of bacteria present. Studies by Cushing and Livingood, and by Sisson on full grown dogs and puppies showed that fasting decreased the number of organisms in the intestinal canal. Kendall also found this to be the case in the instance of Levanzin after the thirty-first day of his fast. It is also a well known fact that purely saprophytic organisms may elaborate toxic substances and when these substances or organisms are taken into the intestinal canal may cause disturbances as diarrhea or ileocolitis. It must be borne in mind that ordinary commensal organisms may elaborate "aggressins" which completely paralyze the natural protective action of the body cells, and thus remove the most important obstacle to the invasion of the bacteria which previously had led a saprophytic existence. When other foods are taken by the infant than the breast milk, it is then that digestive disturbances are pronounced by the direct implantation of various bacteria in foods or their products, or the splitting up of carbohydrates.

Regarding the specific action of any one bacterium, as the cause of summer diarrhea of infants or ileocolitis, it appears that there is no specificity, as in various epidemics studied the bacteriological findings are not at all constant. Observations made

a number of years ago by Booker, showed the presence of seven different bacilli, closely resembling the colon bacillus, yet differing in some slight biological characteristics from the typical *Bacillus coli*. Jeffries also found organisms of the colon and lactis aerogenes groups predominating in a series of cases. Finkler and Prior obtained a spirillum, which bears their names, in cases of cholera nostras which they thought was specific for this disease. These studies have been confirmed by some and have not been proven by others. Some early observers even believed they found Koch's comma bacillus of Asiatic cholera present in summer diarrhea associated with Finkler and Prior's spirillum.

A number of investigators report that *Bacillus Welchii* was recovered in cases of ileocolitis or diarrhea, and in feeding experiments with this organism, diarrhea was excited in puppies and kittens. However, other authorities, among them Hewlett, Sittler, Metchnikoff, Simonds and Korentchevsky do not agree with this view. The latter observer feeding full grown dogs for a period of eighty-six days on cultures of *Bacillus Welchii* was unsuccessful in producing diarrhea in these animals. As is well known the *Bacillus Welchii* is a ubiquitous organism and is frequently mentioned as occurring in the stools of perfectly healthy individuals.

Among those who believe that the *Bacillus Welchii* is the exciting organism of diarrhea may be mentioned Kendall and his fellow workers who on the occasion of several epidemics found the organism in 108 instances of 711 studied. Sylvester and Hibben examined the stools in 122 cases of gastrointestinal disturbances and after repeated tests found *Bacillus Welchii* in 100 of these, while only thirty-eight were clinically cases of ileocolitis.

Duval and Bassett (1902) in forty-two typical cases of summer diarrhea of infants occurring in a sanatorium in Maryland succeeded in isolating the *Bacillus Shiga* from the stools and from scrapings from the intestinal mucosa at autopsy. The organism was said to have been present in large numbers in acute cases, and were secured with difficulty from mild or chronic cases, and were identical in morphology, specific serum reactions and cultural reactions with the bacillus dysenteriae, isolated from cases of acute dysentery in Japan by Shiga.

Wollstein (1903) in 115 cases of infantile diarrhea was able to isolate the *Bacillus dysenteriae* (acid type of Flexner) in thirty-nine. Each case that showed blood and mucus yielded this organism, which was agglutinated by the Flexner and Harris serum in dilution up to one in 3,000, while the Shiga serum only agglutinated the organism in dilution of one in 200. Holt and Flexner decided that ileocolitis was caused by the acid type of dysentery bacillus of Flexner and Harris and that infection by the *Bacillus dysenteriae* of Shiga was uncommon. Kerley believes that where blood and mucus are present in the stools a large proportion of the cases are due to the dysentery bacillus.

Morgan (1906) in England investigated fifty-six cases and isolated and studied eighteen different types of bacteria from the stools. The most frequent organism met with was a bacillus resembling the bacillus of hog cholera in some respects, yet

differing from it in essential particulars. This organism, which was described as Morgan's No. 1 bacillus, was found in twenty-eight cases or forty-eight per cent. Organisms resembling in some respects the Flexner-Harris type of bacillus were found in eight cases, and one resembling the Shiga bacillus in four cases. Bacteria resembling the *Bacillus enteritidis* of Gaertner and paratyphoid bacilli were encountered in a few, while streptococci were observed in a small number. Morgan in feeding experiments upon animals succeeded in producing diarrhea and subsequent death in eighteen. The organism, bacillus No. 1, was recovered from the spleen in pure culture and in some cases from the heart's blood. Intravenous and intraperitoneal inoculations were without effect, showing that the atrium of infection was the intestinal tract. In another study one year later (1907) Morgan isolated the same organism, again succeeded in producing diarrhea in animals, and also recorded that it proved accidentally fatal to a goat. He concluded by stating that the type of summer diarrhea in America differs clinically and bacteriologically from that in England.

Kendall found the Hiss Y type of dysentery bacillus in seventy-five per cent. of fifty-two clinical cases of ileocolitis; Ten Broeck and Norbury isolated a mannite fermenting type of dysentery bacillus in sixty-eight per cent. of seventy-nine cases studied, while Sisson and Norbury isolated the Hiss Y type of dysentery bacillus in fifteen out of sixteen cases of clinical ileocolitis. Hayden, Speed, and Koontz, quoted by Sisson, fed cultures of the Hiss Russell type of dysentery bacillus to kittens and produced not only a diarrhea with pus and blood, but positive agglutinins were found in the blood. My own observations include about fifteen cases and in two *Bacillus pyocyaneus* was obtained in almost pure culture and in two others an almost pure culture of *Bacillus prodigiosus*.

SUMMARY.

As a number of the organisms isolated in cases of diarrhea in infants are found as commensal organisms, none of these should be spoken of as the specific bacterium of this condition.

As the acid type or fermenting type of the dysentery bacillus of Flexner and Harris and the Hiss Y type of the dysentery bacillus are rarely if ever found in the stools of apparently normal individuals, and have been found in a large proportion of cases of diarrhea in infants, it appears at this time that these strains of the dysentery bacillus have been proven to be responsible for the majority of cases of the disease under discussion.

Where there is an increase of colon bacilli, *Bacillus aerogenes capsulatus* and the proteus group of organisms, they probably play a part as factors in producing the milder forms of diarrhea met with by the ordinary practitioner.

In cases where the *Bacillus Welchii* is abnormally increased in numbers, relatively large amounts of butyric acid are formed from saccharolytic fermentation, and this in turn forms the highly irritating compound, ammonium butyrate. This latter substance is undoubtedly responsible for the colic and serous movements.

OCCURRENCE OF SYPHILIS AS EVIDENCED BY ADMISSIONS TO THE CITY HOSPITAL.

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In November, 1914, the city of Buffalo realizing the necessity of a urological hospital, opened a department on the grounds of the Municipal Hospital for the exclusive treatment of genitourinary patients. The original department consisted of a two story building arranged as follows: On the lower floor, a reception room, treatment rooms for both men and women patients, an examining room for outpatients, a surgery and a twenty bed ward for men. The upper floor was divided into wards for women. This arrangement worked very well for a few weeks, during which time the hospital grew rapidly. It was then found necessary to enlarge the buildings, and wings were added on the west side. This enabled the surgery to be trebled in size and also allowed space for two more examining rooms and separate reception rooms for both men and women. This arrangement was continued until last summer when the out patient department was moved to its present quarters on Court street. About this time, the psychopathic patients were moved to the Grider Street Hospital and the building which they had occupied was connected to the urologic building and the women patients moved there. The upper floor of the original building is now used principally for prisoner patients. This plan renders over one hundred beds now available for the care and treatment of genitourinary cases.

As the hospital has now been in operation a little over four years, it seemed as though a study of the cases might be of some value. In this paper, I wish to deal exclusively with the syphilitic cases and if possible, draw conclusions which may be of help in the future handling of this disease both from the sociological and medical points of view. During the four years and two months from November, 1914, to January, 1919, there were 876 patients suffering from syphilis admitted. Of this number, 285 were readmissions, that is, of patients who returned for a treatment of salvarsan and left the following day. This makes approximately 600 separate and distinct cases of syphilis. Of this number, there were 445 men and 146 women, making an approximate proportion of three men to one woman.

The date of the initial lesion varied from two weeks to thirty-five years. However, in nearly twenty-five per cent. of the cases, no definite history of initial lesion could be obtained, due in most cases to the patients being unable to speak English. Two per cent. of the patients were affected with congenital syphilis. Treatment before entering the hospital had consisted principally in local applications to the initial lesions, only about four per cent. of the patients having had mercury or one of the salvarsan preparations.

The Wassermann reaction was definitely positive in sixty-nine per cent. of the cases; definitely negative in ten per cent. of the cases and one plus or plus minus in twenty-one per cent. The ten per

cent. definitely negative Wassermanns were divided as follows: Seventy-five per cent. tertiary lesions; two thirds of these were late tertiary lesions of the nervous system, one sixth were late tertiary lesions of bone and one sixth were gummata of the skin and cellular tissues. Of the remaining twenty-five per cent. negative Wassermanns, one quarter showed initial lesions too early for the Wassermann test and three quarters showed secondary manifestations. To sum up, the Wassermann test in the acute secondary stages showed an error of less than two per cent. There was another class of patients who showed a positive Wassermann, but showed no clinical manifestations of syphilis and gave a negative history of syphilis. These cases were checked up with further Wassermann tests and if these continued positive, they were treated as syphilis. If, on the other hand, the check Wassermann was reported negative, the first test was considered an error and the patient not syphilitic.

One of the most interesting and instructive features of this investigation, was the study of the lesions encountered and a consideration of their effect upon the community. As a matter of convenience, these lesions were divided into the usual three stages: primary, secondary, and tertiary. There were twenty-three per cent. of the patients with primary lesions, which were subdivided into twenty per cent. of the genital organs, and three per cent. extragenital. There was thirty-seven per cent. with secondary lesions, twenty-six per cent. of which showed mucous patches, twenty per cent. macular and papular eruptions, three per cent. of these also having palmar syphilides, one per cent. showed condylomata. There were thirty-nine per cent. with tertiary lesions, these being subdivided into thirteen per cent. ulcers and gummata of skin and cellular tissues; five per cent. gummata of bone, one half of these being ulcers through the hard palate; fifteen per cent. syphilis of the nervous system which included cases of paresis, locomotor ataxia, and various paralyses and patients complaining of indefinite nervous symptoms in whom repeated Wassermann tests were found positive; three per cent. showed syphilitic manifestations in the eye; one per cent. of testicle, and one per cent. of joints and internal organs. Approximately two per cent. showed hereditary syphilis.

The routine method of treatment now in use at the Municipal Hospital is to give nine intravenous injections of arsenobenzol; giving an injection every fourth day. In preparation for treatment, the patients are given a cathartic the day before and no food for at least six hours before and six hours after treatment. Of course the heart, lungs and urine are subjected to a routine examination before any treatment is given. The gravity method is used in administering the arsenobenzol.

The endeavor in our treatment has been: first, to clear up all infectious lesions, thus eliminating the danger to the community; second, minimize the possibilities of future complications to the patient; third, keep the patient in the hospital a minimum length of time. On discharge they are instructed to report to the outpatient department or to their

family physician for observation and treatment with mercury and to report back later for Wassermann tests. I fear that comparatively few patients follow instructions after leaving the hospital, but even though they do not, this course of treatment should go a long way toward protecting the public and render the majority safe from future complications.

If any lessons are to be drawn from this, it seems to me the following stand out most prominently:

1. The inadequacy of treatment given by the average practitioner both past and present as demonstrated by the large proportion of tertiary lesions, and the treatment of new lesions having been practically limited to local treatment of ulcer.

2. The large proportion, practically sixty per cent. who were a positive menace to the community at large, through drinking cups, tableware, coughing and sneezing in public places, holding to street car straps, and other articles of general use.

3. The great value of the Wassermann test as an aid in diagnosis.

4. The necessity for hospitals devoted exclusively to the care and treatment of venereal diseases.

This paper would not be complete without mention of past and proposed legislation in reference to the control of venereal diseases. As I understand it, the present law gives the health officer power to compel any person suffering from venereal diseases, who he feels is a menace to the community, to take treatment, and the court may confine him in a suitable hospital for this purpose. However, such suspected person may apply to a magistrate for an order restraining such examination and no examination shall then be made except upon order of such magistrate. This would seem to give the health department sufficient jurisdiction to protect the community. However in some States, I believe California is one, there is a law compelling physicians to report all cases of venereal diseases to the department of health and such a law is proposed for this State. For this the same argument is used as that for the reporting of acute infections, such as diphtheria, scarlet fever, etc. For obvious reasons, this hardly seems a fair comparison and I think would be a most vicious piece of legislation and would counteract just that which it is supposed to accomplish. In support of this I would like to submit the following:

1. Public health records may theoretically be confidential, practically they cannot help being open to the inspection of a great many, because of change in officials at election time. Some public officials are open to bribery. Clerks and not medical men would have charge of these records and we all know "that curiosity once killed a cat."

2. All legitimate practitioners would have to comply with the law.

3. Quacks, bartenders, drug clerks, and other vendors of drugs would not comply with the law.

As a result, patients suffering from venereal diseases will consult every one under the sun, before they will go to a regular practitioner, in the meantime, spreading the disease all over the community, and will give as their excuse that they did

not want to get their names on the black list, jolly book or some such term as would soon be applied to the health department record.

As an illustration of this, I would cite the following case which occurred in my office a few months ago. A young man from out of town came in with a suspicious ulcer. A Wassermann was taken. He returned a few days later much disturbed, because an acquaintance noticing a little discoloration about the elbow, had accused him of having syphilis and when he denied it, told him he would find out anyway because he had a friend in the health department who would let him know the result of the blood test when it was returned. Fortunately this was sent to a private laboratory and of course the health department had no record.

708 NIAGARA LIFE BUILDING.

INFECTIOUS ARTHRITIS OF UROGENITAL FOCAL ORIGIN.*

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Arthritis of urogenital foci is usually a complication of gonorrheal urethritis though as noted in the table of classified causes, it may be due to other, bacterial causes. It is the result of the absorption of toxins or of the direct entrance of bacteria into the blood stream from retention foci existent along any part of the urogenital tract. These retention foci have their abode in the follicular and glandular apparatus of the urogenital tract, that is in the anterior urethra in the glands of Littre and crypts of Morgagni. In the posterior urethra the glandular tissue of the prostate, Cowper's gland and seminal vesicles and perhaps the verumontanum; rarely in the ureter and renal tissue. Thus briefly is described the pathology of these infections.

The following clinical data are the result of a study of about 300 cases of arthritis observed in the urological department of the Hospital for Deformities and Joint Diseases. Of this series of 300 cases of infectious arthritis about 200 were of luetic origin and the remaining 100 cases are here reported. The luetic cases will be reported separately.

CLASSIFICATION OF ETIOLOGICAL FACTORS.

We may divide the causative factors into three groups: Arthritides, which are the direct result of the infection from the gonococcus, in which gonococcus are present in the secretions obtained from the urogenital tract. There were thirty-three cases in this group of arthritides, resulting indirectly from the gonococcus (no gonococci present in the urogenital secretions though clinically the cases were those of a gonorrheal infection). Morphological changes in the gonococci make them unrecognizable. The gram and complement fixation test was often positive. These are commonly called chronic gonor-

*Read at the meeting of the Clinical Society of the Hospital of Deformities and Joint Diseases, February 18, 1919.

rheas, the post gonorrheal infections. There were twenty-six cases in this group; arthritides resulting from bacteria other than the gonococcus and whose focal site was in the urogenital tract. There were twenty-three cases in this group. The total number of cases was eighty.

TABLE NO. I.

Arthritis resulting directly from the gonococcus which was present in the secretion from the urogenital tract.

Posterior Urethritis.

Case No. Articulations involved.

1. Lumbar, spine, ankles, wrists.
2. Right hip, right shoulder, right knee, inferior maxillary.
9. Left knee, left foot.
18. Tender anterior arch, flat foot.
25. Left sternoclavicular articulation, tenth, eleventh, and twelfth ribs.
27. Small bones of the feet, heels, and ankles.
33. Right ankle, right great toe.
35. Small bones, both feet.
36. Right knee.
37. Ankles.
38. Right knee.
40. Ankles, left knee, left wrist, right elbow, right shoulder.
41. Left wrist, right knee.
49. Right knee.
50. Both knees and ankles.
57. Right knee.
64. Heels.
65. Heels.
- 65a. Right kidney, right knee.
- 72a. Right shoulder.

Anterior Urethritis.

Case No. Articulations involved.

4. Right wrist, right knee.
6. Knees, ankles, wrists.
24. Heels, left great toe, right ankle.
26. Right wrist, left sciatic nerve.
30. Right wrist.
32. Right knee.
42. Ankles.
44. Heels.
52. Left hip, left great toe
56. Os calcis.
63. Left ankle.
72. Right ankle, right metacarpal, left hip.

Of the joint complications in the twelve cases of anterior gonorrheal urethritis, four were monarticular and eight were polyarticular. Of the nineteen cases of posterior urethritis five were monarticular and fourteen polyarticular. In one case gonococci were found in the pus from the right kidney and one case was due to extraurethral infection. In twelve cases of a series of thirty-one of infectious arthritis of gonorrheal origin the focal infection was confined to the anterior urethra. Further study of a large number of these cases at the West Side Hospital showed that fifteen per cent. of the arthritic complications had occurred in gonorrheal anterior urethritis. Heretofore it has been an accepted fact that the arthritic complications of gonorrheal urethritis were always those of a posterior infection.

CASE No. I (a72).—This patient had a hypospadias with the true meatus on the floor of the penis one inch behind the frenum. There was absolutely no infection of the urethra, but a virulent pus containing gonococci was discharging from the lacuna magna, on either side of the blind meatus. A probe was passed three and a half inches on the

right lacuna magna and one and a half inches on the left side. The acute arthritis of the shoulder and elbow cleared up immediately after destruction of these infected glands by galvanocauterization.

CASE No. 2 (a65).—This patient had an acute arthritis of the right knee. He had long been treated without any result for a posterior gonorrheal infection of the urethra. Cystoscopic examination showed that the infection existed in the right kidney pelvis. The arthritis cleared up rapidly after lavage of the kidney pelvis.

Monarticular joint involvement was present in nine cases. Polyarticular joint involvement was present in twenty-two cases. Thus again it seems that our accepted data are incorrect. It is one of the accepted points in the differential diagnosis of gonorrheal arthritis that this type of arthritis is of monarticular variety and that it affects chiefly the small joints, most frequently the inferior maxillary and sternoclavicular articulations. My observation of many of these infections prove that the knee joint is most frequently involved, then in order the ankles, wrists, great toe, heels, small bones of feet, hips, metacarpals, spine, inferior maxillary articulation, sternoclavicular joint, and lower ribs.

TABLE II.

Distribution of the joints involved in the twenty-six cases due to catarrhal urethritis. (No gonococci discoverable in the urethral secretions, though clinically the cases were plainly those of gonorrheal origin.)

Posterior Urethritis.

Case No. Joints involved.

3. Sciatica, testes.
10. All joints, vague pains.
11. Right knee, acute.
12. Cervical spine.
14. Left leg, sciatica.
19. Right knee, acute.
23. Shoulders, knees, feet.
28. Right hand, index finger, both shoulders.
31. All joints, vague pains.
46. Right knee.
54. Right hip.
69. Right hip.
74. Left knee.
75. All joints.
76. Sciatica.
77. Sciatica.
78. Vague pains, all joints.
79. Vague pains, all joints.
81. Spine.
82. Wrists.
83. Ankles, wrists.
84. Both heels.
85. Left sciatica.
86. Shoulder, knees, wrists.
87. Vague pains, all joints.

Anterior Urethritis.

Case No. Joints involved.

58. All joints.
73. All joints.
80. Left index finger.

In this series of old chronic catarrhal urethritis (postgonorrheal) we note that twenty-three out of a total of twenty-six cases are of posterior urethral origin. We note also that many of these infections involve all joints (ten cases). Vague pains referable to any joint are also present; the sciatic nerve is involved in five cases. Monarticular joint involvement is present in six cases. Polyarticular joint involvement in fifteen cases.

CLASSIFICATION OF THIRD SERIES ARTHRITIDES.

Arthritis the result of bacteria other than the gonococcus and whose focal site was in the urogenital tract.

Case No.	Type of lesion.	Bacteria present.	Joints involved.
46.	Phimosis and balanitis.	Mixed	Right knee
53.	Phimosis and balanitis.	Mixed	All joints
67.	Tuberculous testes	Tubercular	Exostosis, os calci
5-21.	Varicocele	0	Backache
27.	Renal calculi	Bacillus coli.	Backache
69.	Bladder cystitis	Bacillus coli.	Backache
34.	Renal hematuria	0	All joints, vague pains
43.	Stricture (congenital)	Numerous	All joints, vague pains
5.	Bladder calculi	Numerous	All joints, vague pains
8.	Contracted bladder neck	0	Right hip
14.	Prostatic hypertrophy	0	Left sciatica
19.	Prostatic hypertrophy	0	Right knee, acute
55.	Prostatic hypertrophy	0	All joints
3.	Verumontanitis	0	Left sciatica, aching testes
13.	Verumontanitis	0	Both heels and knees
10.	Verumontanitis	0	Vague pains, all joints
7.	Verumontanitis	0	Vague pains, all joints
31.	Verumontanitis	0	Vague pains, all joints
59.	Verumontanitis	0	Vague pains, all joints
62.	Verumontanitis	0	Heels, left hip, neuralgia, testes
44.	Verumontanitis	0	Right hip
23.	Verumontanitis	0	Shoulders, knees, feet

REMARKS.

CASE No. 3 (46).—Balanitis and phimosis, with an accompanying acute arthritis of right knee. The symptoms cleared up immediately after circumcision. The cases of prostatic hypertrophy, calculi of bladder, calculi of kidney, and contracted bladder neck all had an accompanying bladder cystitis (mixed infection) which was undoubtedly the cause of the arthritis. Colon bacillus infection was clearly the cause of two cases of arthritis of this type. I have placed the very vague cases of verumontanitis in this classification. Perhaps they should have been classified separately, for no bacterial factor was found, though I have always thought bacteria carried in the urine passing over the inflamed posterior urethra might be the cause of the many varied and vague joint pains. We all know the membrane of the posterior urethra absorbs more readily than any other membrane in the human body.

Clinically we can divide our cases into three types: Those cases of acute inflammation of one or more joints (Case 32), acute hydroarthrosis right knee; chiefly cases in Group 1; (Case 40, acute arthritis ankles, left knee, right elbow, right shoulder). This inflammation may go on to pus formation (Case 49, pyarthrosis right knee); in cases of vague pains in the joints, muscles, and periarticular tissue (chiefly cases of Groups 2 and 3 of previous classification) so-called cases of chronic rheumatism—the patients complain of dull aches and creaking joints, aggravated by weather changes, sexual indulgence, or alcoholic excesses, and those patients where fibrous changes have taken place and more or less ankylosis of the joint exists, or where new bone formation, exostosis, exists (chiefly cases in Group 2 of previous classification).

Gonorrheal arthritis may occur at any time following the acute urethral infection. In this series we note cases beginning after a few days, to years after the onset of the gonorrheal urethritis. Case 36.—Acute arthritis of the right wrist begun ten days after onset of infection. Case 41.—Acute arthritis of the right knee and left wrist one

week after onset of gonorrheal infection. Acute gonorrheal spondylitis which followed six years after actual infection from the urethra. Though no gonococci could be demonstrated microscopically in the prostatic or seminal secretions or cultured, his prostate was nodular and exceedingly tender on palpation, as well as his seminal vesicles, which could readily be outlined. The secretions from these glands contained much pus and I think were the foci of his infection.

FREQUENCY.

Studies of a series of over 15,000 cases of urethral infection under our care show less than one half of one per cent. of arthritæ complications. This is at great variance with the report of most authorities who report the arthritic complications to be from two to ten per cent. of the urethral infections. We believe these fortunate results due to the early care and attention we pay to venereal infections.

A collection of thirty cases of exostosis of the os calci present the following etiological factors with reference to the gonococci. Four cases of the thirty present evidence of gonorrheal infection, and of these four cases one has a luetic history with a four plus Wassermann. One case (No. 67) presents a tuberculous testis but no other cause for the exostosis is discoverable. I will report in further detail in a separate paper those cases of spurs of the os calci. I will report now, however, my preliminary findings—that spurs of the os calci are but rarely the result of the gonorrheal infections.

THE TREATMENT OF THE INFECTIOUS ARTHRITIDES OF UROGENITAL FOCI.

It is of course reasonable to suppose that if we could destroy the focal site we could master the disease. The local treatment is entirely dependent upon the nature of the bacteria and the site of the lesion—that is, the site of the retention foci. If localized in the glandular apparatus of the anterior urethra or, in the female, in Skene's or Bartholin's glands, it is necessary to destroy these sites by

means of galvanocautery electrolysis or fulguration.

If the retention foci are in the posterior urethra, prostate, or seminal vesicles, these sites must be attacked—however, I should like to state that I do not think favorably of the radical operation of seminal vesiculotomy. The postoperative results are not comparable to the conservative nonoperative procedures and the resulting destruction, in many cases, of procreative function not to speak of the frequent failures obtained, should compel very serious consideration before resorting to this operation—I personally have not seen a case that justified this operative procedure in view of the results obtained by the conservative means of attacking the infection.

The conservative measures of draining the pus from the prostate and vesicles by means of proper massage and posterior irrigations, direct heat through the psychrophore, diathermy, dilatations, intraurethral endoscopic applications of the knife, galvanocautery electrolysis or fulguration, and injections directly into the vas are all means which if properly applied will overcome the infection. Attention is called to the reports of intraprostatic injections with what Townsend (1) calls a normal phenol serum with excellent results in posterior gonorrheal complications. This method was tried at Frank's Clinic in Berlin some years ago and discarded. I have had no experience with it. In those cases where the verumontanum was at fault I have obtained good results from treatment applied with the object of removing this inflammation of the posterior urethra. Wherever the lesion is located in the urological tract and whatever the bacteria we must seek to remove them. These local measures are used in combination with the constitutional or systemic means to combat these complications of urethral infections caused by the gonococcus and other bacteria infesting this tract.

Constitutional treatment.—The intramuscular injections of the specific vaccines, which at times gave brilliant results were on the whole disappointing in infectious arthritis of gonorrheal origin. However, we have entirely discarded the intramuscular for the intravenous route in the introduction of these specific vaccines. While the reactions were severe (chills, vomiting, intense aches in muscles and bones), the end results were vastly better; however, there were many cases in which we could not control the acute pains without the use of opiates. It has been my good fortune while experimenting with the nonspecific proteins to have better results than with the specific vaccines. I have adopted the suggestion of Dr. Maurice Packard and change my protein body to that of the typhoid bacillus. The results are practically specific against the infectious arthritis. I have yet to meet a single failure in the acute infectious arthritis. The severe pain is controlled within three to twelve hours. The reactions are severe and the utmost care is required in the introduction of these agents. However, the results are in direct proportion to the reaction—the more severe the reaction the better the result, when the bounds of safety are not overstepped.

CONCLUSIONS.

Infectious arthritis of urogenital foci can result from any bacteria in the urogenital tract. Gonorrheal arthritis may result from anterior as well as posterior urethral infections. The polyarticular variety of arthritis is more frequent than monarticular arthritis. The larger joints are more frequently involved than the smaller ones in gonorrheal arthritis. Spurs of the os calci are rarely the result of gonorrheal infections. Nonspecific proteins introduced intravenously are specific for acute infectious arthritis.

I wish to express my thanks to Dr. Henry Frauenthal and the staff of the Hospital for Deformities and Joint Disease for their invaluable aid in the preparation of this paper.

PETER NOES,

1. TOWNSEND, J. M. *Transactions American Urological Association*, 1917.

15 CENTRAL PARK WEST.

THE MODIFIED SLUDER VERSUS THE SNARE OR DISSECTION OPERATION IN TONSILLECTOMY.*

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In bringing this subject of tonsillectomy before you I will preface the discussion of the various tonsil operations with a few remarks relative to the merits of tonsillectomy as opposed to tonsillotomy. I believe that the majority of us are now convinced of the close relationship of local and systemic disturbances to a focus of infection somewhere in the body and the study of these infections apply with especial significance to our hospital, as we are so well equipped to investigate the various phases of focal infection. Our nose and throat department, of course, is mainly concerned with the tonsils and sinuses as being two of these factors, and we shall at present confine ourselves to the tonsils as being one of the causes of these infections.

Conceding then that the tonsils are very often the seat of disease; that in the tonsillar tissue deep in the bottom of the crypts and extending to the capsule are virulent microorganisms and occasionally circumscribed abscess formations, we may justly conclude the absolute necessity of the entire removal of the tonsils in every case where the operation is indicated. Many laryngologists and pediatricists are agreed that the tonsillar function is of such minor importance that we can disregard it altogether. Tonsillectomy or complete enucleation of the tonsil is therefore the only rational method of dealing with diseased tonsils whether hypertrophied, or the seat of frequent attacks of tonsillitis, or of peritonsillar abscesses.

Tonsillotomy or incomplete removal of the tonsil results in the necessity for subsequent operations and we have been called upon to operate upon tonsils which have been partially removed four

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and five times. A partially removed tonsil is frequently the focus of future disease, as the scar tissue resulting will seal up the crypts completely and the symptoms of which the patient is complaining will become increased and he will suffer much more after the operation than he did prior to it.

Contrary to the belief of the public, and, indeed, of some of our medical brethren, the tonsil operation is not a recent one nor is it a present day fad to be discarded at some future time. We have learned that in the thirteenth century, which Doctor Walsh considers the most brilliant century in the history of literature, art, science, and medicine, tonsil operations had been performed. Tonsil enucleation in capsule properly performed, however, is a comparatively recent procedure, practised in the last dozen years and only since we have recognized these organs as being responsible for a great deal of damage done locally and systemically to the human economy.

Regarding the various operative procedures in the tonsil, there are two well recognized methods at the present day, namely, the Sluder and the snare, or dissection, operation. A third method practised by some laryngologists is the finger enucleation and I have witnessed some brilliant operations performed in this manner. But to one who is not blessed with a powerful index finger and is unable to flex the last phalanx of that finger while keeping the rest of the finger rigid, it is a very difficult procedure and likely to be followed by dire results if not skillfully performed.

The Sluder operation, named after Doctor Sluder, of St. Louis, is performed with an instrument which is really a modification of the old MacKenzie instrument modified in certain particulars so as to remove the tonsils in the reverse manner of the MacKenzie method and with a dull blade instead of a sharp one. The dull blade requires a great deal of leverage to bring it home and for Doctor Sluder, who is a powerful man, it is not a difficult matter to force the tonsil home in the fenestra of his instrument. The modification which I employ is a propeller like arrangement at the proximal end of the handle of the instrument, enables a less powerful surgeon to crush the base of the tonsil so as to make a very thin pedicle and has the added advantage of acting as a hemostat which the regular Sluder instrument cannot do.

You are all acquainted with the technic of the Sluder operation of introducing the distal ringed margin of the fenestra below and behind the tonsil and pressing it upward, forward and outward toward the rigid alveolar eminence of the jaw. At first Sluder did not employ counter pressure outside the tonsil over the palatoglossus muscle, milking in the tonsil, as we do, but I understand that he does so now. In bringing home the blade, care must be taken to avoid the anterior pillar and this, I believe, is the most difficult part of the operation, holding the tonsil well forward while closing down the instrument, for the general tendency is to relax and thus invert the anterior pillar.

Most of us, until we have mastered the operation, will injure the pillar. The posterior pillar is

seldom injured but is frequently traumatized in the dissection operation. Another point of importance is not to buttonhole the anterior pillar by pressing the tonsil into the fenestra of the instrument too vigorously with the finger. The tonsil is now readily rolled out, and if it is at all adherent the finger can easily be swept around the ringed margin of the instrument thereby freeing it. A sponge soaked in thromboplastin is then applied to each fossa for a few moments as a precaution against hemorrhage and the operation is complete.

Regarding the snare operation, it is admitted that enucleation may be well done by sharp and blunt dissection with the aid of scissors or knives and forceps of different design, each operator using his own methods, but the snare is the predominating feature and one which requires careful technic. The field of operation must constantly be kept clean so as to avoid injury to the soft parts. From three to six instruments should be used for they occasionally fail to do their work, the tenaculum may tear through the tonsil or grasp a pillar, the wire in the snare, as I have often witnessed, may be pulled out, and many other things may occur to annoy the operator. Also the pillars are easily injured and unless the dissection is a clean one, a part of the tonsil may be left and then it is necessary again to search for it after consuming a great deal of time and patience. There is no doubt that there is much bungling done on the tonsil and so the legitimate performance of the operation is frequently discredited.

Now, what are the advantages and disadvantages of the Sluder operation? The advantages are as follows: The operation can be performed by only one instrument (which never gets out of order), in a minimum length of time, and with less danger to the soft parts, palate and pillars, as careful dissection is not necessary. The patient is kept under the anesthetic a much shorter time, which is a great advantage, particularly in throat operations, thus lessening the dangers of shock and bronchial abscess from the aspiration of secretions. The services of a skilled anesthetist are not necessarily required although I can assure you that it is a great convenience. In the patients we have operated upon we have had less hemorrhage. In fact, we could perform this operation or the greater part of it with tactile manipulation alone if the occasion should arise. The technic is more readily acquired and many operators who formerly practised dissection have discarded it in favor of the Sluder operation.

What are the disadvantages? We must employ the dissecting method in enucleating the tonsils under local anesthesia, as it is difficult to perform the Sluder operation with the patient holding his muscles tense and preventing the instrument from securing a firm hold from behind and below. We have found that it is also a more painful procedure. We must also employ dissection in badly submerged tonsils and in children whose tonsils are bound down by adhesions following previous operations unskillfully performed.

In concluding my remarks, I would suggest that every surgeon doing this line of work should be con-

versant with both methods as it may be necessary at times to employ either one of them. For a weak and cachectic patient, with endocarditis, or chorea with a lymphatic diathesis, where speed is highly important, the Sluder operation would be the one of choice. For buried tonsils and for local anesthesia, the snare operation would be indicated. From my experience with both methods extending over a reasonable length of time and for the reasons stated. I believe I am justified in my preference for the Sluder operation when it is properly performed.

780 WEST END AVENUE.

FUNCTIONAL APHONIA.

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Speech is the means by which we give expression to our thoughts and communicate them to others. Any interference with this is a great personal loss. The speech mechanism may be affected by either central or peripheral lesions, such as general paralysis, bulbar paralysis, aneurysm, tumors of the upper part of the chest and neck, diphtheria, inflammations along the respiratory tract, and certain conditions which we call functional. When the power of speech is lost as a result of functional changes it is called functional aphonia, hysterical paralysis, or bilateral adduction of the vocal cords. By eliminating organic disease the diagnosis of functional aphonia can be easily established. The speech mechanism is a complex organization composed of the air tract, vibrating cords, resonating chambers, muscles, mucous membrane, nerves, tongue, teeth, hard and soft palate, anterior and posterior pillars, and the lips.

The larynx, which contains the vocal cords (vibrating bands) is the most important part of the speech mechanism and respiration and phonation are its chief functions. Respiration is under the control of a nerve centre in the brain and is an automatic act which can be modified but not suppressed by voluntary effort. Phonation is also governed by a centre in the brain, but is under the control of the will, except during the reflex actions—sighing, coughing, laughing, and cries of fright. The larynx is a triangular box composed of cartilages lined with mucous membrane and held together by muscles. Within this triangular box and attached to the cartilages are the two vocal cords. The movements of these cords are controlled principally by two sets of muscles—the adductors and the abductors. It is the function of the adductor muscles to bring the cords close together, as in singing and speaking. The abductor muscles carry the cords away from one another as during inspiration. The cords may occupy various positions; during phonation they are brought close together; during quiet respiration they are midway between phonation and deep inspiration; in deep inspiration the cords are abducted as widely as possible; in the cadaveric position the cords are between that of quiet respiration and phonation.

It can safely be stated that any lesion or disease

in the body causing paralysis of the abductor muscles of the cords is organic. It can also be stated, with equal certainty, that when the adductor muscles are primarily affected, the paralysis is functional and not organic. Knowing these facts it is comparatively easy to determine whether the loss of voice is due to an organic or functional condition. In the functional loss of voice, hysteria is the principal cause and occurs chiefly in young women, sometimes in girls as young as eight years. General weakness, anemia, neuropathic disposition, and inflammation of the larynx are predisposing factors. Any sudden emotion, fright, mental or physical shock, exposure to incessant gun fire and gruesome sights are also important causes of functional aphonia. There are instances of people who become dumb because of great joy or grief. This condition is one of aggravated functional aphonia combined with paralysis of the whole speech mechanism. This is called hysterical mutism. In these cases the patient cannot even whisper. In hysterical cases the onset is usually sudden, the history showing that the patient having experienced a mental shock or strain on the previous day on awakening from sleep finds the power of speech gone. In those cases due to general or local weakness, the onset is more gradual, the voice being weak and toneless and much effort required on the part of the patient to be heard at any distance. In the hysterical the speech is reduced to a whisper. In neurotic individuals these conditions are more likely to develop than in those where the nervous system is not impaired. Frequently this condition is diagnosed as acute laryngitis and if it persists for some time it is likely to be called chronic laryngitis. If a careful history of the case is taken and a thorough examination of the larynx made this mistake will not be made.

The following are a few cases which have come under my observation:

CASE I.—Boy, twelve years of age, nervous type, neurotic parents, difficult to discipline, was referred to the nose and throat department of the Brooklyn Hospital by Dr. F. Somers. When first seen, the boy could not even whisper. In less than three minutes of treatment, his voice was restored to normal and has remained so for the last six months.

CASE II.—Girl, twenty years old, nervous type, two or three times a year lost the power of speech. This usually happened when she was ascending an elevated station. I have seen her after several such occasions. Within a period of two minutes her voice was restored.

CASE III.—Married woman, nervous type, three hours after hearing that her brother had been killed, lost her voice. She had been this way for five weeks when she was referred to me. During these five weeks she had been very nervous, continually weeping and unable to rest. In less than seven minutes her power of speech was restored.

CASE IV.—Married woman, forty years old, nervous type, lost her voice a few minutes after the arrival of unexpected company. It was a complete loss of speech as she was unable to whisper. I saw her twenty-four hours later and after ten minutes'

treatment, her voice was restored but not without considerable difficulty.

CASE V.—Young woman, twenty-six years old, nervous type, awoke one morning to find her power of speech gone. Three days later she came to me for treatment. A fifteen minute period of treatment was spent before her voice was finally restored.

CASE VI.—Young girl, seventeen years of age, nervous type, telephone operator, came to me complaining of loss of voice. She had been in the hands of medical men who diagnosed her condition as acute laryngitis. In less than five minutes of treatment her voice was restored.

CASE VII.—Young woman, twenty-five years old, emotional type, singer, lost her voice a few days before she was to sing at a concert. She was referred to me and within a very few minutes gained control of her voice and was able to sing at the concert.

CASE VIII.—A high school girl, eighteen years old, after visiting several of the hospitals in the city and without getting any relief was referred to me. She was of a nervous type and had been unable to use her voice for the past two months. In less than two minutes her power of speech was restored.

My method of treatment is as follows: The patient is seated before me and a careful history of the case taken. Then with the laryngeal mirror I make a careful examination of the larynx, noting the movements of the vocal cords and the condition of the mucous membrane from the pharynx down as far as I can see. If I am satisfied that the case is one of functional aphonia I remove the mirror. The patient is then asked to take ten or twelve deep breaths. He is next told to raise the arms above the head ten or twelve times. Now looking the patient directly in the eye, I say to him that there is a little piece of cartilage in his throat which is slightly out of position and as soon as I put my finger down his throat and fix it he will be able to use his voice. (This to bring about the proper psychological attitude of the patient.) Then standing to his right with my left arm around his neck, the index finger of the left hand pushing in the cheek, between the upper and lower jaw (done to keep the patient from biting), the index finger of the right hand is shoved down the throat beyond the epiglottis and held there until the patient makes an attempt to get away. I continue to hold my finger there until it becomes quite uncomfortable. At this stage the patient will, as a rule, make a sound like a grunt and as soon as this happens I take my finger from the throat and begin to count fairly loud from one to five, at the same time urging the patient to count with me. If this does not work, I repeat the count, from one to five, much louder than before. It may be necessary to yell while counting before the patient begins to use his voice. When the voice is restored, I keep it working for some time so that the patient will become accustomed to it. The attitude of the operator should be firm but gentle, and he must, by his demeanor, inspire the patient with the idea that he will restore the voice.

CLINICAL NOTES FROM FRANCE.

By CHARLES GREENE CUMSTON, M. D.,

Geneva, Switzerland,

PARESTHETIC MERALGIA.

Regarding the subject of paresthetic meralgia with particular reference to the work of the Bordeaux school, Lenoir has published the results in thirty-nine cases while Sabrazès and Cabannes have reported sixty-two, making a total of 101 case reports of this interesting affection. Sixty-five cases occurred in men and twenty-nine in women, while in the remaining seven the sex is not mentioned. The age of the patients varied from twenty-one to eighty years, while the etiological conditions were most varied. In only eight cases were apparent causal factors wanting. Traumatic action over the areas of the external cutaneous nerves was noted seventeen times; compression of the nerve trunk at its exit from the spine or in the abdominal cavity was found in four cases. Cold douches were a factor in five cases and a general chilling of the body in ten. In their clinical histories various infections were noted in twenty-eight patients, viz.: syphilis, eight; typhoid fever, seven; acute articular rheumatism, five; measles, three; puerperal eclampsia, one; influenza, two; typhus fever, one; tonsillitis and scurvy, each one.

In twelve patients the affection could be attributed to chronic intoxications, viz.: alcohol in ten cases and lead poisoning in two. Obesity was regarded as the etiological factor in thirteen cases and a varicose process in nine. Locomotor ataxia was the factor in four and general paralysis in two. Diabetes was present in one case, while pregnancy was the cause in two patients. When paresthetic meralgia occurs in its typical aspect the patient when at rest, standing or walking, experiences an abnormal sensation seated over the anteroexternal aspect of the thigh. This sensation, under certain influences, becomes transformed into paroxysms of pain more or less severe.

The characters of the paresthesia vary in each case. In some it is an uneasiness difficult to describe or it may give rise to a sensation of a deep seated twinge comparable to a muscular retraction. Others feel as if the skin were like cardboard, while very often these sensations are accompanied by tingling or prickling. Then the painful paroxysms supervene. The paroxysms of pain are rarely wanting, in which case a more or less acute paresthesia alone exists or is accompanied by objective disturbances of the sensibility. Occasionally there are cases where the paresthesia is absent and only objective disturbances are present. In all of the 101 cases the paresthesia occupied the anteroexternal aspect of the thigh, the left side in thirty-eight, the right in thirty-six, primarily bilateral in nine and secondarily bilateral in eight. In the secondary bilateral cases the paresthesia was more extensive and intense on the side primarily involved. Hypothermia of the involved area occurred in two instances.

When the region is explored from the viewpoint of objective disturbances it will be found that they exactly occupy the area involved in the paresthetic

phenomena. The hypesthesia may be partial or only upon contact or pricking. Frequently also tactile hypesthesia and hypalgesia are equal. Besides these sensitive disturbances, which may exist alone, changes in the thermic sensibility may also be present. When the hypesthesia exists, it may be due to either cold or heat. If a faradic current was passed over the cutaneous surface, or even if static electricity was employed, the patient complained of a burning sensation, while in some few instances there was a decrease in electric sensibility. Objective disturbances of the sensibility are rarely absent from the symptomatology of paresthetic meralgia and Pitres has shown that, by light friction, it is possible to make the sensibility return in the anesthetic areas. Erb's sensitive reflex was diminished in two cases and completely absent in one.

An endeavor has been made to ascertain if compression of the external cutaneous nerve was painful. Exploration of the nerve at the innominate notch showed that it was painful in eight cases, while on the contrary, in ten cases pressure at this point did not give rise to any disagreeable sensation.

In one instance of the affection, the trophic and vasomotor functions were involved, because the skin over the involved area was smooth, colorless and deprived of papillary projections. In yet another case, after an injection of pilocarpine in the affected area and in the corresponding area on the normal side, it was manifest that trophic and vasomotor disturbances existed in the paresthetic area, because after one hour there was only a slight redness of the skin and no sudation. The pilomotor reflex was absent in two cases. The muscles underlying the paresthetic area are normal and in only one instance was electric excitability found diminished but there was no reaction of degeneration.

Meralgia is usually a local process, although locomotor ataxia is mentioned in four cases and diabetes and general paralysis in two others. It coexists frequently in patients with varicose veins, hemorrhoids, gout, arthritism and obesity. The affection rarely has a sudden onset with all its intensity and extent. At the beginning it is scarcely more than a passing disturbance limited to a small area. Later, after it has recurred a certain number of times, the affection extends in surface, either in several isolated areas or in a single extensive one. The latter is more common. Sometimes the paresthetic sensations disappear while the objective disturbances remain. Recovery from the affection may be said to be in sight when the pain disappears at the same time that a decrease in the disturbances of sensibility occurs. Spontaneous recovery has been known to take place after a number of years without treatment. In three known instances in which pregnancy was the causal factor, the affection was of short duration. Relapses are, however, possible and in some instances this affection did not yield to any form of treatment.

Results have been varied with the different therapeutic measures. Massage and electricity have occasionally been successful. Sodium salicylate is without any effect while potassium iodide has been

known to do good. In one case sulphur baths worked wonders. Rest is of great help and should be enjoined.

Resection of the nerve, first proposed by Sabrazès and Cabannes, of Bordeaux, in 1897, has since been done a number of times but has not always resulted in a permanent cure, although when recurrence has occurred the pain has been lessened. The external cutaneous nerve of the lumbar plexus, which is the nerve involved in meralgia, is usually given off from the anterior branch of the second lumbar pair. It afterward crosses the posterior aspect of the psoas muscle and then goes over the iliac muscle perpendicularly to its fibres against which the nerve is pressed by the iliac aponeurosis. It makes its exit from the pelvis through the innominate notch situated between the two anterior iliac spines. Immediately after its exit from this notch it enters between the two layers of the fascia lata and at two centimetres below the iliac spine it divides into two terminal branches, one going to the skin of the gluteal region crossing the tensor muscle of the fascia lata. The second branch (the femoral) continues vertically downward and innervates the integuments of the anteroexternal cutaneous region of the thigh from the great trochanter to the external condyle.

Anomalies also occur. Occasionally the external cutaneous nerve is given off from the crural nerve. The gluteal branch may be wanting, in which case its place is supplied by a branch from the abdominogenital nerve or by some ramifications of the external cutaneous given off at ten to twelve centimetres below Poupart's ligament which reach the gluteal region by a recurrent route. The external cutaneous nerve has been known to be absent and many other anomalies might be mentioned but the principal ones have been referred to. The external cutaneous is the nerve involved in meralgia paresthetica and when surgical interference has been unsuccessful it is probably because some anomaly in its distribution has been present.

Prostatic Cavities.—G. Luys (*Presse médicale*, March 24, 1919) has made a special study of certain cases of chronic suppuration of the prostate in which ordinary therapeutic measures fail. Such patients complain constantly of a "morning drop" and of heavy filaments in the first glass of urine. Yet systematic examination of the urethra, prostate, vesicles, and Cowper's glands by the customary means detects nothing wrong in these organs, and expression of the glands is likewise fruitless. Posterior urethroscopic examination alone permits of diagnosis and successful treatment in these cases. Through it one discovers in the prostatic utricle, or portion of the urethra between the vesicle neck and the posterior aspect of the verumontanum, well marked "prostatic cavities" containing purulent fluid which cannot be normally evacuated owing to the relative narrowness of the orifice. The treatment consists in affording a wider route of egress for the pus through endoscopic intervention with the galvanocautery and electrocoagulation.

Editorial Notes and Comments

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THE FIELD OF PHYSICAL THERAPY.

Medical and surgical procedures will be altered to a considerable extent by the experience gained in the war. The past few years have demonstrated not only that physical therapy is of great value but that its scope is wide. It is now conceded to be essential in surgery. Physical therapy comprises such methods as hydrology, electrotherapy, mechanical treatment, medical gymnastics, massage, and active and passive exercise. The field of treatment is exceedingly wide, and it appears to be applicable to all forms of rheumatism (at least many authorities assert this to be so), neuritis, nervous conditions, disorders of the heart, postoperative conditions such as adhesions, fractures, paralysis and paresis of nerves, synovitis, fibrous ankylosis of joints, and conditions affecting the circulation such as trench feet, post frost bite, and erythromelagia. Dr. C. Willems, the Belgian surgeon, has had some remarkable results in the treatment of joint lesions by means of immediate active mobilization of the joint. Mr. J. W. Dowden, of Edinburgh, has recorded successful treatment of fractures, especially fractures of the upper extremities, by passive and active mobilization, without the use of splints. In a special number of the *United States Medical Bulletin*, dealing with medical and surgical progress during the war, compiled by Lieutenant Commander W. Seaman Bainbridge, the treatment by physical methods of injuries and disabilities produced

by war is discussed at length. In fact, there has been published a considerable amount of literature devoted to physical methods of treatment brought out by the war.

In any industrial country, and in none more than America, the accidents of peace time are appallingly numerous. Dr. Alexander Lambert, in his presidential address at the recent meeting of the American Medical Association, said that the total of maimed and injured industrial workers each year far exceeds the casualties of war, and that the war had taught the economic value of these injured workers. In this salvage and reconstruction, physical therapy intelligently applied must play a great part.

It is well to emphasize that in order to produce the best effects physical therapy must be applied scientifically, or else the treatment will do more harm than good and will fall into discredit. Medical men must be given the opportunity of gaining sufficient knowledge of the system to be able to supervise treatment efficiently, and those who do the mechanical work must be afforded the facilities for the necessary training. It would seem that the time is approaching, or is even now ripe, for this branch of therapeutics to be made a part of the medical curriculum. If a thing is worth doing at all it is worth doing well. Physical therapy has proved to be well worth doing, and every effort should be put forth to insure its being done well.

THE RELIGIOUS CHARACTER OF THE EPILEPTIC DELIRIUM.

The epileptic affords a mystic realm to medicine, no less, one might say, than to himself. It is a realm that from every medical point of view needs the light of investigation so that a more practical, effective entrance can be made into the fastnesses of this disorder. Yet experience has only affirmed the need for patient persistence, the following up of every penetrating beam of light which clinical experience may discover in its contact with this disorder. Physical approaches to the problem have been unsuccessful; psychic approach faces a mass of vague and bewildering material. Yet here is a not to be neglected field in which the patience and unwearying observation of the physician may be exercised. Doctor Boven has offered a contribution in this field, mainly to stimulate interest toward further observation and interpretation. [Schweizer, Re-

ligiosité et Epilepsie, *Archiv für Neurologie und Psychiatrie*, vol. iv, No. 1.] He has propounded the question as to why there is such marked tendency to mysticism in the epileptic delirium which precedes, follows, or takes the place of the crisis, and has offered some interesting suggestions in explanation. The material which he cites from case histories shows that the dreams are frequently occupied with thoughts of God, usually as the Judge, with a sense of sin, of punishment, and fear. There are also sometimes ecstatic visions of a popularly conceived God surrounded by angels, and there are evocations of loved ones along with the thoughts and preoccupation with the patient's own death. Boven advances the theory that all this depends upon the violent revulsion of the crisis, both psychically and physically, the latter manifested through the cenesthetic sensations, with the return almost to nonexistence, and the gradual return upward very slowly through the maze of the unconscious, the barely conscious, then the almost clear consciousness where reason begins to absorb the phantasies. The fear of death and preoccupation with it are a most natural result and are exercised upon fertile soil. As consciousness approaches clearness a period of euphoria sets in and the characteristic religiousness of the epileptic, his piety, tend then to manifest themselves and to continue after this period.

Boven gives but little attention to Maeder's detailed conception of this epileptic religiousness as an outgrowth or partial sublimation and manifestation of the peculiar and diffuse sexuality of the epileptic, yet in the light of certain psycho-analytical interpretations many of the phantasies of the delirium which Boven reports are strikingly illustrative of the infantile and even erotic character of the epileptic nature. It seems necessary to mention this only because just here the two methods of interpretation might well supplement one another and carry the light still further. Boven's interpretation might well be a part of the truth which a further analytical insight would carry into its deeper constituents and their meaning in the more fundamental wish content of the epileptic character and the peculiarly and profoundly infantile, unconscious mechanisms of its reaction. The analytical method and explanation are merely an effort to penetrate further into the actual individual desire and its striving, to find if possible an approach there by which to reach the individual character, to deliver it, when it is not too late, from those dreamy attempts at fulfilment and aid it to find its gratification rather in a world of reality and health.

THE CAMBRIAN SEA.

Macallum (*American Journal of Medical Sciences*) has again called attention to the striking relationship of the salts of the blood to the salts of the sea, when the latter is proportionately diluted. It is his idea, and that of others, that the blood in its water and salt content represents, or is a relic of, the ancient ocean in which the animal from which the blood is taken had its origin. There is good evidence that the water of the ocean has been growing saltier through past geological ages, and wells sunk into the early geological strata have punctured deposits of water, doubtless of the same age as the rocks, which showed a dilution of salts, approximately that of the blood of the vertebrates.

While the total salts of the ocean have greatly increased from the age long inflow of soluble substances, the proportion of the various salts has not remained the same, or, at any rate, does not correspond with their proportions in the blood of man. Macallum explains this as due to the influence of animals in the water and plants on land in removing or withholding certain salts from the sea. If there is a close correspondence between diluted sea water and the blood of animals whose closed vascular system is very ancient, the animals with a circulatory machinery now open to entrance of the sea water should have the salts in the same proportion as that fluid, and the common jelly fish, when liquefied, furnishes such evidence.

The sea water, or blood serum, which amounted to the same so far as its mineral content was concerned, having become inclosed in the organism as its body fluid, it became necessary for the wellbeing of the component cells that the content of salts should be kept the same under all conditions, and Macallum therefore considers the kidney as one of our oldest organs. That through millions of generations this organ has done its work unfaithfully is evidenced again by turning the picture about and noting the close resemblance, save for concentration, between present serum and probable ocean water of the primordial period. It is as evident that, however the serum salts originated, they must now, at least, be in the most suitable proportion for the proper functioning of the cells, and hence the organ which maintains these proportions must have arisen coeval with the blood serum.

Macallum presents some evidence that in disease of the kidney its function of maintaining the blood salts in their normal proportions is disturbed, and it would seem that disease, especially slowgoing degenerative processes, may follow a

failure of this organ in its maintenance of salt relations. If it is possible to develop more delicate tests of the salt proportions of the blood, it is not impossible that we may find not only a means of determining the health of the kidney, but of obtaining much light on conditions affecting the wellbeing of the body as a whole.

PEMPHIGUS OF THE MUCOUS MEMBRANES.

Pemphigus, both in its acute and chronic forms, may be accompanied by eruptions on the mucosa of the mouth, nose, pharynx, and larynx. Pemphigus of the mucosæ may be the only lesion of the affection remaining limited to them, or it may be the forerunner of cutaneous lesions, and in the latter circumstance the clinical characters and evolution of the affection so closely resemble the localized form that it is difficult to make a distinct disease of them.

Acute pemphigus of the mucous membranes, be it serous or hemorrhagic, is always a benign affection with mild functional symptoms which hardly upset the patient's general health, although recurrences may occasionally take place. The repair of the mucosa invariably occurs without leaving a cicatrix. The treatment is simple.

Chronic pemphigus of the mucous membranes arises in adult age and its evolution is apyretic. The duration of the process is most variable and during its evolution it offers quite notable ameliorations. While on the conjunctiva a process of sclerosis quickly supervenes, the repair of other mucous membranes seems to take place integrally.

As is the case with pemphigus in general, the etiology and pathogenesis are unknown. No general treatment seems curative and this very absence of action of all kinds of medication has been made the characteristic sign of the affection by some German writers. Mercury and potassium iodide have usually had no other effect than to aggravate the disease. Quinine has likewise been without effect; while iron and strychnine have not been followed by any happy results. Arsenical preparations, even pushed to large doses, as was advised by Hutchinson in the treatment of pemphigus, in general seems to arrest the process for a certain time in some few instances. It seems to act in subjects whose general condition of health has not suffered too greatly in other respects, but the system rapidly becomes satiated.

As to local treatment, frequent lavages of the buccal cavity and emollient gargles are indicated. Fasano seems to have obtained good results with

iodoform insufflations, but the reasons for objection to this treatment are obvious. If pain is severe, a solution of cocaine may be applied to the parts and some writers have given relief to their patients by painting the lesions with a solution of silver nitrate.

Feeding must be carefully supervised. A liquid diet is naturally indicated when the movements of deglutition are difficult or very painful and at any time during the evolution of the affection spicy or hot food must be avoided. The patient should be fortified by proper tonics.

OIL ON THE TROUBLED WATERS.

Is science really to become "popular"? Is commerce more farsighted, more generous, than the government? It would seem so, for the vice-chancellor thrilled a dusty meeting of the senate at Cambridge University with the announcement that a chemical school was to be endowed by £50,000 from the Burmah Oil Company; a similar sum from the Anglo-Persian Oil Company; £50,000 from the Anglo-Saxon Petroleum Company, and £50,000 conjointly from Lord Cowdray and the Hon. Clive Pearson, while, not to be outdone in generosity, a Mr. Deterding made the pounds into guineas by a gift of £10,000.

The weary physicists and chemists who have gallantly given their time and knowledge for public benefit at the wages of a chauffeur or a junior clerk will be considerably heartened by this appreciation of their work, though it would have had a double value had it come from those who most benefit from it.

HEALTH PEDAGOGICS.

One fault with health education as ordinarily conducted in the schools is its aloofness. The subject stands by itself and has little correlation to the other subjects taught. The child is taught hygiene as a separate study and it is not made apparent to the growing mind that health bears an important relation to history or geography. In the teaching of arithmetic, problems are given which deal with money values, measurements, days of labor, and other similar problems of life. Who ever saw a health problem in arithmetic? Yet what better means could be adopted to impress upon the child the evaluation of sanitary problems?

The following may be given as examples of problems which would combine mathematical and health teaching:

The death rate of a city was 190 in a hundred thousand; the birth rate was 210 in a hundred thousand. Ten per cent. of the children died before they reached one year of age. Did the population of the town increase or decrease?

The water supply of a city contained five colon bacilli per cubic centimetre. How many were there in a gallon?

If a pair of flies breed at the age of fourteen days and will breed 240 flies every three weeks, and you kill three pairs of flies on May 15th, how many flies will you have prevented by August 1st?

Every death from typhoid fever represents ten cases of the disease. A city of 125,000 inhabitants had an an-

equal typhoid death rate of four in a thousand inhabitants. How many people had typhoid fever?

The application of this idea has manifold opportunities. Health problems may be included in almost every branch of mathematics. The relation of health to geography, history, and economics could well be taught and with mutual advantage to each of the branches. Here is an opportunity for our educators to extend still further the scope of their usefulness.

PUBLIC HEALTH CLAUSE IN PEACE TREATY.

Physicians interested in the international control of hygienic and sanitary conditions will be pleased to learn that what seems to be a forerunner of an international health league is provided for in the second draft of the peace treaty. It is interesting to note that the clause was not incorporated in the first draft of the treaty. The paragraph is found in Article 28, clause F, and reads: ". . . Agreed in an endeavor to take steps in matters of international concern for the prevention and control of disease. . . ."

The NEW YORK MEDICAL JOURNAL has been an ardent advocate of the internationalization of that branch of medical science which deals with the prevention of infectious diseases. With careful study of the sources and origin of epidemics, the causative factors may eventually be eliminated. These focal points of infection, analogous to those of the human body, can be controlled more effectively by an international health board than if the matter is left to individual communities. The need for and advantages of such a commission are set forth in an article by Major George A. Soper, on The Need of an International Health Commission, which appeared in the NEW YORK MEDICAL JOURNAL for May 24, 1919, and we have discussed the subject editorially from another angle at different times.

News Items.

Waukesha Baths Enlarged.—A three story fireproof addition will be added to the Moor (Mud) Baths at Waukesha, Wis. Other additions to the building are being made.

New Health Bureaus for Texas.—Dr. C. W. Goddard, president of the Texas State Board of Health, has officially organized and installed three new bureaus of his department, child hygiene, communicable diseases, and public health education.

Ceiling Movies for Sick Soldiers.—Ceiling moves have been inaugurated by the Red Cross for the entertainment of bedridden soldiers. A specially constructed machine projects pictures on the ceilings, thus enabling men who are not able to sit up to see Douglas and Charlie and all the other favorites.

Postgraduate Phthisiotherapy.—The Cincinnati Tuberculosis Sanatorium has scheduled a postgraduate course in modern phthisiotherapy, beginning about the middle of June or early in July and lasting from four to six weeks.

Army Wants X Ray Laboratory Assistants.—The medical department of the army is desirous of obtaining the enlistment of a limited number of bright young men possessing some preliminary education, to be trained for assistants in the army x ray laboratories.

Colonel Strong Joins Red Cross League.—Colonel Richard P. Strong, Medical Corps, United States Army, has been appointed acting director of the bureau of hygiene and public health of the League of Red Cross Societies. Sir David Henderson is director general of the league.

Raise Fund for Memorial Hospital.—Jamaica and eleven other communities in Queens have raised more than \$100,000 in a week's time toward a fund to provide Jamaica and St. Mary's hospitals with additional buildings to be dedicated to the soldiers, sailors, and marines from the district who died in the war.

Collodion Made in America.—To the list of medicinal and laboratory products formerly imported from Germany and now manufactured in this country must be added collodion, the lack of which was for a time a matter of serious concern to laboratory workers in histology, pathology, and embryology.

Chinese Hospital in France.—The largest hospital in the world exclusively for Chinese is not in China but in France, says the June number of the *American Journal of Public Health*. It serves the 140,000 laborers and other Chinese who have been brought to France during the war.

American Women Doctors in Balkans.—Nineteen American women doctors are now assisting the American Red Cross in the Balkans. They are from the American Women's Hospital in New York and are located in Serbia, Montenegro, and Albania. Some of them have received decorations or been cited for conspicuous service among the soldiers and refugees.

First Blind Massage Class in America.—The first blind massage class of America was established in July, 1918, in Chicago, under the personal direction of Mr. Peter J. Peel. Through the co-operation of Dr. Jacob Bolotin, the blind heart and lung specialist, a class has been organized consisting of six men and two women, selected from a large group of blind people.

American Officers Decorated.—The French republic has conferred the decorations of the Legion of Honor on the following physicians serving with the American Expeditionary Forces: Brigadier General John M. T. Finney, of Baltimore; Colonel Frank C. Boggs, of Waverley, Kan.; Lieutenant Colonel Julian M. Cabell, of Fort Myer, Va.; Knight's Cross to Major Joseph D. Weis, of New Orleans.

Reconstruction in India.—Two hundred war cripples of India are being reeducated at Queen Mary's Technical School for Disabled Indian Soldiers in Bombay. Men who need artificial limbs are supplied by one of the hospitals in Bombay. At Dehra, Dutt, and Mussorie, electrical and massage treatments are given. Besides the employment department in connection with Queen Mary's School, there are various bureaus in India which place disabled men in positions.

American Association of Official Surgeons.—The thirty-second annual convention of this organization will be held September 15th-17th at the Congress Hotel, Chicago. The forenoons will be given to operative demonstrations and the afternoons to practical addresses and papers.

\$150,000 to Washington University Medical School.—The Washington University School of Medicine has been tendered the sum of \$150,000 by the General Education Board on condition that an equal amount be raised by subscription. This fund is to be used for the endowment of the department of pharmacology.

Yale Honors Medical Men.—Yale, at its 219th commencement on June 18th, awarded the honorary degree of master of arts to Colonel Samuel Hosea Wadhams, Medical Corps, Army General Staff, and the honorary degree of doctor of science to Colonel Harvey Cushing, neurological expert of the army. There were two experts in public health among the graduates.

Tuberculous Draftees Receive Care.—Approximately two thirds of the Ohio men discharged from the army or rejected by draft boards because of tuberculosis are receiving attention from local public health nurses, announces the *Ohio State Medical Journal*. The other one third live in communities which do not maintain a nursing service.

Shortage of Mice Impeded Cancer Study.—Study of cancer during the war was impeded not only because many physicians were taken from research work but also because of the shortage of mice, according to the report of Dr. Francis Carter Wood, Director of the George Crocker Special Research Fund, of Columbia University. Mice, which breathe rapidly and are far more sensitive to gases than human beings, were used in large quantities by the allied armies for the detection of gas and the diagnosis of certain types of disease.

Personal.—Dr. Alva Frank Maine, late of the United States Medical Corps, announces the reopening of his offices, Suite 410 Dalziel Building, Oakland, Cal.

Colonel Theodore Porter Kane, United States Medical Corps, of the American Legation Guard, left Peking, China, May 5th for the United States.

Major A. F. Howard, Medical Corps, United States Army, has returned to Quantico, Va., from St. Thomas, Virgin Islands, where he has been on temporary duty.

Dr. Emil Z. Levitin, chief of the neuropsychiatric board at Camp Funston, has returned to civil practice in Peoria, Ill.

Dr. Harry V. Judge, of Albany, has returned from military service and has resumed the practice of ophthalmology.

Dr. William Grosvenor Bissell, department of health, Buffalo, was awarded the degree of doctor of public health at the eighty-seventh commencement of New York University.

Dr. Kenneth Taylor, of St. Paul, a colonel in the Medical Corps of the army, is the senior medical officer in charge of medical work in the Balkans, Palestine, and Poland.

Dr. A. J. Chesley, of Minneapolis, has been appointed head of the public work with the Polish forces.

Medical Library Association.—The twentieth annual meeting of this society was held June 9th at the Marlborough-Blenheim Hotel, Atlantic City, under the presidency of Dr. William Browning, of Brooklyn. Papers were read by Mr. Charles Frankenberger, of Brooklyn; Miss Anna L. Johnson, of Cincinnati; Miss Nelka V. Casey, of St. Louis; Miss Frances K. Ray, of Albany; Mr. James F. Ballard, of Boston; Dr. Browning; Miss M. Charlton, of Toronto; Lieutenant Colonel Fielding H. Garrison, of Washington, D. C., and Mrs. Grace Myers, of Boston. Members were requested to tell or send something about Doctor Osler in connection with the libraries they represent, to be used by the bulletin of the association as its contribution to the seventieth birthday of Sir William Osler.

New York Health Conference.—The eighteenth annual conference of sanitary officers and the first annual conference of public health nurses of the State of New York was held June 24th-26th at Saratoga Springs, N. Y., under the auspices of the State Department of Health. Among the speakers were Sir Arthur Newsholme, the noted English physician; Dr. Simon Flexner, of the Rockefeller Foundation; Lieutenant Colonel Homer Folks, director of tuberculosis prevention work in France; Dr. Emmett Holt, of Columbia University; Dr. Livingston Farrand, director of the American Red Cross; and Abram Elkus, chairman of the New York Reconstruction Commission. A feature of the conference was the exhibition for the first time of the healthmobile, the State Department of Health motor truck equipped for showing health films and lantern slides.

American Psychoanalytic Association.—The ninth annual meeting of this society was held on June 20th at the Hotel Traymore, Atlantic City. Owing to the unavoidable absence of the president, Dr. G. Stanley Hall, Dr. Smith Ely Jelliffe was made temporary chairman. The reports of the secretary and treasurer were read and approved. Dr. F. Lyman Wells and Dr. Adolph Stern were elected members. Applications for membership of Dr. B. Glueck, Dr. Ellida Evans, and Dr. L. Dooley were referred to the council to be reported upon at the next annual meeting. The following officers were elected for the ensuing year: President, Dr. A. A. Brill, of New York; vice-president, Dr. H. W. Frink, of New York; secretary and treasurer, Dr. W. A. White, of Washington, D. C.; council, Dr. Smith Ely Jelliffe, of New York; Dr. G. L. Taneyhill, of Baltimore, and Dr. C. P. Oberndorf, of New York. The following papers were read and discussed: Intermediary Stages in Sex Development, by Doctor Oberndorf; Psychogenic Factors in the Production of High Blood Pressure and Treatment Through Psychoanalysis—Case Histories, by Doctor Jelliffe; On the Nature of Repression, by Dr. E. Emerson, of Boston; Archaic Thinking and Feeling, by Doctor Taneyhill; Analysis in Some Stuporous Conditions, by Dr. F. L. Wells, of Waverley, Mass.; other papers by Dr. E. J. Kempf, of Washington, Dr. H. W. Frink, of New York, and Dr. A. A. Brill, of New York, were read by title.

Proceedings of National and Local Societies

AMERICAN MEDICAL ASSOCIATION.

*Seventieth Annual Meeting Held in Atlantic City;
N. J., June 9-13, 1919.*

(Continued from page 1111.)

SECTION IN OBSTETRICS, GYNECOLOGY, AND ABDOMINAL SURGERY.

The Treatment of Abdominal Pregnancy after the Fifth Month.—Dr. ALFRED C. BECK, of Brooklyn, presented deductions, from study of a series of 240 cases in literature, as to the best time to operate in abdominal pregnancy. After the sixth month the best time proved to be the tenth month. The reason for this appeared to be that in the last month only thirty per cent. of the fatal maternal cases died of hemorrhage, while before this period sixty per cent. succumbed in this way. From the standpoint of the child the best time to operate was found to be just before the last two weeks of pregnancy. The management of the placenta in these cases was the main difficulty. Yet the mortality had gradually been reduced to 11.1 per cent. in cases in which the placenta was removed. Such removal should be effected wherever possible. In cases in which the placenta had been left and the wound drained until it came away, the mortality had been 38.7 per cent. Closure of the abdomen in such cases deserved more extensive trial. There was little risk in delaying operation until the thirty-eighth week of pregnancy, provided the patient was kept under observation. At the operation handling of the placenta should be very gentle. The vessels in the placental site should be ligated before removal of the placenta was attempted. The retained placenta would ultimately be absorbed, as shown in an experiment performed upon a dog.

A Clinical Study of the Treatment of Dysmenorrhea.—Dr. JENNINGS C. LITZENBERG, of Minneapolis, reported on the use of benzyl benzoate in a series of cases of dysmenorrhea intentionally selected from among college women and nurses, for purposes of accurate study of its effects. Some had stated fifty to eighty per cent. of American girls suffered from dysmenorrhea. At all events, it constituted a serious economic question to thousands of young women. Although none of the theories of the causation of dysmenorrhea was actually established, the classification of Bloch appeared useful. Bloch recognized the obstructive, the ovarian, and the vagotonic, spasmodic, or idiopathic forms of the condition. In the latter, atropine was the logical remedy, and had been used by the author in doses of 1/150 to one fiftieth grain with satisfactory results; but it was too powerful an agent to be placed indiscriminately in the hands of patients for use fourteen times a year. An antispasmodic was indicated in place of it, and a suitable one appeared to have been secured in benzyl benzoate, which exerts the same action on smooth muscle as some of the opium principles, in particular papaverine, but is nontoxic. It appeared to act only on the muscle cells themselves. It had already been employed in biliary and renal colic and other

similar conditions with success. The best form of administration was in the form of a twenty per cent. emulsion in acacia and aromatic elixir of eriodictyon. The dose was progressively increased, with increasing experience with the drug, to two drams every two hours. Under this treatment, out of forty-three cases of dysmenorrhea, thirty-five, or 81.3 per cent., had been relieved of pain. In twenty-seven cases the pain had been completely arrested; in eighteen, greatly relieved; in two, somewhat relieved. In six cases, no benefit had accrued. Thirty-three patients had been previously treated in other ways, including dilatation, without result. In fifteen cases, relief had been obtained after but one dose of the preparation. Excellent results had been secured in all three of Bloch's groups of dysmenorrhea cases, and also in cases with infection. The best effects of all had been in the spasmodic or essential type of case. The remedy constituted merely symptomatic treatment; yet dysmenorrhea itself was, after all, but a symptom. Antelexion as a cause of dysmenorrhea was very doubtful. Benzyl benzoate should be tried before dilating. The profession was generally neglecting certain measures which relieved dysmenorrhea. Thus, physical culture, exercise, and hygienic treatment were capable of causing marked results in this condition.

Etiology and Treatment of Pernicious Nausea and Vomiting of Pregnancy.—Dr. FRANK W. LYNCH, of San Francisco, referred to Williams's doctrine of the ammonia coefficient as a criterion for the separation of violent from milder cases of vomiting of pregnancy. His conclusion from study of the question had been that while there was an acidosis in the serious type, this could not be safely expressed in terms of the ammonia coefficient. The elimination of ammonia represented nature's effort to save alkali for the body. Among twenty cases out of a series of forty, the total nitrogen had been found to be from 3.6 to 8 grams and the ammonia, from 1.8 to 3.1 grams. Was the starvation in these cases responsible for the acidosis? As a matter of fact, among actual starvation cases due to fasting, there had been no instance of an ammonia excretion approaching that in ordinary bad cases of nausea and vomiting. The carbon dioxide tension in vomiting cases did not exceed the range in normal cases. Thus, the crux of the matter was whether in a case of vomiting chemical conditions would return to normal as a result of cure of the vomiting with preservation of pregnancy. The basic principle of the treatment was that all cases in an acute toxic state should be aborted without delay. One should not temporize, especially in cases with vomiting of fecal or black material. The type of case under special consideration, however, was that in which abortion had already been induced on previous occasions and the time had finally come for making any reasonable sacrifice in order to obtain a living child. The treatment must include a breaking of the nervous habit of vomiting—a habit frequently cultivated by these women. This was to be done

by a twenty-four hour fast, with large doses of bromide by rectum—sixty grains every four hours. Where hyperacidity of the stomach existed, hard food was given in the form of meats, to prevent food in the stomach from coming up easily. The bromide was cut down gradually. For acidosis, glucose was given by rectum. From this plan of treatment, recovery had been obtained in sixty cases in ten days to two weeks without a single abortion. Adrenalin, injections of blood, placental extract, and corpus luteum were unnecessary in the treatment in view of the results obtained by the measures described.

Dr. ALFRED BAKER SPALDING, of San Francisco, pointed out that many women started to vomit through autosuggestion, and that occasionally also their husbands began to vomit. He laid stress on focal infections in the body as a factor in toxemic disturbances. The teeth were the basis of much abnormality during pregnancy. In two cases of death from pernicious vomiting, gastric ulcer and tonsillitis, respectively, had been found to have existed. In another case, relief of a gonococcal infection appeared to have assisted in recovery from the condition. Doctor FOLKMAR, of Washington, D. C., asserted that in six cases ten treatments with actinic light rays had so improved metabolism as to relieve the vomiting.

Aspiration and Pressure Treatment of Unopened Mammary Abscesses.—Dr. JOHN GARDINER, of Toledo, Ohio, maintained that under the treatment described drainage was better maintained and healing more rapid than under the customary plan of radial incision and drainage, and that no scar resulted. In a case of abscess of the lower, inner quadrant, the pus had been aspirated under local anesthesia and the breast bandaged, with pressure. Reaspiration had later been effected about ten times at intervals of six to twenty-four hours. Milk had drained from the puncture for three days, then ceased to appear. Meantime the opposite breast had become involved, twenty mls of pus had been aspirated, and the breast bandaged. Later it had been punctured sufficiently often for drainage. Subsequently aspiration elsewhere had been required for smaller foci. Nine days after the first aspiration, however, no more pus had been present. An autogenous vaccine was also prepared and used for prophylactic purposes. Of eight cases treated by the new method, two had shown both streptococci and staphylococci, and six, staphylococci only. The preventive treatment of breast abscess required consideration. The child should not be allowed to bruise the nipple by prolonged nursing before the milk had come in. Cleanliness throughout was essential. Early recognition of a failing milk supply was advisable, with prompt measures to combat lymphangitis where this appeared. When the aspiration treatment was begun, pressure on the breast should be constantly maintained. The second aspiration should be performed from four to six hours after the first, and the amount of pus evacuated determined the frequency of subsequent punctures. Contiguous abscesses were easily drained through the initial focus. Pressure was to be continued for several days after a dry tap had been obtained.

Dr. RICHARD C. NORRIS, of Philadelphia, emphasized that the keynote in the prophylaxis of mammary abscess was cleanliness. The nipple should be protected as though it had been subjected to an operation. In the management of infected breast the essential thing was promptness of drainage. If the aspiration treatment was instituted earlier than the radial incision and drainage treatment it would give better results than the latter, and the converse was also true. As for pressure over the breast, if applied too early it would interfere with the formation of the protective abscess wall. Pressure must not be used until after drainage had been established. Dr. PETER B. SALATICH, of New Orleans, stated that he had had excellent results in mammary abscess from the making of a small—half inch—incision and the application of a Bier cup for ten or fifteen minutes twice a day. In twenty-four or forty-eight hours the suppurative process ceased.

Abdominal Surgery Under Local Anesthesia.

—Dr. ROBERT E. FARR, of Minneapolis, stated that preference of local over general anesthesia depended upon the skill and experience of the operator in the local procedure. Those who were able to perform a large majority of operations under local anesthesia would prefer it to general anesthesia. Professional opinion was shifting rapidly in favor of local anesthesia, which would eventually replace the general method. Exploration of the abdomen was not as easy under local as under general anesthesia, but if the local procedure was used where indicated and visual exploration was deemed sufficient enough exposure would be afforded. In applying the method, direct infiltration of the tissues with the anesthetic solution was depended upon rather than circumferential injection, which required more anesthetic and more time. It was a great help to use the pneumatic injector, which gave a steady flow of novocaine, governed by a cut off valve. The operator kept the hypodermic needle moving at all times in injecting. Anesthesia became complete before the incision was made. The procedure caused no distress at all, except that the first wheal might perhaps be slightly painful. A four inch needle was used, and generally carried forward beneath the skin. All secondary intradermal wheals were made by subdermal infiltration, without having withdrawn the needle. Pain in forming the secondary wheals was thus avoided. An incision could be made in two minutes. The test of perfect anesthesia was complete abolition of reflexes, with negative intraabdominal pressure. Vertical retraction was an important requisite to facilitate exposure. Perfect relaxation of the abdominal wall resulted in the small intestine leaving the pelvis. Gravity rather than sponges was employed to hold viscera out of the operative field. The incision was always made over the pathological focus. A lateral position with slight Trendelenberg inversion was used in appendicitis, as a result of which the appendix very easily came into view. Over 100 children had been subjected to operations under local anesthesia. They went through even major operations without crying. The method was safer and caused less post-operative discomfort than general anesthesia.

Dr. PENN GASKILL SKILLERN, of Philadelphia, thought the procedure a great advance. He had applied Doctor Farr's injector for several years with great satisfaction. It markedly accelerated the work. Local anesthesia developed gentleness of touch in operating. All surgeons should be using it. He had never seen postoperative pneumonia after local anesthesia. The mortality from acute intestinal obstruction would be greatly lowered by its use. The ideal method of local anesthesia was nerve blocking. Doctor Ruben, of Pittsburgh, took issue with Doctor Farr, maintaining that infiltration sometimes caused sloughing of the skin. Novocaine alone would not give the necessary anesthesia, addition of adrenalin being necessary. The vitality of the infiltrated tissues was further reduced by clamping and other manipulations. The conduction method had the advantage of keeping the anesthesia at a fair distance from the incision, and avoided sloughing. This method was of value in affording nice, clean wounds and comfort for the patient. Doctor Scott, of Temple, Tex., objected that exploration of the abdomen was limited under local anesthesia. The peritoneum could not be anesthetized throughout, and one could not satisfactorily explore the viscera without employing the sense of touch. Traction on mesenteries, including the mesoappendix, produced pain, and where the mesoappendix was short or the organ covered, it could not be injected. Doctor Farr, in closing, maintained with emphasis that the abdomen could be properly explored under local anesthesia. As for necrosis of the skin, none ever occurred when the adrenalin was kept below five drops to the ounce of solution and the injections made subdermally. One should not block nerves. Popularity of local anesthesia would not extend if the surgeon had to spend his time "spearing" for nerves.

The Efficiency of Surgical Treatment in the Bleeding Type of Gastric and Duodenal Ulcer.—

Dr. DONALD C. BALFOUR, of Rochester, Minn., pointed out that a number of conditions other than ulcer might cause an hematemesis seemingly due to ulcer. A careful history and x ray examination would show whether an ulcer was actually present. The causes of bleeding other than ulcer were easily removed by operation. Where hemorrhages occurred in ulcer, direct surgical attack of the ulcer was necessary, gastroenterostomy failing to afford protection against further bleeding. Among 2,875 cases operated in for duodenal ulcer at the Rochester clinic, the mortality had been 1.6 per cent. About twenty per cent. of these patients had had hemorrhage before operation, and 12.7 per cent. had hemorrhage after operation. Among 863 cases of gastric ulcer the operative mortality had been somewhat over three per cent., and eight per cent. had had hemorrhage—not microscopic but gross hemorrhage—after operation. Only two patients, however, had died from hemorrhages after operation. The difference between the frequencies of hemorrhages after duodenal and gastric ulcer operations had been due to the difference in the operations performed for the two kinds of lesion. But one instance of excision of the ulcer had occurred among the duodenal cases. Gastroenterostomy was manifestly not sufficient in cases with hemorrhage,

whether gastric or duodenal. The other symptoms were almost always completely relieved by this operation—but not the bleeding. Excision combined with gastroenterostomy had given the desired complete protection against subsequent hemorrhage. The actual cautery was the safest and surest method of removing the ulcer in most instances. Shaving of the base of the ulcer with the knife was a good plan. Usually an actual perforation of the ulcer was thus revealed. The cautery was introduced through the perforation and kept in action until the crater had been destroyed. The cautery took care of the bleeding, no ligations being necessary. Duodenal ulcer was punctured with the cautery before the gastroenterostomy was proceeded with.

Dr. RAYMOND P. SULLIVAN, of Brooklyn, N. Y., maintained that the technic in the treatment of these cases should be simple and direct. Suture excision or devitalization was now rarely practised, being uncertain in result. Excision by the knife, followed by suture, was probably the most universal procedure, but was likely either to result in removal of too much tissue or possibly to leave cancer cells. Balfour's cautery method was the best. Ligation of the immediately adjacent vessels must, however, be considered even if the cautery was used. Gastroenterostomy alone was never indicated for gastric hemorrhage. A varicose condition of the veins at the cardia often caused hemorrhage. In ulcer on the posterior wall one could not lay down any special rule of surgical attack. The cautery was here difficult to utilize; excision plus the cautery was indicated. Doctor Strauss, of Chicago, spoke of reconstruction of the tissues in the pyloric portion of the stomach in these cases. Transfusion of 600 to 1,000 mls of blood before operation was a valuable precaution to prevent shock. In comparing excision of the ulcer with cauterization, it was well to remember that one could not always tell whether cancer existed or not. It was advisable, therefore, to excise the ulcer partly with the knife.

Trendelenberg Ether Anesthesia in Pelvic Surgery. Dr. DONALD GUTHRIE, of Sayre, Pa., maintained that trauma of the small intestine through the use of gauze to pack it away from the pelvis played an important rôle in postoperative shock. The method he described was intended to rid the pelvis by gravity of as much small intestine as possible. The anesthesia was started with the patient already in a high Trendelenberg position. Induction of anesthesia under these conditions required a skilled anesthetist. Unless properly practised, the procedure might frighten the patient or prove uncomfortable. Assumption of the inverted position later, after partial or complete induction of anesthesia in the ordinary posture, did not give good results. In carrying out the method the patient's arms were folded across the chest and the lower extremities fastened to the table with a surcingle. Absolute quiet was sought and the patient's attention left alone with the anesthetist. Where the procedure was successful, on opening the abdomen only a few loops of intestine were found in the pelvis, requiring the use of but one small square of gauze to procure excellent exposure.

Dr. JOHN O. POLAK, of Brooklyn, endorsed the method. Pads of all forms produced trauma, and ease of convalescence depended to a marked extent upon the amount of trauma to the small intestine. A modified procedure was described in which, instead of employing a surcingle for the flexed legs, the latter were kept extended and the position maintained by well padded shoulder pieces. He thought the method could not well be used with gas-oxygen anesthesia. Dr. Donald C. Balfour, of Rochester, Minn., stated that much trauma of the kind referred to occurred because of impatience of the surgeon, who failed to wait until the patient had become well relaxed and the small intestine could be easily gotten away from the operative field. Doctor Guthrie, in closing the discussion, laid stress on the importance of lifting up the abdominal wall after the abdomen was opened. This allowed the intestines to slide down from the pelvis more easily.

A New Operation for Duodenal and Gastric Ulcers.—Dr. J. SHELTON HORSLEY, of Richmond, Va., noted that in a series of 285 cases of gastric ulcer reported by Balfour, only 159 patients had been cured. Smithies had reported 273 gastroenterostomies for dyspeptic conditions, in which only fifty-seven patients became clinically complaint free. These results were not satisfactory as far as curing the patient was concerned. The reason was that by the operations performed physiological restoration of the stomach was not being obtained. The characteristic postprandial pains had been shown to be due not to chemical irritation but to the pressure resulting from peristalsis, the nerves being hypersensitive because of the inflammatory condition and therefore more susceptible to such pressure. Consequently gastroenterostomy was merely symptomatic in its effect, and a more specifically acting operation was required. As far as the Finney operation was concerned, mobilization of the duodenum for it might be difficult. Objections to the Heineke-Mikulicz operation were also referred to. Most duodenal ulcers were practically within the grasp of the pylorus, as an ulcer at the anus is in the grasp of the sphincter; hence a disinclination to heal in both cases. Since temporary paralysis of the sphincter, excision, and cauterization yielded a cure in fissure at the anus, a similar procedure should prove effectual in curing duodenal ulcer.

Doctor Horsley's operation consisted in making an incision about three inches long, one inch in the duodenum and two inches in the stomach, slightly curved on the stomach in order to keep midway between the greater and lesser curvatures. The ulcer was then excised from the mucous surface in duodenal ulcer or by separate incision in gastric ulcer, and the incision sewn up transversely. The angles were thus placed in healthy tissue and within the stomach wall, and the pyloric sphincter and pyloric fibres of the stomach temporarily put out of commission. The physiological function of the organ, however, was maintained. This operation had been performed in eleven cases; two of these patients had died, but in neither instance had death been due to a fundamental defect in the principle of the operation.

Dr. JAMES B. BLAKE, of Boston, referred to the importance of the pylorus as a governor of the functions of the stomach. Broadly speaking, exclusion of the pylorus had never been successful. If Doctor Horsley's operation proved successful, it would eliminate gastroenterostomy. To determine its value would require repetition by many other operators, following exactly the technic of the originator. Dr. JOHN T. BOTTOMLEY, of Boston, maintained that to get rid of the ulcer was the main thing. After that it did not matter what one did. Even destruction of the ulcer by the cautery would not always entirely do away with the symptoms. There was no cure-all for the condition. Dr. GOODHUE, of Ohio, stated that he had himself been subjected to operation, a ligation of the vessels to the ulcer and a gastroenterostomy having been carried out. He had had a severe hemorrhage ten days later, but had entirely recovered. At present he would not know that he had had any operation. Balfour's mortality of 1.6 per cent. suggested the employment of his operation rather than others with a higher mortality. Dr. A. J. OCHSNER, of Chicago, emphasized that the stomachs in the cases referred to, with marked deposits of fibrous tissue, were entirely different machines from those dealt with in Cannon's experiments. Gastroenterostomy was certainly helpful in permitting highly acid material to pass out of the organ, reduced as it was to a helpless bag. Dr. MILES F. PORTER, of Fort Wayne, Ind., pointed out that the existence of an ulcer did not necessarily mean that any hemorrhage taking place was from that ulcer. He referred to a case of hemorrhage due to an arterial disturbance resulting from contracted kidney.

Dr. WILLIAM J. MAYO, of Rochester, Minn., said that Doctor Horsley should come again next year after improving his technic. There was probably a field for an operation such as he had described. One should remember that these cases had failed under medical treatment and were derelicts. One cause of failure was operation to cure a medical condition. In recent work at his clinic 300 wrongly diagnosed cases had to be excluded. The use of silk would in a certain proportion of cases cause secondary ulcers. He now used the catgut method. On three or four thousand cases of gastroenterostomy no failures had occurred from catgut. Statistical evidence was presented to the effect that cancer does follow ulcer rather frequently. He was afraid to cut into a cancer for diagnostic purposes unless the whole lesion was to be excised. Cancer cells were five times as susceptible to unfavorable influences as normal body cells and the cautery killed them in a zone far outside that reached by an excision.

Dr. C. A. L. REED, of Cincinnati, pointed out that in some cases there was a tendency to hemorrhage from the fact that preexisting ptosis was not corrected at the operation. In all these instances there was extreme turgescence of the gastromesenteric circulation. Hence the intestinal catarrh as an early symptom, and the large factor in the hemorrhages residing in the defect of venous circulation, which defect must be eliminated. Experience had shown that recoveries were parallel

with the correction of this unfavorable factor. Doctor BALFOUR, in closing the discussion, agreed that it might be well as a routine to ligate the vessels. Strauss's excision alone was not an adequate operation; too many reoperations followed. The campaign to eliminate gastroenterostomy was at present insufficient. More would have to be shown before this could be done.

The Treatment of Gunshot Wounds of the Abdomen.—Dr. JOHN H. GIBBON, of Philadelphia, stated that of late operation had been resorted to more than formerly in these cases on account of the frequency of shell wounds. An ability to estimate whether a missile had actually penetrated the abdomen and what organs were affected was of great importance. Many wounds which seemed to penetrate did not, and vice versa. Where the viscera had not been disturbed, exploration only added to the danger to life. Marked rigidity and costal breathing frequently resulted from shell wounds. The probe had been eliminated from military surgery. Experience, judgment, and careful examination in each case were necessary, the symptoms being often confusing. Where an abdominal missile lodged in the thorax and was small in size, one did not operate for it. Examination of the entrance and exit by the x rays was an important measure. An operation was not performed unless there were rather definite indications of penetration. Some cases of hemorrhage of the liver were benefited by operation, but many were made worse. On the whole, no important change in the technic had been introduced during the war, except that it had become the rule to close without drainage. A drain many times led to infection. Often all layers of the abdominal wall were closed but the skin, as late infections frequently resulted from the latter. If a drain was used at all, it was loose gauze drain. The mortality in gunshot abdominal wounds had been extremely high, but this mortality had occurred largely on the field as a result of hemorrhage and shock. It had also been high in the cases seen at the surgical centres from the same causes and also because of the frequency of multiple wounds. The German prisoners had died less frequently after operations than others, probably because they had been less hastily subjected to operation. An important question sometimes arising before operation was to decide whether bleeding was continuous.

The Better Methods of Wound Treatment.—Dr. HENRY O. MARCY, of Boston, stated that given an aseptic wound in well vitalized structures, properly closed and protected, primary union would follow. He considered the buried absorbable suture, which reduced a large part of surgical procedure to a plastic art, one of his best contributions to surgery. All aseptic wounds thus carefully closed were sealed with iodoform collodion reinforced with a few fibres of cotton, followed by surgical rest of the parts involved. The work commenced by the surgeon was thus finished before the patient left the operating table.

Dr. Marcy early became dissatisfied with catgut for such use as a buried suture material entirely independent of its preparation and sterilization, for

it speedily softened in the tissue and then its elasticity might endanger its use. After some years of investigation he discovered the construction and value of the caudal tendons of the kangaroo. The psoas muscle was multiple and each fasciculus had its independent tendon, extending to the extremity of the tail. These carefully chromatinized and prepared furnished suture material far superior to catgut in every way. Doctor Marcy considered one of the greatest compliments given him was that the English government at the outbreak of the war commandeered the whole Australian supply for military purposes. Doctor Marcy was given the exceptional privilege of obtaining a supply. During the Russian-Japanese War he furnished the Japanese government a large supply and during the present war several hundred thousand were furnished by him to the United States Army.

The use of the buried absorbable suture had greatly widened the field of surgery. Organs hitherto removed were often reconstructed with safety. It rendered possible many safe procedures in abdominal surgery. The peritoneum was reconstructed, thus largely preventing too common dangers arising from adhesions. It had rendered possible the easy and safe cure of hernia by the reconstruction of the inguinal canal to its normal obliquity.

SECTION IN OPHTHALMOLOGY.

Immediate Capsulotomy in the Extraction of Senile Cataract.—Dr. ARTHUR G. BENNETT, of Buffalo, revived this old operation for the benefit of operators who felt they were not apt to become sufficiently skillful to perform the Smith-Indian operation. The advantages claimed were: a round pupil, as there was no iridectomy; the introduction of only one instrument into the eye; the gaping of the lens capsule, leaving a clear centre, and obviating the need of a secondary needling in most cases; the short time the speculum was used, lessening the danger of loss of vitreous; the ease with which the operation was performed, and the fact that the lens could be more readily and more cleanly expressed with the fingers than with any instrument. He had performed the operation twenty-six times.

Dr. H. W. WOODRUFF, of Joliet, stated that because one could become skilled in the performance of a dangerous operation it did not follow that such an operation should be performed when the same result could be secured with less risk. In the operation described the attention of the operator was necessarily directed simultaneously to too many things. No operator should confine himself exclusively to any one method, and every one should be familiar with some intracapsular operation.

Dr. DERRICK T. VAIL pronounced it an antiquated method, often tried and abandoned, which was applicable only to nice ripe cataracts that might be removed in any way. What was needed was a better way of dealing with slowly ripening, immature cataracts.

Dr. E. JACKSON had tried opening the capsule with the knife while making the section some twenty-five or thirty years ago but found it difficult to make at the same time a smooth corneal incision. Now after making the section he carries his knife back and incises the capsule.

Dr. ALEXANDER DUANE said that this observation showed how a keen observer could catch other people napping, as he had never recognized such cases as these. He was much struck by the diagnostic symptom of the disproportionate badness of the near vision as compared to the distant.

Doctor DE SCHWEINITZ recalled that in 1894 Fink, of the Indian Medical Service, detected a membrane that he called a hyaloid cataract, needling of which gave good vision for near.

Adventitious Hyaloid Membrane Following Operation for Secondary Cataract.—Dr. S. LEWIS ZIEGLER, of Philadelphia, said that adventitious hyaloid membrane, although of rare occurrence, was a distinct pathological entity. It might be caused by irritating chemicals in the aqueous acting on the exposed vitreous body, although this could not be demonstrated. Some seven or eight cases had been observed during thirty years' practice. The cardinal symptoms were: 1, lowered visual acuity for near when the distant vision was good; 2, the presence of an iridescent vitreous reflex as revealed by oblique illumination. Although it was a sequela of secondary capsular cataract, its presence demanded a *pro forma* repetition of the V shaped incision in order to divide the film and restore normal vision. A cursory review of the literature revealed nothing of importance recorded concerning this condition.

The Autotoxic Factor in Sympathetic Ophthalmia.—Dr. ARNOLD KNAPP, of New York, acting on Elsching's suggestion that an additional factor needed to be presented in the form of a general disease or an autointoxication in addition to a wounded eye for the onset of sympathetic ophthalmia, investigated four cases during the past year. There was a history of improper diet, over-eating, and constipation. In two of the cases there was a highly toxic, acid stool, large excess of skatol and indol, and exclusively gram positive bacteria. Regulation of the diet, thorough catharsis, and colon irrigation seemed the most effective treatment.

Doctor ZIEGLER thought the symptoms of sympathetic ophthalmia might be exaggerated by toxemia but doubted its being an etiological factor. An old fashioned remedy efficient in these cases, as well as in cyclitis and choroiditis, was turpentine.

Treatment of Symblepharon and Restoration of the Orbital Socket.—Dr. WILLIAM H. WILDER, of Chicago, met the problem of preventing symblepharon after burns of the eye by adjusting a plate, preferably of block tin, about one mm. thick so that it would fit the eyeball, cutting a hole where it would otherwise touch the cornea, coating it with very hard paraffin by dipping it in the boiling paraffin and then in cold water a few times, and inserting it over the eyeball so that the raw surfaces of the lids are kept separate from those of the eyeball. When granulation had begun, mucous or epidermal grafts were attached to the plate which held them in position on the affected areas. When symblepharon existed and its removal left too great a space to cover with conjunctival flaps, grafts were applied in the same way on the paraffined plates. The plates were used in a similar way to hold the

grafts to line the new cul de sac in cases of restoration of the orbital socket, in order to enable an artificial eye to be worn.

Doctor DE SCHWEINITZ said that the British surgeons had found what they called "stent" superior to any other material for the making of such plates. This apparently was what we know as dental base plate. In restoring a socket the incision must be carried deeply.

Relation of Teeth, Tonsils, and Intestinal Toxemias to Diseases of the Eye.—Dr. GEORGE HUSTON BELL, of New York, insisted on the great importance of examining all patients for what he called the three Ts: diseased teeth, tonsils, and toxemias of the intestinal tract. A dirty mouth was one of the greatest menaces. The way to get right on the dental question was to begin in the schools. All the children get now is the toothbrush drill; what they needed was regular and systematic inspection of their teeth and education in dental hygiene. The tonsils had long been known to be foci of systemic infection yet were often overlooked. In toxemias of the intestinal tract the first two things to consider were diet and the condition of the teeth. Errors of diet and pyorrhœa alveolaris were the starting points of nearly all cases of hyperacidity, hypoacidity and toxemia of the intestinal tract. It is in the civilized food products, the carbohydrates, sugars, and glucose, that we must look for the agents responsible for the autointoxications, as these produced fermentation.

Dr. HIRAM WOODS, of Baltimore, was inclined to dissent from the speaker. He spoke of a case in which the extraction of all the teeth failed to relieve an episcleritis and thought it hard to determine whether focal infection was the cause in any particular case. Even after other causes had been excluded the diagnosis could hardly be made positively. He was doubtful whether intestinal toxemia was the cause of many eye troubles, though he thought Doctor Bell right in ascribing phlyctenular disease to this cause.

Doctor DEEKS, of New York, spoke from the standpoint of the internist. He had a large experience in intestinal toxemia at Ancon, where he was able to cure many cases of deeply situated inflammatory conditions of the eye through attention to the intestinal tract. He urged the cutting out of sugar, starches and cereals from the diet of such patients, and the substitution of meat, green vegetables and fruits. He believed the modern diet of carbohydrates was responsible for many troubles not only of the eye but of the general system. Half a dozen other speakers supported the views presented by Doctor Bell in regard to the great importance of the effects produced by his three Ts.

1. **Cysticoccus of the Vitreous.** 2. **Congenital Multilocular Cysts in Relation with the Retina.** 3. **Anterior Lenticulus.**—Dr. G. E. DE SCHWEINITZ, of Philadelphia, and Dr. MEYER WIENER, of St Louis, gave accounts of cases of these three rare conditions observed in the ophthalmic service of the U. S. Army General Hospital No. 14, at Fort Oglethorpe.

A New Operation for the Relief of Conical Cornea.—Dr. L. WEBSTER FOX, of Philadelphia, said that he prepared the patient and the field of operation in his usual manner, instilled a drop of a four grains to the ounce solution of atropine, and introduced a speculum. The conjunctiva was grasped a trifle below the inferior corneoscleral margin, slightly to the nasal side, and a Graefe knife was introduced into the cornea about three mm. above its horizontal meridian, with the cutting edge inclined directly forward so as to bisect the cornea straight across, parallel with the horizontal meridian but above it. This required care and judgment lest the pupillary area be obscured by the final effect of the operation. It was better to be too high than too low. The inferior segment of the cornea was then depressed gently by the iris forceps, which was passed beneath the superior segment to grasp a portion of the iris. This was withdrawn and cut off. The upper margin of the inferior corneal segment was grasped by specially constructed forceps and a semilunar strip of cornea was removed by specially devised scissors. Silk sutures were introduced in two places with the aid of specially constructed forceps through the adjacent edges on either side of the pupil and tied. Atropine was instilled, the eye irrigated, and a dressing applied. This procedure flattened the cornea.

Doctor VERHOEFF objected that theoretically the operation seemed to be too dangerous, because of danger of infection, the difficulty of bringing the lips of the wound into perfect apposition, which was essential to success, the entrance of the sutures into the anterior chamber, and the fact that apparently the thin spot in the cornea, always present in keratoconus, was not removed. He thought it would be safer for most ophthalmologists to refrain from performing this operation for the present and to continue to rely on cauterization and iridectomy.

Dr. W. T. DAVIS, of Washington, suggested the further danger of damaging the lens and thought cauterization with iridectomy safer and capable of yielding good results. Dr. A. S. Green, of San Francisco, had tried Fox's operation and obtained good results. Dr. O. Wilkinson, of Washington, spoke of the benefit he had seen in one patient operated on by Doctor Fox. He thought it questionable if a less skillful operator could do as well. Dr. M. Wiener, of St. Louis, said that while the results attained by Doctor Fox in this operation were better than his, he considered the operation difficult to perform and needing practice, and that his own was safer. Dr. W. C. Posey said the idea of trying to reduce the apex of the cone was right but that cauterization was safer. Doctor Ziegler thought the operation safe if the operator had had proper training.

Foreign Bodies Within the Eyeball.—Dr. JOHN O. McREYNOLDS, of Dallas, Texas, said that this was a condition which demanded immediate positive action. First the size and location of the foreign body must be determined and whether or not it was magnetic. The magnetic quality of iron varied, so all diagnostic methods must be used. Then it must be decided whether to try to remove it by the anterior or by the posterior route. Per-

sonally, Doctor McReynolds preferred the posterior. If the vitreous was infected he removed the cloudy part with forceps until only clear vitreous remained. The wound in the eye should be closed and covered by a conjunctival flap. The next question was how long the physician would be justified in trying to save an eye from which a foreign body had been successfully extracted. If an eye did not do well he saturated the patient with salicylate of soda, and if it was not doing well at the end of three weeks he enucleated.

Dr. W. M. SWEET favored the scleral incision to remove a foreign body from the vitreous. Detachment of the retina was apt to follow the extraction. A single x ray plate might give a faulty idea of the size and shape of a foreign body, so that three or four plates should be taken at different angles.

Dr. E. JACKSON said that the most common failure of the x ray was to report a foreign body as outside an eye when it was inside, probably because of insufficient allowance for the divergence of the rays. He suggested that if two exposures were made on the same plate, the first with the eye in a certain position and the second with the eye rotated strongly in the opposite direction, there would be only one image of the foreign body if it were outside the eye and two if it were inside.

Doctor GREENWOOD said that with the army in France the magnet was largely used for diagnosis because it was difficult to get good x ray work. The foreign body was drawn into the anterior chamber by the large Lancaster magnet and then extracted with the small one.

Doctor DERBY said that the British preferred the anterior route; some of the French used one and some the other. A foreign body might be in the eye and no wound of entrance be visible. He considered the magnet the final test. The magnet should be tried more than once if it failed to remove the foreign body at the first attempt.

Dr. E. E. HOLT urged the importance of the time element in success. He considered it so important that if he could not get an x ray immediately he would proceed to remove the foreign body without it. The quicker a piece of steel was removed the better the chance of saving the eye.

The Treatment of Dacryocystitis by Curettage.—Dr. JOHN GREEN, Jr., of St. Louis, advocated the following procedure: after slight dilatation of the punctum with a conical probe, the sac was irrigated with mercuric chloride, 1:5,000, and a few drops of cocaine, five per cent., with epinephrin, were injected. The lower canaliculus was then slit, a medium sized curette was passed into the lacrimal sac and the surface of the mucosa gently curetted. A moderate sized probe, Theobald five or six, was then introduced and passed into the nostril. When this was withdrawn a few drops of a ten per cent. solution of cocaine with epinephrine were injected three times at two minute intervals, while the patient bent his head forward so that the strong cocaine solution would run from the nostril. The entire tract was then curetted, not harshly, and the larger sizes of Theobald's probes were introduced one after another. Finally tincture of iodine was applied lightly to the walls of the sac and duct.

Dr. W. R. THOMPSON, of Fort Worth, said it was not fair to classify as failures cases in which only one or two efforts to cure had been made, as the operation sometimes needed to be repeated several times. He scrubbed out the sac with a burr wound with linen thread before applying the iodine, and this was a valuable addition to the technic. The results were much better than those obtained by other methods, and this method should be tried before resort to radical measures. Doctor Ziegler relied on rapid dilatation and believed that a hundred cases required rapid dilatation to one that required excision of the sac. He doubted if curettage should be used in all cases. Doctor Wilder called attention to the fact that in most cases of epiphora the stricture was not organic but functional, due to a swelling of the mucosa, and that careful treatment of the latter at the beginning of the trouble left fewer cases needing probing.

Personal Observations Regarding the Treatment of Glaucoma.—Dr. JOHN E. WEEKS, of New York, regarded the principal determining causes of hypertension as: 1, Obstruction to the outflow of fluids from the interior of the eye by, a, inflammatory products, as the presence of fibrin in the aqueous, blocking the spaces of Fontana, or of nondiffusible substances which did not readily pass through the filtration spaces; b, encroachment of the iris on the spaces of Fontana; c, the incarceration of the iris or the lenticular capsule in a cicatrix; d, development of cysts, tumors, or thickening of the iris; e, increase in volume of the contents of the vitreous chamber. 2. Sclerosis affecting the lymph spaces at the sclerocorneal junction. 3. Increase in the intraocular secretions. 4. Retention of aqueous in the posterior chamber. He urged the use of accurate measures to determine the tension. He tested the tension of all patients with his fingers, then if the tension appeared to be above normal, or if hypertension was suggested in any other way he employed the tonometer. When the tension was above twenty-five an attempt was made to keep the tension at or below that degree by means of miotics, and this could be done in many cases of idiopathic glaucoma without deterioration in vision or loss of visual fields. In other cases they failed and operation became necessary. They gave permanent relief in many cases of hypertension after cataract or other operations but were not so efficient in cases of secondary glaucoma. When practicable he tried miotics in all cases of hypertension before advising operation. Early operation was desirable. In buphthalmos paracentesis repeated several times was useful during the early stage, but when the patient had reached the age of from four to eight years he preferred trephining, with iridectomy. Acute idiopathic glaucoma was treated with a one per cent. solution of physostigmine every hour, a calomel purge, morphine hypodermically, and light diet; if there was no diminution in tension in twelve hours operation was performed, but if the tension was subsiding operation was postponed until the eye had become as nearly normal as possible, when a broad iridectomy was performed. For the subacute and simple chronic cases he preferred Lagrange's operation to trephining.

Doctor POSEY described the classes of patients in which he was accustomed to operate rather than rely wholly on miotics, and said that he preferred iridectomy. He called attention to the danger of lenticular changes after both Lagrange's operation and trephining. Doctor Vail spoke of the conjunctivitis resembling trachoma sometimes excited by the prolonged use of eserine, which he combated by adding camphor to the solution in the strength of one grain to the ounce, using sufficient alcohol to dissolve it. He preferred the Graefe knife to the keratome, a preference which was not concurred in by the succeeding speaker.

Births, Marriages, and Deaths.

Married.

CRYSTAL—KUZROK.—In Brooklyn, N. Y., on Sunday, June 15th, Dr. Benjamin H. Crystal and Miss Regina Kuzrok.

JESSUP—CASTLE.—In London, England, on Monday, June 2d, Dr. Everett C. Jessup, Captain, Medical Corps, U. S. Army, of Roslyn, Long Island, and Miss Helen Batho Castle.

Died.

BREWER.—In Springfield, Mass., on Tuesday, June 3d, Dr. Charles D. Brewer, aged seventy-one years.

BROWN.—In New York, N. Y., on Saturday, June 14th, Dr. Richard Ewell Brown, aged fifty years.

BROWNING.—In Sioux City, Ia., on Sunday, June 8th, Dr. George S. Browning, aged forty-six years.

CARROLL.—In New York, N. Y., on Saturday, June 21st, Dr. William H. Carroll, of Passaic, N. J., aged fifty-eight years.

CURRENT.—In Danville, Ill., on Friday, June 13th, Dr. Effie A. Current, aged forty-four years.

DOYLE.—In Brooklyn, N. Y., on Tuesday, June 17th, Dr. Joseph Mark Doyle, aged fifty-five years.

EWING.—In Lincoln, Ill., on Thursday, June 5th, Dr. Francis Marion Ewing, aged sixty-two years.

FISK.—In Leverett, Mass., on Wednesday, June 4th, Dr. William W. Fisk, aged sixty-three years.

HADLEY.—In Indianapolis, Ind., on Wednesday, June 4th, Dr. E. Burton Hadley, of Waterloo, Ia., aged fifty years.

HAISELDEN.—In Havana, Cuba, on Wednesday, June 18th, Dr. Harry J. Haiselden, of Chicago, aged forty-nine years.

MCCOY.—In Los Angeles, Cal., on Wednesday, June 11th, Dr. John C. McCoy, aged sixty-six years.

HOUGHTON.—In Plattsburg, N. Y., on Sunday, June 15th, Dr. George H. Houghton, of Albany, N. Y., aged sixty-six years.

KATZ.—In Elizabeth, N. J., on Friday, June 20th, Dr. Herman Wilconeir Katz, aged forty-eight years.

MURDOCK.—In Leicester, Mass., on Friday, June 13th, Dr. John Newton Murdock, aged ninety-two years.

NORTON.—In New York, N. Y., on Wednesday, June 18th, Dr. Arthur Brigham Norton, aged sixty-two years.

NUSSLE.—In Chippewa Falls, Wis., on Saturday, June 7th, Dr. Emil E. Nussle, Sr., aged sixty-six years.

PAUL.—In Richmond, Ind., on Monday, June 9th, Dr. Benjamin D. Paul, of Indianapolis, Ind., aged thirty-one years.

SAMUELL.—In Chicago, Ill., on Monday, May 26th, Dr. Dillard Estep Samuell, of Wilmington, Ill., aged forty-two years.

SENSENIC.—In Wakarusa, Ind., on Sunday, June 8th, Dr. Aaron S. Sensenich, aged seventy years.

TAYLOR.—In Havana, Ill., on Monday, June 2d, Dr. James Mitchell Taylor, aged seventy-one years.

THOMAS.—In Flint, Mich., on Thursday, June 5th, Dr. Hiram R. Thomas, aged seventy-five years.

WILLIAMS.—In Winnetka, Ill., on Sunday, May 25th, Dr. Edward F. Williams, aged eighty-seven years.

WORK.—In Waukesha, Wis., on Saturday, June 7th, Dr. Paul Bartholomew Work, of Elkhart, Ind., aged thirty-four years.

INDEX TO VOLUME CIX.

	PAGE.		PAGE.		PAGE.
ABDOMEN, penetrating wounds of....	206	Amino acid concentration, protein feed-		Athletics, reform of	161
gunshot wounds of.....	1141	ing in relation to	439	Atrial fibrillation.....	388
gunshot wounds of.....	1141	Ammonia, technic of quantitative estima-	827	Auscultation, transabdominal	655
Abdominal conditions in influenza.....	785	of, in the urine.....		Autogenous vaccines in treatment of	
disease, surface temperature in diagno-		Amputations in war surgery, care of pa-	308	wounds.....	829
sis of	1077	tients in		Autointoxication, enterogenous.....	298
panniculitis, diagnostic errors caused by	513	Amygdala of cerebellum, surgical import-	37	factor in sympathetic ophthalmia.....	1342
pregnancy, treatment of, after fifth		ance of		Autoserotherapy in pleurisy with effusion..	78
month.....	1137	Amyl nitrate, inhalations of, in eczema..	564	Autoculture in typhoid fever.....	519
reflexes, significance and value of.....	1142	Anemia, aplastic	197	Aviation candidates, medical examination	
surgery, diagnosis in	696	bothrioccephalus	1661	of	253
recent progress in	1092	in chronic ailments	274	internal ear and cerebellum in relation	
under local anesthesia.....	1138	pernicious, gastrointestinal disease in..	1053	to	89
Abduction treatment of fractured femur	449	treatment of	874	problems of	83
Abortion, syphilis in relation to.....	213	radium treatment of	347	recent, cardiovascular problem in ..	794
therapeutic, operative technic in.....	665	Anemias, diagnostic methods in.....	1963	necrotic, pulmonary problem in ..	799
Abscess, brain, symptoms of.....	800	Anesthesia, discoverer of	292	necrotic, pulmonary problem in ..	799
breast, tin oxide in treatment of.....	560	ether, in relation to pressor effects of		necrotic, pulmonary problem in ..	799
cerebral, pathology and clinical forms of	810	epinephrine	737	necrotic, pulmonary problem in ..	799
lung, following epidemic influenza.....	150	ether, with patient in Trendelenburg		necrotic, pulmonary problem in ..	799
mammary, aspiration and pressure treat-		position	1139	necrotic, pulmonary problem in ..	799
ment of	1138	general, by lumbar injections of pro-		necrotic, pulmonary problem in ..	799
peritonitis, complicating influenza.....	59	caine	738	necrotic, pulmonary problem in ..	799
retropharyngeal, diagnosis of.....	1114	in labor	876	necrotic, pulmonary problem in ..	799
tropical, of liver.....	78	local, abdominal surgery under.....	1138	necrotic, pulmonary problem in ..	799
Academy of Medicine's committee on the		in children	747	necrotic, pulmonary problem in ..	799
prevention of influenza, report of.....	522	in exophthalmic goitre.....	213	necrotic, pulmonary problem in ..	799
Accidents, industrial, causation and pre-		in rectal operations.....	742	necrotic, pulmonary problem in ..	799
vention of	807	in secondary suture and skin graft.....	770	necrotic, pulmonary problem in ..	799
Acidity, urinary, and specific gravity.....	902	rapid	1001	necrotic, pulmonary problem in ..	799
Acidosis, experimental	167	spinal	1074	necrotic, pulmonary problem in ..	799
in children	833	Anesthetic, death during administration of	736	necrotic, pulmonary problem in ..	799
in influenza epidemic.....	282	Anesthetics, local, comparative value of..	125	necrotic, pulmonary problem in ..	799
in pregnancy	834	pharmacology of	1045	necrotic, pulmonary problem in ..	799
mineral metabolism in	197	Aneurysm, carotid, prevention of sequelae		necrotic, pulmonary problem in ..	799
of influenza, alkali treatment in ..	831	in operations on	1969	necrotic, pulmonary problem in ..	799
with dyspeptic coma	37	intracranial, case of	699	necrotic, pulmonary problem in ..	799
Acne vulgaris, treatment of.....	152	Angina, Vincent's, new treatment for....	33	necrotic, pulmonary problem in ..	799
Acromegaly of the larynx.....	299	syphilitic, chancre and ulcerations of		necrotic, pulmonary problem in ..	799
Activity, lymphoid, studies on.....	390	type of	477	necrotic, pulmonary problem in ..	799
Addison's disease following destruction of		Antisepsis due to pleuritis in syphilis.....	1605	necrotic, pulmonary problem in ..	799
adrenal body	563	Antisepsis, local, comparative value of..	125	necrotic, pulmonary problem in ..	799
Adenitis, tuberculous, surgical treatment		Antisepsis, pharmacology of	1045	necrotic, pulmonary problem in ..	799
of	426	Aneurysm, carotid, prevention of sequelae		necrotic, pulmonary problem in ..	799
Adhesions, pericholecystic	413	in operations on	1969	necrotic, pulmonary problem in ..	799
x ray diagnosis of	441	intracranial, case of	699	necrotic, pulmonary problem in ..	799
Adnexa, sigmoid and uterine, fused by in-		Angina, Vincent's, new treatment for....	33	necrotic, pulmonary problem in ..	799
flammation	782	syphilitic, chancre and ulcerations of		necrotic, pulmonary problem in ..	799
Adrenal body, Addison's disease following		type of	477	necrotic, pulmonary problem in ..	799
destruction of	565	Antisepsis due to pleuritis in syphilis.....	1605	necrotic, pulmonary problem in ..	799
glands, traumatic and tuberculous lesions		Antisepsis, local, comparative value of..	125	necrotic, pulmonary problem in ..	799
of	809	Antisepsis, pharmacology of	1045	necrotic, pulmonary problem in ..	799
Adrenalin content in infant's blood.....	698	Aneurysm, carotid, prevention of sequelae		necrotic, pulmonary problem in ..	799
in urinary amebiasis	110	in operations on	1969	necrotic, pulmonary problem in ..	799
injections producing lesions and ero-		intracranial, case of	699	necrotic, pulmonary problem in ..	799
sions	36	Angina, Vincent's, new treatment for....	33	necrotic, pulmonary problem in ..	799
Air embolism, complication of pneumo-		syphilitic, chancre and ulcerations of		necrotic, pulmonary problem in ..	799
thorax	187	type of	477	necrotic, pulmonary problem in ..	799
expired, in propagation of epidemics....	79	Antisepsis due to pleuritis in syphilis.....	1605	necrotic, pulmonary problem in ..	799
hot, in treatment of wounds.....	1002	Antisepsis, local, comparative value of..	125	necrotic, pulmonary problem in ..	799
injections in pleural disorders.....	1005	Antisepsis, pharmacology of	1045	necrotic, pulmonary problem in ..	799
passages, upper, Dakin's solution in in-		Aneurysm, carotid, prevention of sequelae		necrotic, pulmonary problem in ..	799
fections of	171	in operations on	1969	necrotic, pulmonary problem in ..	799
Airplane, use of, by surgeons.....	819	intracranial, case of	699	necrotic, pulmonary problem in ..	799
Albumin and casts in soldiers in training		Angina, Vincent's, new treatment for....	33	necrotic, pulmonary problem in ..	799
in urine, quantitative estimation of....	81	syphilitic, chancre and ulcerations of		necrotic, pulmonary problem in ..	799
in urine, quantitative estimation of....	81	type of	477	necrotic, pulmonary problem in ..	799
Albuminuria in soldiers in training.....	477	Antisepsis due to pleuritis in syphilis.....	1605	necrotic, pulmonary problem in ..	799
orthostatic, blood pressure and kidney		Antisepsis, local, comparative value of..	125	necrotic, pulmonary problem in ..	799
function findings in	168	Antisepsis, pharmacology of	1045	necrotic, pulmonary problem in ..	799
Alcohol, abuse of, for rubs.....	509	Aneurysm, carotid, prevention of sequelae		necrotic, pulmonary problem in ..	799
and the individual	928	in operations on	1969	necrotic, pulmonary problem in ..	799
injections of, for neuralgia.....	1100	intracranial, case of	699	necrotic, pulmonary problem in ..	799
percentage of, in intoxicating beverages		Angina, Vincent's, new treatment for....	33	necrotic, pulmonary problem in ..	799
social compensatory aspects of.....	925	syphilitic, chancre and ulcerations of		necrotic, pulmonary problem in ..	799
therapeutic uses of	688	type of	477	necrotic, pulmonary problem in ..	799
use or abuse of	951	Antisepsis due to pleuritis in syphilis.....	1605	necrotic, pulmonary problem in ..	799
value of	950	Antisepsis, local, comparative value of..	125	necrotic, pulmonary problem in ..	799
Alcoholism and the phantasy life in Tol-		Antisepsis, pharmacology of	1045	necrotic, pulmonary problem in ..	799
stoi's drama <i>Redemption</i>	92	Aneurysm, carotid, prevention of sequelae		necrotic, pulmonary problem in ..	799
psychological aspects of	930	in operations on	1969	necrotic, pulmonary problem in ..	799
symposium on	962	intracranial, case of	699	necrotic, pulmonary problem in ..	799
Alexander, M. E. Surface temperature		Angina, Vincent's, new treatment for....	33	necrotic, pulmonary problem in ..	799
in diagnosis of surgical abdominal		syphilitic, chancre and ulcerations of		necrotic, pulmonary problem in ..	799
conditions	1077	type of	477	necrotic, pulmonary problem in ..	799
Alkali treatment of acidosis of influ-		Antisepsis due to pleuritis in syphilis.....	1605	necrotic, pulmonary problem in ..	799
enza	573	Antisepsis, local, comparative value of..	125	necrotic, pulmonary problem in ..	799
Alkalization of infants' food, deleterious		Antisepsis, pharmacology of	1045	necrotic, pulmonary problem in ..	799
effect of	1103	Aneurysm, carotid, prevention of sequelae		necrotic, pulmonary problem in ..	799
Allen method in diabetes	936	in operations on	1969	necrotic, pulmonary problem in ..	799
Allis, Jere A. Enuresis nocturnal.....	326	intracranial, case of	699	necrotic, pulmonary problem in ..	799
Allport, Frank. Fourteen points concern-		Angina, Vincent's, new treatment for....	33	necrotic, pulmonary problem in ..	799
ing ophthalmia neonatorum	353	syphilitic, chancre and ulcerations of		necrotic, pulmonary problem in ..	799
Alopecia and earwax.....	3	type of	477	necrotic, pulmonary problem in ..	799
postinfluenza	499	Antisepsis due to pleuritis in syphilis.....	1605	necrotic, pulmonary problem in ..	799
Ambulance, flying	244	Antisepsis, local, comparative value of..	125	necrotic, pulmonary problem in ..	799
Amebiasis, intestinal, pneumatic	344	Antisepsis, pharmacology of	1045	necrotic, pulmonary problem in ..	799
urinary, adrenalin in	410	Aneurysm, carotid, prevention of sequelae		necrotic, pulmonary problem in ..	799
Amenorrhea in diabetes.....	474	in operations on	1969	necrotic, pulmonary problem in ..	799
of wartime, condition of ovaries in....	474	intracranial, case of	699	necrotic, pulmonary problem in ..	799
American Medical Association, seventieth		Angina, Vincent's, new treatment for....	33	necrotic, pulmonary problem in ..	799
annual meeting of	905, 1034, 1038, 1002, 1133	syphilitic, chancre and ulcerations of		necrotic, pulmonary problem in ..	799
American women's hospitals in France....	328	type of	477	necrotic, pulmonary problem in ..	799

PAGE.		PAGE.		PAGE.	
Cellulitis, orbital	365	Cooke, Edwin S. Social diseases in the army	444	Development, physical, by graded exercises	121
Cerebellar gait	474	Cooper, Sir Astley, an anecdote of	857	sexual, intermediary stages in	787
" problems	82	Copper sulphate in therapeutics	119	Diabetes, Allen method of treatment of	939
Cerebellum in relation to aviation	83	Cord injuries of warfare, treatment of	199	amorrhagic in	474
surgical importance of amygdalæ of	37	rupture of, in fracture of spine	128	chemical changes in blood in	1008
Cerebra abscess, pathology and clinical forms of	819	Cornea, conical, new operation for relief of	1143	effect of war diet on	346
dabs	695	Corpus luteum in neurological practice	302	mellitus, etiology and treatment of	548
ventricles, fluoroscopy of	1111	nausea and vomiting controlled by	608	prevention and treatment of coma in	429
Cerebrospinal meningitis in Hong Kong	1062	Corrosive sublimate, injections of, in influenza	388	renal	429
serum treatment of	437	Coryza, epidemic, dogs and cats a source of	183	Diagnosis of chronic gonorrhea	667
Certificate, misleading, for clinical thermometer	800	Cos, medical practice of	220	clinical, and necropsy findings	1048
Cervical cord, concussion of, causing disturbances in upper extremities	477	Cotton, Henry A. Role of focal infections in the psychoses	397, 411	of pathological changes in appendicitis	870
Cervix uteri, tuberculosis of	377	Country, medical modernization of	102	differential, of eruptive fevers	823
Chaffee, George. Operative bone surgery	852	Cowpox, evenization suggested as etiology of	41	errors in, caused by abdominal panniculus	543
Chancre, syphilitic, bacteriological diagnosis of	477	Cranial trauma, labyrinthine syndrome following	965	in pelvic and abdominal surgery	606
Chemistry of blood	296, 1068	wounds of warfare, pathological studies of	69	Diamond, Joseph S. Influenza pneumonias as studied with the roentgen ray	584
tissue, quartz ultraviolet light in	504	Craniocerebral injuries of warfare, treatment of	19	Diaphragm, functional paralysis of, with acceleration of respiration	829
Cicatrization in cutaneous tuberculosis	739	fracture, metatarsal, syndrome following	965	Diarrhea, chronic	478
in sarcomata of limbs	568	wounds of warfare, pathological studies of	69	Dichloramine-T chlorocane solution in infections of upper air passages	171
in tuberculosis	948	Craniocerebral injuries of warfare, treatment of	19	Dichloroethylsulphide poisoning	171
the new	332	fracture, metatarsal, syndrome following	965	susceptibility of skin to	828
Cherry-laurel water injections in bronchitis and tuberculosis	825	Creatinine retention in nephritis	1084	Diet experiments with carrots	165
Chest, gunshot wounds of	1086	Cresote, intunction of, in pneumonia and influenza	1004	importance of greens in	202
injuries, treatment of	1082	Cross, James B. Occurrence of syphilis as evidenced by admissions to city hospital	333	in treatment of ulcer ventriculi	385
physics of	1002	Croup, false, in influenza	69	influence of, on teeth formation	258
wounds, artificial pneumothorax in	86	Cuban Army, medical corps of	148	subjective symptoms in relation to	1065
closed system of drainage for	165	Cultures, blood, simple method for	123	war, effect of, on diabetes	346
treatment of	992	Cumston, Charles Greene. Causes of shock	24	Diets, cancer inhibiting and cancer stimulating, blood changes in rats on	395
Chickenpox associated with herpes zoster remote danger of, in children	1927	Clinical notes from France	417, 682	Digitalis therapy	1959
Child in relation to war	393	Differential diagnosis	94	Diphtheria bacilli, carriers of	299
newly born, conservation of life of	126	lesions	94	bacillus, technic of staining	566
unborn, conservation of life of	126	Gunshot wounds of the bladder	109	cutaneous, of foot	520
Child welfare	126	Pathogenesis and treatment of gunshot wounds of knee joint	64	infection, pseudo	92
problems of, in rural communities	130	Pathology and clinical forms of cerebral abscess	810	nasal, in epidemic influenza	388
Childbirth, painless	473	Treatment of craniocerebral and cord injuries of warfare	109	Disabled, home treatment of	422
Children, arthritis in	833	Treatment of kidney lesions	110	Disease, acute, spinal fluid in	1104
crippled, home teaching of	689	Treatment of lung injuries	286	beginnings of	122
Children's Bureau of American Red Cross in Lyons, France	1103	Treatment of parasthenic neuralgia	1130	borderline gastric	195
Chloramine as an intestinal disinfectant	344	Cunningham, William P. A description of the Carrel-Dakin treatment	358	chemical changes in blood in	1008
Chlorine group of antiseptics, irritant properties of	341	Curette treatment of dacryocystitis	1143	classification of	691
Chloroma, aleucemic and myeloplasmic, of the skull	254	uterine, present status of	1060	effects of, in war	1014
Cholecystitis, recurring, cystic duct in	1004	Cystic duct in recurring cholecystitis	1004	food factor in causation of	789
X-ray diagnosis of	241	Cysticococcus of vitreous	1142	Hodgkin's, treatment of	956
Cholelithiasis, painful points in diagnosis of	112	Cysts, congenital multilocular, of retina	1142	hysterical factors in	817
Chorea, miasma treatment of	656	Cysts, congenital multilocular, of retina	1142	malignant, treatment of, by combined methods	439
etiology of	265	Cysts, congenital multilocular, of retina	1142	peculiar, of upper incisor teeth	827
Maloney method of reeducation in	842	Cysts, congenital multilocular, of retina	1142	Pott's, dorsolumbar, nervous manifestations in	864
postmortem findings in	265	Cysts, congenital multilocular, of retina	1142	preventable, national control of	1021
treatment of	579	Cysts, congenital multilocular, of retina	1142	resistance to	542
Chorioepithelioma, operative treatment of	651	Cysts, congenital multilocular, of retina	1142	respiratory, among soldiers in barracks	124
Cinematograph in teaching medicine and surgery	232	Cysts, congenital multilocular, of retina	1142	systemic, tonsillar infections a source of	297
Circulation, disorders of, complicating influenza	935	Cysts, congenital multilocular, of retina	1142	Winckel's, clinical aspects of	654
functional tests of	1114	Cysts, congenital multilocular, of retina	1142	Diseases, chronic, treatment of anemia in	274
pulmonary, factor of safety in	959	Cysts, congenital multilocular, of retina	1142	contagious, in hospitals	291
Circulatory complications in influenza	635	Cysts, congenital multilocular, of retina	1142	destructive, modern control of	1018
Cirrhosis, hepatic, syphilis in	828	Cysts, congenital multilocular, of retina	1142	filter passing virus in	510
Clark, L. Pierce. Psychological aspects of alcoholism	930	Cysts, congenital multilocular, of retina	1142	infectious, nervous sequelæ of	437
Claw foot, operation for	92	Cysts, congenital multilocular, of retina	1142	of children	33
Cleland's, pain and immunity	58	Cysts, congenital multilocular, of retina	1142	malignant, of the mandible	101
Clonus, electromyographic studies of	80	Cysts, congenital multilocular, of retina	1142	of the autonomic system	30
Codios, medical theory of	221	Cysts, congenital multilocular, of retina	1142	of a woman, two most frequent	795
Coagulum, clinical studies of	695	Cysts, congenital multilocular, of retina	1142	respiratory, sodium hyposulphite in	313
Cocaine poisoning	188, 349	Cysts, congenital multilocular, of retina	1142	social, in the army	404
Cocci, bacillus, new pathogenic	1116	Cysts, congenital multilocular, of retina	1142	surgical, in early life	730
Cohen, Samuel. Essentials of the Barany tests	324	Cysts, congenital multilocular, of retina	1142	work, etiology of	54
Colds, etiology and treatment of	529	Cysts, congenital multilocular, of retina	1142	Disinfectant, intestinal, chloramine as	344
Coley's fluid in sarcomata of spine	787	Cysts, congenital multilocular, of retina	1142	Disinfection of skin with picric acid	828
College of Physicians and Surgeons, new dean of	820	Cysts, congenital multilocular, of retina	1142	of wounds by antiseptic gas currents	478
dean of	820	Cysts, congenital multilocular, of retina	1142	Dislocation of dorsal spine with rupture of cord	128
acute diverticulitis of	909	Cysts, congenital multilocular, of retina	1142	of shoulder, recurring, deformity of	828
ascending, resection of	263	Cysts, congenital multilocular, of retina	1142	of teeth, two cases of	828
bacillus infections of kidney and bladder	298	Cysts, congenital multilocular, of retina	1142	Diverticula, congenital, of intestines	203
pneumonia	874	Cysts, congenital multilocular, of retina	1142	Diverticulitis, acute, of colon	969
surgery	133	Cysts, congenital multilocular, of retina	1142	Doctor and the changing order	1011
transverse, intussusception of	114	Cysts, congenital multilocular, of retina	1142	family, as sanitary adviser	555
Color line, Mendel's law in relation to	72	Cysts, congenital multilocular, of retina	1142	on the stage	730
Colostomy, permanent	72	Cysts, congenital multilocular, of retina	1142	work of, in war	248
Coma, diabetic, treatment of	129	Cysts, congenital multilocular, of retina	1142	Dogs and cats a source of epidemic coryza	186
dyspeptic, with acidosis	37	Cysts, congenital multilocular, of retina	1142	Donnelly, W. H. Bacillus anthracis in children	186
Conduct, quantitative physical measure of conductivity as a measure of permeability	732	Cysts, congenital multilocular, of retina	1142	Douching the nose in children	804
electrical, of living tissues	179	Cysts, congenital multilocular, of retina	1142	Drainage, closed system, in the nose	942
Conjunctiva, melanotic tumors of	292	Cysts, congenital multilocular, of retina	1142	in the nose	942
Conjunctivitis, granular, epithelial, symptoms caused by	181	Cysts, congenital multilocular, of retina	1142	in the nose	942
Consciousness, development of	50, 97	Cysts, congenital multilocular, of retina	1142	in the nose	942
Consultant, group work of	1111	Cysts, congenital multilocular, of retina	1142	in the nose	942
Constipation, sphincteric inhibition a cause of	1055	Cysts, congenital multilocular, of retina	1142	in the nose	942
Contractions, clonic spasmody	1003	Cysts, congenital multilocular, of retina	1142	in the nose	942
Contractures, pseudo, in myopathy	108	Cysts, congenital multilocular, of retina	1142	in the nose	942

	PAGE.		PAGE.		PAGE.
Drugs, narcotic, new law controlling sale of.....	69	Disabled, home treatment of.....	422	Panniculitis, abdominal, diagnostic errors caused by.....	513
Ductless glands in chronic tuberculosis in military practice.....	509	Disease, beginnings of.....	422	Pellagra, cause of.....	733
Dunn, M. G. Aftereffects of influenza.....	967	hysterical factors in.....	817	Physical therapy, advantages of.....	512
Duodenal ulcer.....	439	Doctor, family, as sanitary adviser.....	555	field of.....	1132
bleeding type of.....	1139	in war.....	248	unfitness of the nation.....	646
medical treatment of.....	755	on the stage.....	732	Physicians, literary.....	952, 803, 1030
new operation for.....	1140	Drug addiction, gross exaggeration of.....	777	Poisoning from bismuth subnitrate paste.....	555
perforated.....	780	problem of.....	648	Population, civil, protection of.....	777
Duodenectomy, effects of.....	1048	addicts, prescribing for.....	512	Pott's disease, dorsolumbar, nervous manifestations in.....	864
Duodenum, moved to the left.....	828	treatment of, in New York.....	686	Prize essays resumed.....	646
Dysentery, amebic, epidemiology of.....	344	research, national institute of.....	250	Prohibition, medical problems involved in.....	688
bacillary, treatment of.....	944	Drugs, narcotic, new law controlling sale of.....	69	Psychological and physiological unity.....	600
bacteriological diagnosis of.....	781	Dysentery carriers among returned soldiers.....	777	Rabelais the greatest literary physician.....	1036
carriers among returned soldiers.....	777	Dyspnea, direct and reflex neuromotor.....	467	Race, human, effect of the war upon.....	26
differential diagnosis of amebic and bacillary.....	475	Ear, inner, detonation injuries to.....	334	Radium treatment of epithelioma of lower lip.....	248
emetine and bismuth iodide in.....	344	Empyema, study of.....	72	Reconstruction and public health.....	554
relative frequency of bacillary and amebic.....	1004	Encephalitis lethargica not sleeping sickness.....	510	of the maimed.....	333
Dysmenorrhea, treatment of.....	1137	Endocrine glands and bone dystrophies.....	907	Resistance, lowered, determining factor in influenza.....	250
Dyspepsia, cow's milk, in early childhood.....	781	Epileptic delirium, religious character of.....	1132	Respiratory disease, increase of.....	996
war, obstinate forms of.....	389	Epithelioma of lower lip, radium treatment of.....	248	Reversibly speaking.....	336
Dyspeptic coma with acidosis.....	37	Examinations, physical.....	1089	Rockefeller Foundation budget of expenditures.....	550
Dyspnea, direct and reflex neuromotor.....	467	Face, erythematous lupus of.....	290	Rolls before breakfast.....	336
paroxysmal, in incipient tuberculosis.....	300	Fletcher, Horace, the death of.....	115	Roman rural hygiene.....	997
EAR, chronic discharging.....	461	Flabbiness.....	690	Roosevelt, Theodore, the death of.....	69
diseases, complicating influenza.....	615	Food problems, medical aspects of.....	908	Royalty, irresponsible.....	289
inner, detonation injuries to.....	334	Gastrointestinal disease, internal secretions in relation to.....	774	Rupture of the cardiac valves, symptomatology of.....	818
internal, in relation to aviation.....	83	Germans students in France.....	910	Sciatic nerve, traumatic lesions of.....	909
Earache, diagnosis of.....	1076	Germany, reinstatement of.....	200	Secretions, internal, in relation to gastrointestinal diseases.....	774
Earwax and alopecia.....	36	Glass, ground, and epidemic delusions in food, harmlessness of.....	1087	Sex, predetermination of.....	250
Eclampsia, extension of.....	473	Gorgas, Major General William C., made a member of the Legion of Honor.....	379	Sleep, the price of.....	379
puerperal, conservative treatment of.....	255	Greens, importance of.....	202	Sleeping sickness not encephalitis lethargica.....	510
Eclampsism, accidental hemorrhage in connection with.....	473	Handshaking, spreading influenza by.....	336	Smallpox warning.....	203
Ecstasy and intoxication in religion.....	37	Health and the harbor strike.....	734	Soldiers, disabled.....	333
Eczeema, inhalations of amyl nitrate in.....	564	bonds.....	1088	responsibility of State for.....	907
of eye, treatment of.....	739	clause in peace treaty.....	1135	Soul, travels of.....	468
Edgar, T. Webster. Diabetes mellitus.....	548	good, maintenance of.....	469	Speed limit.....	28
EDITORIALS:		insurance, compulsory.....	602, 649	Spinal cord, trophic and motor disturbances from compression of.....	688
Abdominal panniculitis, diagnostic errors caused by.....	513	league, an international.....	862	State, responsibility of.....	907
Alplane, use of, by surgeons.....	819	pedagogics.....	1134	Sterilization, immediate, and closure of infected wounds.....	1085
Alcohol, therapeutic uses of.....	688	problems, public, neglected in America.....	554	Sugar, blood rather than renal tests for.....	1087
use or abuse of.....	951	public, and reconstruction.....	554	Surgeon during the Revolutionary War.....	466
value of.....	950	Heart lesions, congenital, radiological study of.....	202	in the air.....	819
American Medical Association, annual meeting of.....	995, 1034	Hoffman's drops as a beverage.....	998	Surgical progress in the war.....	647
American Military Hospital No. 1, closing of.....	161	Hospitals, incomplete military, status of.....	29	Syphilis, diagnostic studies in.....	158
American students at French universities.....	1089	Housing problem.....	689	necessity of early treatment of.....	246
America's interest in public health matter's contrasted with England's.....	158	Human nature and hard work.....	420	Thermometers, clinical, misleading certificates for.....	804
Anesthesia, the discoverer of.....	292	Hygiene, industrial, Congressional support of.....	599	common.....	115
Appendicitis, typhoid vaccines a factor in.....	731	rural, of the Romans.....	997	Tonsils and appendix.....	951
Asphyxia from peribronchial tuberculous lymph nodes.....	602	Hypnotism now and in the past.....	511	Trades unionism gaining.....	1037
Assassination, psychology of.....	376	Hysterical factors in disease.....	817	Trophic disturbances from compression of spinal cord.....	688
Athletics, reform of.....	161	Immunity in relation to cleanliness or filth.....	556	Tuberculosis among returned soldiers.....	114
Bismuth subnitrate paste, poisoning from.....	555	Influenza, history of.....	470	of cervix uteri.....	377
Blind, reeducation of.....	378	in Toronto.....	28	of vulva, histology of.....	113
Blood salts and salts of sea water.....	1133	lowered resistance paves way for.....	250	relation of, to dementia præcox.....	291
sugar in diabetes.....	1087	spread by handshaking.....	336	Tumors, melanin, of conjunctiva.....	292
tests for sugar.....	1087	therapeutics of.....	557	Typhoid fever in vaccinated subjects.....	71
Bombs.....	1037	Instincts and the redemption of the pig.....	70	vaccination no substitute for sanitary precautions in.....	687
Bone dry problem.....	688	Intestinal oxalic lithiasis.....	775	vaccines a factor in appendicitis.....	731
Bone dystrophies and the endocrine glands.....	907	Jacobi, Dr. Abraham, dinner to.....	73	Universities, French, American students at.....	1089
Brains, dementia præcox, microlocalization in.....	27	Labyrinthine syndrome following cranial trauma.....	995	Urotropin in infections.....	953
Burns, magnesium sulphate solutions for.....	292	Life, the meaning of.....	249	Vaccines, typhoid, a factor in appendicitis.....	731
Cambrian Sea.....	1133	Lithiasis, intestinal oxalic.....	775	Vater's ampulla, neoplasms of.....	335
Carcinoma of rectum, pain a symptom of.....	601	Locomotor ataxia, ocular sensibility to pressure in.....	1034	Veneral prophylaxis after the war.....	599
Cardiac valves, symptomatology of rupture of.....	818	Lupus, erythematous, of face, diagnosis and prognosis of.....	290	War and the human race.....	26
Carrel-Dakin treatment.....	378	Lymph nodes, peribronchial tuberculous, asphyxia from.....	602	need for.....	953
Cervix uteri, tuberculosis of.....	377	Lymphadenoma of the tonsil.....	421	risk insurance, care of beneficiaries of.....	203
Chest, gunshot wounds of.....	1086	Magnesium sulphate solution for burns.....	292	Wounds, gunshot, of chest.....	1086
Cholelithiasis, painful points in diagnosis of.....	112	Manuscripts, scientific, card catalogue of.....	336	infected, immediate sterilization and closure of.....	1085
Cleanliness, filth and immunity.....	556	Medical literature, foreign.....	557	X ray service in the U. S. Army.....	72
College of Physicians and Surgeons, new dean of.....	820	men, great literary.....	863, 952, 1036	X rays in study of congenital heart lesions.....	202
Color line, Mendel's law in relation to.....	72	nomenclature, reform of.....	470	Yellow fever, recent studies in.....	1035
Conduct, quantitative physical measure of.....	732	Medicine and music.....	818	Zona, symptomatic nature of.....	820
Conjunctiva, melanin tumors of.....	292	modern concept of.....	160	Efficiency, physical, simple tests of.....	562
Contractures, pseudo, in myopathy.....	1080	Mendel's law in relation to color line.....	72	Effort syndrome.....	109, 503
Corrections which do not correct.....	777	Microlocalization in dementia præcox brains.....	27	graded exercises in.....	1111
Crookes, Sir William, the death of.....	649	Mothers and children.....	112	Electricity in ununited fractures.....	651
Cuban army, medical corps of.....	423	Motor disturbances from compression of spinal cord.....	688	Eliot, Ellsworth, Jr. The training of the personnel of an evacuation hospital for service at the front.....	882
Dean of College of Physicians and Surgeons, new.....	820	Music and medicine.....	818	Ely, Thomas C. Alkali treatment applied to the acidosis of epidemic influenza.....	573
Delirium, epileptic, religious character of.....	1132	Myopathy, pseudocontractures in.....	1080	Embarkation port, at Newport News, Va. 812	
Delusions, epidemic.....	159	Narcotic drug addicts in New York.....	686	Emotion, rôle of, in heart disease.....	79
Dementia præcox brains, microlocalization in.....	27	law, physicians must register under problem.....	69	Empysema, experimental.....	1047
relation of tuberculosis to.....	291	gross exaggeration of.....	777	of the mediastinum.....	475
Detonation injuries to inner ear.....	334	relief station, work of.....	776	pulmonary, during influenza.....	430
		Neoplasms of Vater's ampulla.....	335	Empyema and pneumonia.....	913
		Nervous manifestations in dorsolumbar Pott's disease.....	864	following epidemic influenza.....	150
		Nomenclature, medical, reform of.....	470	influenzal, operative indications in.....	696
		Nursing situation.....	910		
		Oil on troubled waters.....	1134		
		Pain a symptom of carcinoma of rectum.....	601		

	PAGE.		PAGE.		PAGE.
Empyema of thorax, proper operation for	877	FACE, erythematous lupus of	290	Gases, irritating, lesions of respiratory tract from inhalation of	1046
postinfluenzal	384, 766	facilitations, surgical shock in	391	Gastric analysis, fractional	157
study of	72	Facial duality	698	cell atrophy	1053
surgical treatment of	644	scars, ionization treatment of	652	disease, borderline	105
thoracic, drainage in	816	Fat tissue in knee joint	917	functions, influence of quinine on	343
treatment of	959	Fecal fistula following strangulated hernia	827	ulcer, bleeding type of	1139
Encephalitis, epidemic central or basilar	894	Feeding of infants, the proper	654	medical treatment of	7-5
following influenza	576	Feet, dermatitis of, following frostbite	138	new operation for	1149
in an infant, following influenza	576	flat and weak	694	surgical treatment of	357
lethargica	295, 772, 837, 1110	static defects of	694	ulcers, perforated	789
case of in a boy of fourteen	957	weak, treatment of	132, 138, 694	Gastrointestinal ulcer, diagnosis of	751
distribution of	433	Femur, compound fracture of	652	Gastroenterostomy in treatment of peptic ulcer	208
forme fruste	786	fracture of neck of	121, 440	technic of	786
not sleeping sickness	510	fractures, treatment of	341, 48	transmesocolic posterior, technic of	1063
pathology of	109	Fever, periodical, with tubalga	479	Gastrointestinal disease, internal secretions in relation to	774
prevalence of	879	recurrent, in rubella	125	disturbances in pernicious anemia	1063
Endocrine glands and bone dystrophies	907	Fever, eruptive, differential diagnosis of	824	tract, roentgen study of	1069
dominance of	830	Fibrillation, auricular	388	Genital tuberculosis in the male	343
sterility in relation to	309	Filariasis, salvarsan substitutes in treatment of	655	Genitalia, female, carcinoma of	298
origin of pseudoinfluenza	871	Filiform strictures of urethra	798	Genitourinary tract, tuberculosis of	487
Entameba histolytica carriers	566	Filth and immunity	556	Geyser, Albert C. The role of the wandering cells, erythrocytes and leucocytes, in health and disease	978
Enuresis, nocturnal	326	Fish, human tuberculosis in	886	Treatment of anemia in chronic ailments	274
Envenomization etiology of obscure war diseases	54	Fissure of anus, symptoms and treatment of	683	Gland, bronchial, enlargement of	918
suggested as etiology of hydrophobia, yellow fever, Rocky Mountain spotted fever, and cowpox	465	Fistula, biliary treatment of	916	Glands, adrenal, traumatic and tuberculous lesions of	809
Epidemic influenza	871	fecal, following strangulated hernia	827	ductless, in chronic tuberculosis	917
acidosis, alkali treatment applied to	834	vesicovaginal, radical cure of	838	in military practice	509
clinical similarity of, to plague	856	Flabbiness	690	Glass, ground, and epidemic delusions in food, harmfulness of	1087
sonnolence	829	Fleet surgeon, duties and responsibilities of	729	Glaucome, treatment of	1044
Epidemics, closure of schools in	1063	Fletcher, Horace, the death of	115	Glossitis, lemon juice in	961
role of expired air in propagation of	79	Fly, house, chemical means of curbing	829	Glucose, determination of, in diagnosis of meningitis	517
Epidermomycoses, eczematoid, due to yeasts	166	Fool factor in causation of disease	789	Glossuria, unusual	429
Epididymitis, gonorrheal, normal horse serum in	208	harmlessness of ground glass in	1087	Goffe, J. Riddle. Surgical treatment of intestinal ptosis	1
syphilitic	1144	problem, medical aspects of	908	Goitre exophthalmic, local anesthesia and twilight sleep in	213
Epilepsy complicating influenza	871	protein sensitiveness in asthmatics	430	successful treatment of	314
role of pituitary gland in	1051	infants', deleterious effect of alkalization of	1103	surgeon and internist in treatment of symptoms of	517
Epileptic delirium, religious character of	1132	Foot, claw, operation for	1102	intrathoracic	786
Epinephrine, pressor effects of, ether anesthesia in relation to	737	cutaneous diphtheria of	520	prevention of	1023
Epistaxis in influenza	59	human, normal and pathological	225	surgical treatment of	306
Epithelioma, negative Wassermann reactions in	561	of American soldier, care of	507	with metastases	505
of lower lip, radium treatment of	248	tendon transplantation of	694	Goldfader, Philip. Diagnosis and treatment of chronic gonorrhea in the male	667
Epstein, J. Perodactylism, syndactylism, and cleft extremities in a child	153	Formaldehyde sprays to check epidemic of influenza	609	Goldstein, Hyman I. Influenza and epidemic pneumonia	278
Erdmann, John F. Acute diverticulitis of the colon	909	Fracture, compound, of femur, prevention of posterior bowing in	652	Meningitis	760, 803
Erosions, experimental production of	30	from absorption of the callus of previous fracture	807	Gonorrhea, diagnosis and treatment of	667
Eruptions, arsenical	827	Fractures, badly united, corrected by osteotomy	521	dilatation in treatment of	120
drug	434	compound, of humerus, triangle splint in union of, after primary closure of wound	386	new principle for treatment of	374
following vaccination	254	gunshot, of jaw, bone grafting in	893	pus vaccines in treatment of	944
Erysipelas, serum therapy in	434	of diaphyses, treatment of	34	treatment of	785, 1112
Erythema due to morphine	390	of femur, treatment of	1028	what the general practitioner should know about it	617
multiforme	433	of inferior maxillary	518	Gonorrheal, urethritis, treatment of	1073
nodosum, reactivation of, by tuberculin	915	of neck of femur, abduction treatment of	121, 440	Gordon, Alfred. Encephalitis lethargica	837
Erythrocytes, role of, in health and disease	978	of thigh, suspension treatment of	853	Gorgas, Major General William C., made a member of the Legion of Honor	379
Eshner, Augustus A. Clinical aspects of the influenza epidemic	185	open method in treatment of	518	Goeld, E. W. Human serum in the treatment of influenza bronchopneumonia	666
Esophagus, carcinoma of	759	subtrochanteric, reduction of	427	Grafting of tendons with dead transplants of tissues in the rat	125
removal of bullet from wall of	959	united, electrical stimulation in	651	Graves, Stuart, and Paige, Beryl H. The etiology of chorea	265
Ether anesthesia and the pressor effects of epinephrine	737	of mandible	9	Graves's disease, hyperesthesia of thyroid region a sign of	517
Trendelenburg position for administration of	1139	bone grafting in	426	importance of	202
Eustachian tube, technic for constricting	1063	Freshmen, psychological study of	38	Griffith, Frederick. Sterile pocket instrument case	331
Eutocia favored by anesthesia	876	Friedreich's hereditary ataxia	482	Griffith, J. P. Crozer. National prohibition	937
Evacuation hospital, training of the personnel of, for service at the front	882	Friedman, Joseph Harold. Chronic prostatitis, gonorrheal and nongonorrheal	675	Tuberculosis in children	485
Eye, Duncan. National prohibition	949	Friedman, Lewis J. Röntgenological diagnosis of cholecystitis and adhesions	241	Grossman, Morris. Maloney method of reeducation in the treatment of chorea	842
Examinations, physical	1089	Frostbite, dermatitis of feet and hands following	520	Groin surgery, anatomical incision for	438
Exercises, graded, physical development by means of	1111	Fuld, Joseph E. Strangulated inguinal hernia in infants	233	Group consultant, work of	1111
Exophthalmos in nephritis	1006	Function, restoration of	613	Growth, new, radium treatment of	347
Extravasations, traumatic intraabdominal, diagnostic value of dullness in	206	Fundus oculi, microscopy of	566	Gynecology, recent progress in	1092
Extremities, cleft, with perodactylism and syndactylism	153	Furuncles, painless treatment of, with phenol	1113	teaching of, in hospitals	1095
gangrene of, following influenza	520	GAIT, cerebellar	474	in the medical schools	834, 879
localized tetanus of	309	Gallbladder, healthy, removal of	960	HANDS, dermatitis of, following frostbite	520
upper, disturbances in, due to concussion of cervical cord	477	malignant papilloma of	262	Handshaking, spreading influenza by	336
Eye, concussion and contusion injuries of	702	Galvanotherapy in hysterical paralysis	1001	Harris, Louis I. Venereal disease problem from the public health standpoint	531
disease, of nasal origin	365	Gangrene, gas, metabolic studies in	478	Havens, Leon C. and Birge, Edward G. A comparison of the bacteriology of pneumonia, antemortem and post-mortem	544
diseases, group study a necessity in	1108	serum treatment of	346	Hay fever, anaphylaxis of	1064
relation of teeth, tonsils, and intestinal toxemias to	1142	of lower extremities following influenza	520	spring, cause, prevention and treatment of	793
tuberculin in	915	of lung, artificial pneumothorax in	209	Hayden, James R. National prohibition	949
eczema of	739	following epidemic influenza	50	Headache, war, treatment of	1071
importance of muscular anomalies of	1109	phenol, complicated by delirium of septic origin	917	and eyestrain	1107
socket, methylene blue in purulent discharge from	1006	Garretson, William V. P. The dominance of the endocrines	829	Headaches, chronic, with painful points	33
strain, pollakiuria due to	432	Gas bacillus infection, treatment of	1042	Health activities, influence of, on tuberculosis mortality	1109
toxic injury of	519	currents, antiseptic, disinfection of wounds by	478		
work, in British Army observations on	868	gangrene, metabolic studies in	478		
Eyeball, foreign bodies within	1143	serum treatment of	346		
substitute operations for excision of	1002	in fascial tissues in influenza pneumonia	430		
Eyelids, plastic surgery of	692	mustard, burns from	121, 348		
Eyes, changes in, in leucemia	566	effects of, on the eyes	76		
effects of mustard gas on	76	poisoning, clinical pathology of	170		
Eyestrain and correction of errors in refraction	1106	susceptibility of skin to	828		
		poison, influenza among workers in	1064		

	PAGE.		PAGE.		PAGE.
Health and the harbor strike.....	734	Hookworm disease	988	Inflammations, intravenous method of local treatment of	434
commission, international, need of.....	888	Hospital abuses	411	Influenza, abdominal conditions complicating	785
education, problems in	1134	evacuation, training of personnel of, for service at front.....	882	acute, vaccines in	339
good, maintenance of	499	No. 17, U. S. Army, influenza epidemic at	135	aftereffects of	967
insurance, compulsory	602, 649	small, full time staff in	394	alopecia following	409, 918
league, international	862	standardization	1039	among poison gas workers.....	1064
national, physical education in relation to	414	teaching function of	1095	and epidemic pneumonia.....	278
pedagogics	1134	trains, army	594	at Camp Devens.....	915
problems, public, neglected in America	158	Hospitals in France, American Women's.....	328	bacillus, culture media for.....	476
public, and reconstruction	554	incomplete military, status of.....	29	isolation of	123
clause in peace treaty.....	1135	rural, standardization of.....	306	bacteriological examination of sputum in bacteriology of.....	77, 224, 339, 609
influence of war on	1100	Human nature and hard work.....	420	bronchopneumonia, human serum in treatment of	666
military training a factor in	600	serum in the treatment of influenza	666	bronchopulmonary, spirochetal infection in	167
question of the man next door.....	847	Humerus, deformity of head of, in recurring shoulder dislocation.....	828	camphor in	340
Hearing, restored by paroxysmal vertigo	565	Hunt, Barbara, American Women's Hospitals in France.....	328	camphorated oil in	784
Heart, chronic paralysis of auricle of.....	301	Hydrophobia, etiology of.....	465	circulatory complications in	635
common factor in disordered action of	342	psychic	313	colloidal arsenic and silver in	121
conditions in recruits	1115	Hydrorrhea, nasal	1144	complications of	388
dilatation of	1009	Hydrostatic bags in obstetrics, contraindications to use of.....	783	danger of secondary infection in ward treatment of	523
disease, present day treatment of.....	874	pressure an important therapeutic measure	321	empyema following	766
role of instinct, emotion and personality in	70	Hygiene, industrial, Congressional support of	599	encephalitis following	384, 700
scapular pain and tenderness in.....	869	industrial, Public Health division in.....	1105	epidemic, vaccine treatment of.....	871
valvular, physical endurance with.....	388	mental, ten years' work of the national committee for	700	acidosis of	573, 834
in influenza	872	Roman rural	997	at Camp A. A. Humphreys, Va.....	210
injury of, in pneumothorax.....	188	Hyman, Albert S. An unusual case of carcinoma of the esophagus.....	759	at Camp Devens.....	784
irregularities of	78	Hyperaesthesia, mechanism of	1100	at Camp Greenleaf.....	546
irritable, epinephrine in	170	Hypertesthesia, thyroid, symptom of Graves's disease	517	at Camp Sherman.....	35
or effort syndrome	109	Hyperimmunity, fulminating	918	at Easton Hospital.....	915
syndrome of	300	Hypertension, essential	435	at United States Army Hospital No. 17	135
lesions, congenital, radiological study of in pregnancy	202	permanent, lowering of blood pressure in	956	at United States Marine Hospital, Stapleton, N. Y.....	635
muscle, damaged, inverted T wave a sign of	519	Hyperthyroidism, symptoms of, in exhausted soldiers	823	at Wrentham, Mass.....	1064
repeated cessation of	170	Hypnotism now and in the past.....	511	bacteriology of	77, 169, 280
tonic, scilla useful as	207	problem of	607	checked by formaldehyde sprays.....	609
tonics, prolonged administration of.....	785	Hypodermic syringe and needles.....	990	clinical aspects of	185
x ray examination of	434	Hypothyroidism and myxedema.....	1113	similarity of, to plague.....	850
Heat, dry, effect of, on resistance to cancer	412	Hypotonia, joint	638	complications of	281
effect of, on resistance to tuberculosis.....	240	Hysteria, treatment of.....	206	empyema following	150
stroke, hyperpyrexial	1011	war, management of.....	1050	in American Expeditionary Forces.....	1051
Hematemesis, physiological considerations of	383	Hysterical element in disease.....	740, 817	in British armies in France.....	208
Hematopoietic system, diseases of	390	ILLUMINATION, daylight, of interiors	1108	laboratory findings in	91
Hemianopsia, homonymous, in neurological cases	624	Imbecility, mental, organotherapy in.....	150	mortality rates in	18
Hemolytic streptococcus infection	872	Immobility of injured limbs.....	120	nasal diphtheria in	388
Hemophilia, treatment of hemorrhagic accidents in	1114	Immunity and filth.....	556	nephritis in	125
Hemoptysis, postinfluenzal	476	and tissue transplantation.....	123	observations on	339
Hemorrhage, accidental, in connection with eclampsia	473	Immunization of mice against tumors.....	519	pathology of	77, 280
bilateral frontal	922	therapeutic, new prospects in the field of	867	prophylaxis of	282
comparative effects of various saline solutions in	385	Inactivity means waste.....	413	symptomatology of	279
into the theca in influenzal pneumonia with meningitis	872	Incision, new, for appendectomy.....	466	treatment of, during convalescence.....	283
postoperative, from shock.....	1000	Infant, home care of.....	129	varying manifestations at different stages of	18
tubal and ovarian	653	importance of prenatal care of.....	129	with pneumonia	278
Hemorrhages, accidental, in hemophilia.....	1114	mortality, prevention of.....	126, 130	epidemiology of	1046
uterine, radium treatment of.....	1093	syphilis in relation to	127	etiology of	430, 871
Hemorrhoids, treatment of, with Richet's crushing forceps cautery	869	welfare, rural work for.....	130, 131	filterable virus the cause of.....	297
Hemostasis in resection of portions of liver	1115	proper feeding of	654	form of toxic shock.....	166
Hepaticoduodenostomy in biliary fistula.....	916	Infants, summer diarrhea of.....	1120	gangrene of lower extremities following general principles in treatment of.....	110
Hepatitis, chronic amebic, treatment of.....	607	Infection, bronchopulmonary spirochetal, in influenza	167	heart in	872
Hernia across the lesser sac of peritoneum increase of, during the war.....	521	colon bacillus, of urinary tract.....	345	hemoptysis in	476
strangulated, fecal fistula following.....	827	focal, in relation to toxemia of pregnancy	1025	history of	470
inguinal, in infants	233	gas bacillus, treatment of.....	1042	human serum in treatment of.....	523
Hepes zoster associated with varicella.....	519	gonorrheal	785	in Bombay	475
Hertzberg, R. Fracture and dislocation of dorsal spine with complete rupture of cord	1028	hemolytic streptococcus	872	in epileptics	871
Herxheimer reaction due to quinine in malaria	695	meningococcus method for determining type of	464	in horses and in man.....	720
Hexamethylenamine injections in pleurisy	654	microbic, in traumatic toxemia.....	1006	in infants	1005
Hilus tuberculosis in adults.....	654	mouth	89	in Italian army.....	600
Hinkelmann, A. J. Pathogenicity, cultivation and reproduction of protozoon parasites	235	of knee joint.....	562	in parturient women.....	615
Hinkelmann, A. J. and Carol P. The bacillus of Spanish influenza.....	712	pneumococcus, of nasal accessory sinuses	43	in Toronto	615
Hip joint, internal strangulation of.....	521	pseudodiphtheria	696	injections of corrosive sublimate in.....	388
tuberculosis of	124	secondary, in ward treatment of influenza and pneumonia.....	523	intrapleural transfusion of blood in.....	697
Hippocrates, modern commentaries on.....	221, 604, 1065	streptococcus viridans, clinical picture of	938	inunction of creosote in.....	1005
Hirshfeld, Samuel, Strauss, Israel, and Loewe, Leo. Studies in epidemic encephalitis (encephalitis lethargica).....	772	Infections, colon bacillus, of kidney and bladder	298	iodine in treatment of bronchopneumonia following	784
Hirst, Barton Cooke. Teaching gynecology in medical schools.....	879	focal, in childhood.....	76	lowered resistance paves way for.....	250
Treatment of the two commonest sequelae of labor and the two most frequent diseases of women.....	705	in the psychoses.....	397, 454	medical complications and sequelae of.....	614
History, medical and surgical, of American participation in the war.....	268	hematogenous, of kidney.....	1102	methylene blue in treatment of.....	959
Hitschler, William A. Douching the nose in children	942	nervous and mental sequelae of.....	437	microorganismal cause of.....	80
Hodgkin's disease, treatment of.....	347, 956	of upper air passages, Dakin's solution in	171	mortality from	258
Hoffman's drops as a beverage.....	998	oral, diagnosis and treatment of.....	77	new treatment for	387
Home teaching for shut in crippled children	686	pelvic, stab wound drainage in.....	34	nose, throat, and ear complications of.....	615
Homonymous hemianopsia and central scotoma in neurological cases, with question of localization	624	proteus, in war wounds.....	299	pandemic, and secondary pneumonia.....	210
		renal, associated with pregnancy.....	1080	in army camps.....	122
		resulting from war, advancement in treatment of	830	pathology of	339
		staphylococci, tin in treatment of.....	560	phagocytic experiments in	80
		tonsillar	105	phenol in treatment of.....	784
		source of systemic disease.....	297	plasmotherapy in	340
		urogenital	285	pneumococcal septicemia in.....	387
		urotropin in	953	pneumonia	406
				as studied with the roentgen ray.....	584
				blood transfusion in.....	210
				citrated convalescent blood in.....	340
				clinical study of.....	493
				lung puncture in treatment of.....	1113
				relation of, to pneumonic plague.....	206
				showing gas in fascial tissues.....	430
				treated by blood transfusion.....	765
				with meningitis	872
				x ray study of.....	584

	PAGE.		PAGE.		PAGE.
Influenza, prevention of, by uniform room temperature.....	374	Keeler, J. Clarence. Scarlet fever complicating acute mastoiditis with.....	944	Linder, Charles O. Military training as a factor in public health.....	60
prophylactic value of vaccine in.....	349	Kennedy, J. W. Hospital abuses.....	411	Lips, saccharomycosis of.....	91
prophylaxis and treatment of.....	118, 164, 198, 249, 288, 331, 375, 416, 465, 509, 553, 597, 684, 773, 838, 872, 945, 992	Kerr, LeGrand. The remote danger of chicken-pox and measles in children.....	1027	Lithiasis, intestinal oxalic.....	775
pseudo-epidemic origin.....	871	Keyes, E. L., Jr. Administration of the logical department, A. L. F.....	904	Liver, removal of, in resection of.....	1048
pulmonary emphysema during.....	437	Kidney, circulation of blood in.....	123	Locomotor ataxia, ocular sensibility to.....	78
quinine and arsenic in.....	337	colon bacillus infections of.....	298	pressure in.....	1034
report of Public Health Committee on prevention of.....	522	function, clinical value of estimation of findings in orthostatic albuminuria.....	163	Loewe, Leo, Strauss, Israel, and Hirshfeld, Samuel. Studies in epidemic encephalitis (encephalitis lethargica).....	772
secondary infection dangers in ward treatment of.....	523	hematogenous infections of.....	1102	Loomis, Philip A., and Walsh, Joseph. Influenza epidemic at U. S. Army General Hospital No. 17, Markleton, Pa.....	138
serum treatment of.....	725	infections of, in pregnancy.....	1080	Lung abscess and gangrene, following epidemic influenza.....	150
Spanish, bacillus of.....	712	lesions, treatment of.....	218	apex, diminished breathing capacity of, in absence of tuberculosis.....	421
otolaryngological complications of.....	59	ruptured, suture of.....	544	artificial pneumothorax in gangrene of.....	209
spread by handshaking.....	330	solitary, with anomaly of ureters.....	995	decoration of, in traumatic pleurisy.....	212
streptococcal septicemia in.....	387	suspension of, new technique for.....	905	poisoning in treatment of influenza.....	110
surgical complications and sequelae of.....	615	Knee joint, derangements of semilunar cartilages of.....	1063	removal of foreign bodies from.....	372
symposium on.....	522	foreign bodies in.....	111	wounds, treatment of.....	226
therapeutics.....	557	gunshot wounds of.....	111	Lungs, gunshot wounds of.....	87
in history.....	441	infection of.....	3	limitations of radiology in examinations of.....	207
tin oxide in.....	213	injuries, Willems treatment of.....	1024	Lupus erythematosus, of face, diagnosis and prognosis of.....	29
treatment of.....	77, 388, 418, 528, 784	proliferation of fat tissue in.....	917	picric brass in treatment of.....	740
urine in.....	38	severe sprains of.....	961	Luttinger, Paul. Pertussis vaccine as routine treatment in whooping cough.....	322
vaccine.....	290	Knopf, S. Adolphus. Official provision for the tuberculous soldier and what he should know about his disease.....	444	Lydston, G. Frank. Conservation in the management of trauma and diseases of the testes.....	80
Inhalation medication.....	708	Tribute to Dr. Abraham Jacobi.....	73	Lymph nodes, peribronchial tuberculous, lymphoma from.....	602
Inhalations of amyl nitrate for cure of eczema.....	504	Konkle, W. B. Medical modernization of the back country.....	1026	Lymphangitis, pancreatic.....	957
Inhaler, perforated zinc, in treatment of respiratory affections.....	887	Kosindjy, P. P. Osteomyelitis of the ment of osteomata.....	709	tit, oxide in treatment of.....	360
Injections of cherry-laurel water in bronchitis and tuberculosis.....	828	LABOR, administration of, in district.....	871	Lymphoid activity, studies on.....	390
Injuries, gunshot, of spinal cord, treatment of bladder in.....	867	induction of, by use of agents.....	1067	Lynah, Henry Lowndes. The endoscopic treatment of laryngeal stenosis.....	146
Inoculation, prophylactic, against pneumonia.....	210	injuries, recognition and management of.....	383	Lyons, Chalmers J. Pathological conditions of the mouth and their treatment.....	49
Inosulfur, detection of, by a mycological method.....	608	obstruction of, by fetal testes.....	100		
Insane asylum, typhoid carriers in.....	390	rectal and vaginal examination during.....	35		
patients, blood pressure in.....	81	two commonest sequelae of.....	705		
Insanity and pulmonary tuberculosis.....	103	Labyrinthine syndrome following cranial trauma.....	995		
Insects, venomous, causing disease.....	54	Lacrimal duct, ocular.....	475		
Instinct, role of, in heart disease.....	79	Lactosuria, detection of, by a mycological method.....	608		
Instincts and the redemption of the pig.....	70	Laebert, Alexander. Medical and surgical history of American participation in the European war.....	268		
Instrument case, sterile pocket.....	334	Laminectomy in multiple sclerosis.....	489		
Insufficiency, respiratory, and enlargement of cardiac ventricles.....	958	two stage, for tumor of spinal cord.....	878		
Insurance, war risk, cure of beneficiaries of.....	203	Landsman, Arthur A. Postural treatment of proctitis, hemorrhoids, and anal my of the large intestine.....	854		
International health league.....	862	Laryngeal stenosis, endoscopic treatment of.....	149		
Internment, psychology of.....	100	tuberculosis, sunlight treatment in.....	149		
Intestinal amebiasis, peptic in.....	344	Larynx, acromegaly of.....	299		
disinfectant, chloramine as.....	344	cancer of, surgery in.....	4		
obstruction.....	36	edema of, in influenza.....	39		
oxalic lithiasis.....	775	stenosis of, endoscopic treatment of.....	146		
parasites, ova of, in human stools.....	37	Laxatives, abuse of, in children.....	1103		
perforation in typhoid fever.....	437	Lead poisoning, early diagnosis of.....	168		
ptosis, surgical treatment of.....	1	Leav's vaccine, prophylactic.....	828		
stasis, pathogenesis of.....	1058	Leck, Clifford C. Laboratory findings in influenza epidemic.....	8		
toxemia in relation to diseases of eye.....	1142	Leeds, A. B. Influenza.....	744		
Intestine, large, anatomy of, postural treatment of proctocolitis based upon.....	854	Leg amputation, formation of stump in.....	475		
congenital diverticula of.....	263	Leg's disease.....	1		
large, double resection of.....	909	Leiner, Joshua H. Mental imbecility with absence of the.....	45		
Intoxication, ecstatic, in religion.....	37	Lemon juice in stomatitis and glossitis.....	961		
pleric, skin pigmentation in.....	391	Lemons, antiscorbutic properties of.....	105, 429		
Intracranial pneumatocele, extracerebral.....	822	Lentiginous, anterior.....	92		
Intubation, prolonged.....	4	Lesions, cutaneous, diagnosis of.....	550		
Intussusception, disease of plexuses of Averbach and Masser.....	608	experimental.....	739		
of sigmoid with tumor.....	873	suppurative, molybdenum tungsten arc in.....	739		
of transverse colon.....	1114	traumatic and tuberculous, of the adrenal glands.....	739		
Iodine, intravenous injections of, in influenza bronchopneumonia.....	784	Letterman General Hospital, San Francisco.....	1		
Ionization in treatment of facial scars.....	652	LETTERS TO THE EDITORS:			
Ipecac and its alkaloids in intestinal amebiasis.....	344	Carstens, J. H. Teaching gynecology in the medical school.....	341		
JACKSON, Algernon Brashear. The health question of the man next door.....	847	Dorn, M. G. A.....	90		
Jacobi, Dr. Abraham, dinner to.....	73	Fotheringham, F. G. A.....	395		
Jabess, Samuel A. Joint hypotonia.....	638	Hist, Barton Cooke. Teaching gynecology in medical schools.....	39		
Jameson, R. C. Control of syphilis.....	981	McGee, G. W. The proper administration of arsenophamine.....	871		
Jaw, bone grafting in fractures of.....	291	Masland, H. C. Treatment of influenza.....	528		
tumors of, treated with cautery.....	396	Leucemia, ocular changes in.....	566		
united fractures of.....	9	radium treatment of.....	347		
Jelliffe, Smith Ely. Alcohol in some of its social compensatory aspects.....	931	Leucocytes, role of, in health and disease.....	978		
Jelliffe, Smith Ely, and Brink, Louise. Alcoholism and the phantasy life in Tolstoy's drama <i>Resurrection</i>	92	Leucorrhea, birch tar in treatment of.....	474		
<i>Dear Brutus</i> : The dramatist's use of the dream.....	577	Lev, J. J. C.....	39		
Joint hypotonia.....	638	laryngological structures encountered during the Spanish.....	409		
injuries, Willems treatment of.....	1024	Lichen planus, negative Wassermann reactions in.....	70		
wounds, splintage of.....	568	Life, conservation of.....	249		
louis, scopic, treatment of.....	1024	meaning of.....	128		
syphilis of.....	905	nation's, springs of.....	94		
Jones, Emily Read. The family medicine chest of our grandmothers.....	393	Light, physics of.....	94		
KAHN, Alfred. New hypodermic syringe and needles.....	900	Limes, antiscorbutic properties of.....	903		
Kahn, Max. Borderline gastric disease.....	105				
Kala azar, colloidal antimony sulphide in.....	1006				
Kearney, J. A. Symptoms caused by granular catarrhal conjunctivitis.....	181				

	PAGE.
Parke, William E. Operative technic of therapeutic abortion	695
Parmenter, Frederick J. Renal infections associated with pregnancy	1080
Parotitis, postoperative	741, 820
Patient's family, duties, responsibilities, and rights of	437
Patterson, Ellen J. Peanut bronchitis	101
Peace treaty, health clause in	1135
Pellagra at Connecticut Hospital for Insane	105
cause of	733
symptoms of	437
Pelvic infections, stab wound drainage in surgery, diagnosis in	666
drainage in	348
Trendelenburg position ether anesthesia in	1141
Pelvis, dilatation of	1044
Peptic ulcer, string test in diagnosis of	1055
treatment of	1093
Pericarditis, serofibrinous, with mediastinal tumor	108
Periosteitis of the orbit	365
Peripheral nerves, operations on	605
Peritoneum, hernia across lesser sac of	873
Peritonitis, tuberculous, prevention of sterilization in operations for	1097
Permeability, conductivity as a measure of	179
Perodactylism, syndactylism, and cleft extremities	153
Personality, role of, in heart disease	79
Personnel of Evacuation Hospital, training of	882
Pertussis vaccine in whooping cough	322
Pestilence, danger of, in Europe, and the need of an international health commission	888
Peters, Leroy S. Artificial pneumothorax in pulmonary tuberculosis	535, 591, 620, 678, 715
Phagocytosis, influence of temperature on	1170
Phantasy life and alcoholism in Tolstoy's drama <i>Redemption</i>	92
Phenol, pure, in treatment of furuncles	1113
treatment of influenza	784
Phlebitis and septicemia	560
Phosphorus, quantitative determination of	433
Physical condition of men of State of New York between the ages of twenty-one and thirty-one	845
education and national health	462
efficiency, simple tests of	512
examination in diagnosis of tuberculosis therapy, advantages of	435
field of	1132
unfitness of the nation	646
Physician and ophthalmologist, interrelation of	1106
spirit of, in war and peace	1053
Physicians, literary	952
Physiotherapy in osteomata	709
Picric acid disinfection of the skin	828
brass in treatment of lupus	740
poisoning, skin pigmentation in	390
Pictures, moving, in teaching medicine and surgery	229, 232
Pilocarpine injections producing skin lesions	35
Piollet, Adrien L. P. Secondary sutures in wounds	142
Pituitary gland, role of, in epilepsy	1051
Pityriasis rosea, Gilbert's, as a tuberculide	107
Placenta, adherent, treatment of	788
Plague and influenza epidemic, clinical similarity between	850
pneumonic, influenza and pneumonia in relation to	206
Plasmotherapy in influenza	340
Pleura, air or oxygen injections in disorders of	1005
Pleural disease, axillary dullness in diagnosis of	1115
Pleurisy, serofibrinous	36
suppurative, colloidal metals and anti-streptococcic serum in	510
traumatic, decortication of lung in	212
tuberculous, with effusion, autoserotherapy in	78
with effusion, traumatic tuberculous	111
Pleuritis, in syphilites	1005
purulent, treatment of	607
Pleuropneumonia, mediastinitis, syphilitic	135
Pleuropulmonary diseases, respiratory percussion in diagnosis of	609
Plexuses of Auerbach and Meissner, disease of, in intussusception	608
Pneumatocele, extracerebral intracranial	872
Pneumococci, atypical Type II	655
Pneumococcus, solubility of, in dilute sodium hydroxide	170
Pneumonia and empyema	913
bacteriology of, antemortem and postmortem	544
complicating influenza, blood transfusion in	210

	PAGE.
Pneumonia, danger of secondary infection in ward treatment of.....	523
epidemic, with influenza.....	278
influenza.....	406
citrated convalescent blood in.....	340
clinical study of.....	493
lung puncture in treatment of.....	1113
relation of, to pneumonic plague.....	206
showing gas in fascial tissues.....	730
treated by blood transfusion.....	455
with meningitis and hemorrhage into theca.....	872
x ray in.....	84
inunction of cresote in.....	1005
laboratory and clinical researches in.....	395
lohar, serum therapy in.....	209
prophylactic inoculation against.....	210
secondary, in pandemic influenza.....	21
serum treatment of.....	77
stock vaccine in.....	104
treatment of.....	434
Pneumonitis, postoperative.....	942
Pneumothorax, artificial, apparatus for.....	519
dangers of.....	187
in chest wounds.....	86
in gangren of lung.....	209
in pulmonary tuberculosis.....	535, 591, 629, 678, 711, 847
double.....	821
paradox.....	874
spontaneous.....	189
treatment of tuberculosis.....	1063
Poison gas workers, influenza among.....	1004
Poisoning, cocaine.....	340
from boracium subnitrate paste.....	555
lead, early diagnosis of.....	168
mustard gas, clinical pathology of.....	170
systemic effects of.....	519
of the eye.....	519
picric acid, skin pigmentation in.....	390
water hemlock.....	1113
x ray.....	1006
Polimyelitis, after care and treatment of central canal of spinal cord in.....	168
experimental, blood counts in.....	389
Pollakiuria due to eyestrain.....	432
Polycythemia, symptomatology and treatment of.....	257
Polyneuritis, diabetic.....	1050
Pope, Curran. Malingering.....	975
Porter, Miles F. National prohibition.....	949
Post-influenzal emphysema.....	766
Posture, good.....	9
Pott's disease dorsolumbar, nervous manifestations in.....	804
Pregnancy, abdominal treatment of, after fifth month.....	1137
acidosis in.....	834
cardiac lesions in.....	940
complicated by appendicitis.....	1003
complicating uterine myomata.....	383
nausea and vomiting of.....	1137
high carbohydrate feeding in.....	255
positive Wassermann changing to negative at termination of.....	474
renal infections associated with.....	1080
toxemia of.....	35
due to focal infection.....	1025
Prenatal care, importance of.....	129
Pressure treatment of mammary abscess.....	1138
Prize essays resumed.....	645, 646
Procaine anesthesia by lumbar injection.....	738
Proctocolitis, postural treatment of.....	83
Proflavine oleate in treatment of wounds.....	564
Prohibition, letters from readers regarding medical problems involved in.....	688
Projectiles, removal of, from the mediastinum.....	870
Prolapse, genital, during the war.....	521
radical cure for.....	256
rectogenital, operative treatment of.....	474
Prostate, calculus of.....	917
chronic suppurative of.....	131
primary sarcoma of.....	521
Prostatectomy, preparatory and postoperative treatment in.....	218
Prostatitis, chronic, gonorrheal and non-gonorrheal.....	675
Protein feeding and amino acid concentration in the tissues.....	430
nonspecific, in treatment of arthritis.....	452
sensitivity in asthmatics.....	436
Pseudo-influenza of endocrine origin.....	871
Psychoiatry, application of principles of.....	437
Psychoanalysis, contributions to psychotherapeutic technique through.....	526
Psychoanalytical treatment, facts and fancies in.....	117
Psychological and physiological unity.....	1000
Psychoses, clinical summary of cases of.....	165
drug, statistical study of.....	125
role of fecal infections in.....	397, 454
Psychotherapeutic technic, contributions to, through psychoanalysis.....	20
Prosis, intestinal, surgical treatment of.....	1
Public health service, reconstruction program of.....	170

Pulse, alternation of	388
Puncture, ventricular, in diagnosis of meningitis	359
Pus vaccines in treatment of gonorrhoea	914
Pyæmic lesion of	697
Pylorospasm, atropine treatment of	875
Pyroptosis, of the bacillus	874
QUACKENBOS, JOHN D. Pschic driplegia	313
Quinine, administration of	695
clinical use of	1062
in malaria, Herxheimer reaction due to	695
influence of, on gastric functions	343
susceptibility to	824
treatment in malaria, regulation of	823
RABELAIS the greatest literary phant asy	109
Race, human, effect of the war upon	26
Radiography, lateral spinal	918
Radium as a therapeutic agent	347
demonstration at Howard Kelly Hos pital	347
in cancer, value and limitations of	488
needles, Simpson, for removal of car cinoma	42
treatment of cataracts	109
of epithelioma of lower lip	248
of myoma uteri	1093
of uterine bleeding	1093
Ragweed dermatitis	144
Rammstedt's operation, importance of	655
Reconstruction and public health	554
of named	333
program of public health service	741
Rectal operations, local anesthesia in	742
Rectocolonic conditions in operations	742
Rectum, carcinoma of	701
diseases of	742
prolapse of	474
stricture of	447, 1085
Red Cross, relation of, to army	1021
Red, scarlet, as a tissue stimulant	858
Redfield, Casper L. Resistance to dis ease	542
Reed, Alfred C. Pneumonia in military	24
Reduction, functional, in France	606
Maloney method of, in chorea	433
of injured soldiers	892
Reflex, mass, in injuries of spinal cord	393
Reflexes, abdominal, significance and value of	342
Refraction, examination, refinements in	1106
work, present status of	1106
Rehabilitation in France	658
of blind	659
of disabled, international conference on	610, 656
of mentally disabled	638
Religion, ecstatic intoxication in	37
Reproduction, adequate	131
Resistance, lowered, determining factor in influenza	280
Respiration, functional paralysis of dia phragm with acceleration of	829
Respiratory affections, perforated zinc in haler in treatment of	887
disease, increase of	996
insufficiency and enlargement of cardiac ventricles	958
percussion in diagnosis of pleuropul monary diseases	609
tract, bacteriology of acute infections of	169
disease of, among soldiers in barracks	124
lesions of, caused by inhalation of ir ritating gases	1046
sodium hyposulphite in diseases of	313
Retroperitoneal space, posterior, nervous syndrome of	433
Rheumatic fever, salicylates in	390
pains, sulphur and oil in treatment of	851
Rhinitis, local treatment of	564
Rhiz, cervical neurology of	1048
resection of, for empyema following pneu monic influenza	150
Richter's crushing forceps cautery in treat ment of hemorrhoids	800
Rickets, congenital	930
experimental investigation in	823
Riddell, Honorable William Renwick. An anecdote of Sir Astley Cooper	800
Renewal, cerebral	19
Roberts, H. H. Dogs and cats as a source of epidemic typhus	186
Medical treatment of gastric and du odenal ulcer	555
Roberts, A. Veret A. Personal obser vations of military surgery at the Bel gian front	39
Robinson, Ravelly. National problem of perforated zinc in haler in treatment of respiratory affections	947
Robinson, George H. Rapid method for determining the type of meningococ cus infection	887
Rockefeller Foundation budget of exper imental	474
Rockefeller Foundation budget of exper imental	350

	PAGE.		PAGE.		PAGE.
Rocky Mountain spotted fever, envenomization suggested as etiology of....	465	Serum, autoarsphenamide, in cerebrospinal syphilis.....	430	Soldier, bent back of.....	207
Rodman, Harry. Modified Sluder versus snare operation in tonsillectomy.....	1127	bovine, injections of, for serum sickness.....	58	tuberculous, official provision for.....	444
Rogers, James Frederick. Good posture.....	9	horse, in gonorrheal epiphyseitis.....	208	Soldiers in barracks, respiratory disease among.....	124
Rolls before breakfast.....	323	human, in influenza and bronchopneumonia.....	523	injured, reeducation of.....	393
Roman rural hygiene.....	997	in treatment of influenza bronchopneumonia.....	636	returned, tuberculosis among.....	114
Romberggram metre, craniocerebral.....	977	sickness, prevention of.....	58	wounded, blood volume in.....	427
Rood, Adolphus D. A clinical study of influenza pneumonia.....	493	therapy in erysipelas and typhoid.....	234	Somnolence, epidemic.....	829
Ros, Berger, Randle C. Bacteriology of summer diarrhea of infants.....	1120	in lobar pneumonia.....	209	Soper, George A. Danger of pestilence in Europe and the need of an international health commission.....	888
Experiments conducted to produce human tuberculosis in fish (<i>Carassius auratus</i>).....	886	intensive.....	783	Influenza in horses and in man.....	720
Rosewater, Nathan. Abuse of alcohol for clubs and other bodily uses.....	509	polyvalent, in cerebrospinal meningitis.....	31	Sores, septic.....	34
Prevention and treatment of seasickness and allied conditions.....	727	treatment of bronchopneumonia and pleurisy.....	516	Souchon, Edmond. Eradication of tuberculosis in localities.....	404
Rovary, irresponsible.....	289	of gas gangrene.....	349	Soul, travels of.....	468
Rubella with recurrent fever.....	125	of influenza and pneumonia.....	725	Spasm, tonic, significance of.....	276
Rudis-Jicinsky, J. Physical education and rational health.....	414	Sex, predetermination of.....	250	Sphenoiditis, hypertrophic, diagnosis and prognosis of.....	171
Repair of cardiac valves, symptomatology.....	818	relation of ovary to causation.....	207	Sphincter inhibition cause of constipation.....	1055
Rural hygiene of the Romans.....	997	Sexual development, intermediary stages in.....	787	Spinal cord in poliomyelitis.....	168
S. A. SHIN, Z. I. Circulatory complications in influenza.....	935	Sharlin, Z. Encephalitis in an infant, following influenza.....	576	mass reflex in injuries of.....	342
Saccaromyces, labial.....	91	Sherwin, C. P. What constitutes an intoxicating beverage.....	925	operations for old injuries of.....	921
Saccharuria, detection of, by a mycological method.....	608	Shock, causes of.....	21	surgery of.....	605
Sachs, B. Epidemic central or basilar encephalitis.....	804	interpretation of manifestations of.....	391	treatment of bladder in gunshot injuries of.....	807
Saddle back nose, transplant for.....	826	pleural, in artificial pneumothorax.....	189	trophic and motor disturbances from compression of.....	688
Sager, Louis T. de M. Polyvalent serum therapy in cerebrospinal meningitis.....	31	postoperative hemorrhage from.....	1099	tumor of.....	877
Recent gleanings relative to the prophylaxis and treatment of influenza, 1898, 1904, 1908, 246, 288, 331, 375, 415, 45, 509, 553, 597, 684, 773, 858, 945.....	902	surgical, in face mutilations.....	294	laminectomy for.....	878
Salicylates in rheumatic fever.....	390	nature of.....	381	fluid in acute disease.....	1104
Saline solutions in hemorrhage, comparative effects of.....	385	phenomena of.....	993	injury with retention of urine.....	1115
Salmon, Thomas W. War neuroses and their lesson.....	993	traumatic or wound.....	1041	radiography, lateral.....	918
Salvage, dermatitis from.....	590	Shoulder dislocation, recurring, deformity of head of humerus in.....	828	Spine, dorsal, fracture and dislocation of.....	1028
Substitutes in treatment of filariasis.....	655	Shultz, P. David. Medication by inhalation.....	748	sarcomata of, cured by Coley's fluid.....	787
Sands, Irving J. Pulmonary tuberculosis and insanity.....	103	Signoid and uterine adhesion fused by inflammation, separation of.....	752	state of ureters in gunshot wounds of.....	521
Sanitary aspects of the Newport News, Va., port of embarkation.....	812	intussusception of, with tumor.....	773	Spirochetes, etiological role of, in influenza.....	167
Sanitation, family doctor to give advice on.....	556	Silver, colloidal, in influenza.....	121	in the blood in trench fever.....	741
Sarcoid in an infant.....	583	Sinus, frontal, osteoma of.....	39	Spirochetosis, bronchial.....	433
Sarcoma of prostate.....	527	osteomyelitis of.....	826	pulmonary.....	384
Sarcomata of limbs, chemotherapy in.....	508	Sinuses, nasal accessory, paediatric infection of.....	43	Spleen, thyroid and bone marrow, co-operation between.....	253
of spine cured by Coley's fluid.....	787	Sinusitis, bacillus influenzae in.....	80	war wounds of.....	68
Sautter, C. M. Chronic discharging ear.....	461	frontal, surgical treatment of, without scarring.....	32	Splint, Thomas, modification of, in compound fracture of femur.....	652
Scabies, acute nephritis in.....	38	Skillern, P. G., Jr. A study of chronic appendicitis.....	982	triangle, in fractures of humerus.....	386
Scarlet fever, complicating mastoiditis.....	944	Skin, atrophy of.....	608	Splints for joint wounds.....	568
immunization against.....	728	graft under local anesthesia.....	770	Sporotrichosis, treatment of.....	1084
treatment of.....	503	lesions among troops.....	34	Spotted fever, Rocky Mountain, envenomization suggested as etiology of.....	465
red as a tissue stimulant.....	858	differential diagnosis of.....	550	Sprains, severe, of knee joint.....	961
Sears, facial, ionization in treatment of.....	652	metastases, multiple, from cancer.....	184	Sputum, bacteriological examination of, in influenza.....	273
Schapiro, S. William, and Wittenberg, Joseph. Treatment of acute gonorrheal urethritis at home and in camp.....	1073	picric acid disinfection of.....	838	isolation of Pfeiffer's bacillus from.....	38
Scheppegrell, William. Spring hay fever: its cause, prevention and treatment.....	793	pigmentation of, in picric intoxication.....	399	Staining the diptheria bacillus.....	566
Schwarz, H. Fads and fancies about pulmonary tuberculosis.....	20	susceptibility of, to dichlorethylsulphide (mustard gas).....	828	Stanton, F. M., and Brooks, Clyde. Non-specific hemoprotein antigen for the treatment of arthritis.....	452
Sciatic nerve, retromaleolar sagging in lesions of.....	501	tuberculosis of.....	914	Staphylococcus aureus septicemia.....	476
Sciatic lesions of.....	909	chemotherapy in.....	730	Stenosis, laryngeal, endoscopic treatment of.....	140
Sciatica, physical therapy in.....	1058	Skull, alveolar and myelopathic edema of.....	454	pyloric, atropine treatment of.....	875
Scilla useful as a heart tonic.....	297	x rays of, source of error in.....	386	operation in.....	655
Sclerosis, multiple, with level symptoms.....	480	Sleep, price of.....	379	Sterilization, immediate, and closure of infected wounds.....	1085
Scotoma, central, in neurological cases.....	624	Sleeping sickness not encephalitis lethargica.....	510	prevention of, in operations for tuberculous peritonitis.....	1097
Scurvy, germinated beans in.....	345	Sluder operation, modified, in tonsillectomy.....	127	Sterility in relation to the endocrines.....	309
in childhood.....	54	Smallpox vaccination in tuberculosis.....	566	in women, "higher up" theory of.....	309
infantile.....	1059	virulent Oriental, epidemiology of.....	126	Sterilization of infected wounds, Carrel method of.....	429
juices of root vegetables in.....	212	Smith, Ethan H. The human foot, both normal and pathological.....	225	Stevens, George T. Chronic headaches with painful points.....	355
lemon juice in.....	429	Social disease in the army.....	570	Stewart, Thomas M. Tonsillectomy versus helioelectric methods.....	13
limes and lemons in.....	165	SOCIETIES. PROCEEDINGS OF.....		Stigmata of decline, operations for.....	518
observations on.....	345	American Association for Study and Prevention of Infant Mortality.....	120	Stimulants, influence of, on oxidation.....	346
vegetables in.....	409	American Laryngological Association.....	39, 171	Stivelman, B. The dangers of artificial pneumothorax.....	187
Seasickness, prevention and treatment of	727	American Medical Association.....	138, 142, 143	Stomach, carcinoma of.....	749
Seborrhea, capilliti, treatment of.....	961	College of Physicians of Philadelphia.....	80, 171, 300, 383	contents, fractional analysis of.....	157, 166
Secretions, internal, in relation to gastrointestinal diseases.....	774	International Conference on Rehabilitation of the Disabled.....	10, 130	dilatation of.....	914
Segments, autonomic, tonus of, in abnormal behavior.....	993	Medical Association of the Greater City of New York.....	742, 745, 789	resection of.....	680
Sepsis, oral and cardiovascular system.....	38	Medical Society of the State of New York.....	874, 1060	syphilis of.....	807
Sepsistrium, the buried.....	612	Medical Society of the State of Pennsylvania.....	399, 434, 597	Stomatitis, lemon juice in treatment of.....	961
Septicemia and phlebitis.....	560	New York Academy of Medicine.....	214, 259, 522, 786, 962, 1007	Stone in the kidney, treatment of.....	1044
anthrax, from shaving wound.....	517	New York Neurological Society.....	82, 479	Stools, human, detection of ova in.....	37
arsphenamine in treatment of.....	435	Philadelphia County Medical Society.....	526, 699, 877, 920, 963	Strachstein, A. Acute posterior urethritis.....	463
experimental studies on significance of	431	Southern Surgical Association.....	570, 614, 833	Strauss, Israel, Hirschfeld, Samuel, and Loewe, Leo. Studies in epidemic encephalitis (encephalitis lethargica).....	772
influenzopneumococcal and influenzostreptococcal.....	357	Socket, orbital, restoration of.....	1141	Streptococcus hemolyticus carriers, tonsils in.....	432
staphylococcus.....	476	Sodium bicarbonate, producing tetany.....	828	infection, hemolytic.....	872
streptococcus.....	1093	hyposulphite in respiratory diseases.....	313	oral sepsis.....	1119
Serology of the blood.....	1099	Ureids system of physical education.....	411	viridans infection, clinical picture of.....	938
Serum, antimeningococci, standardization of.....	433			Stricture of rectum.....	1055

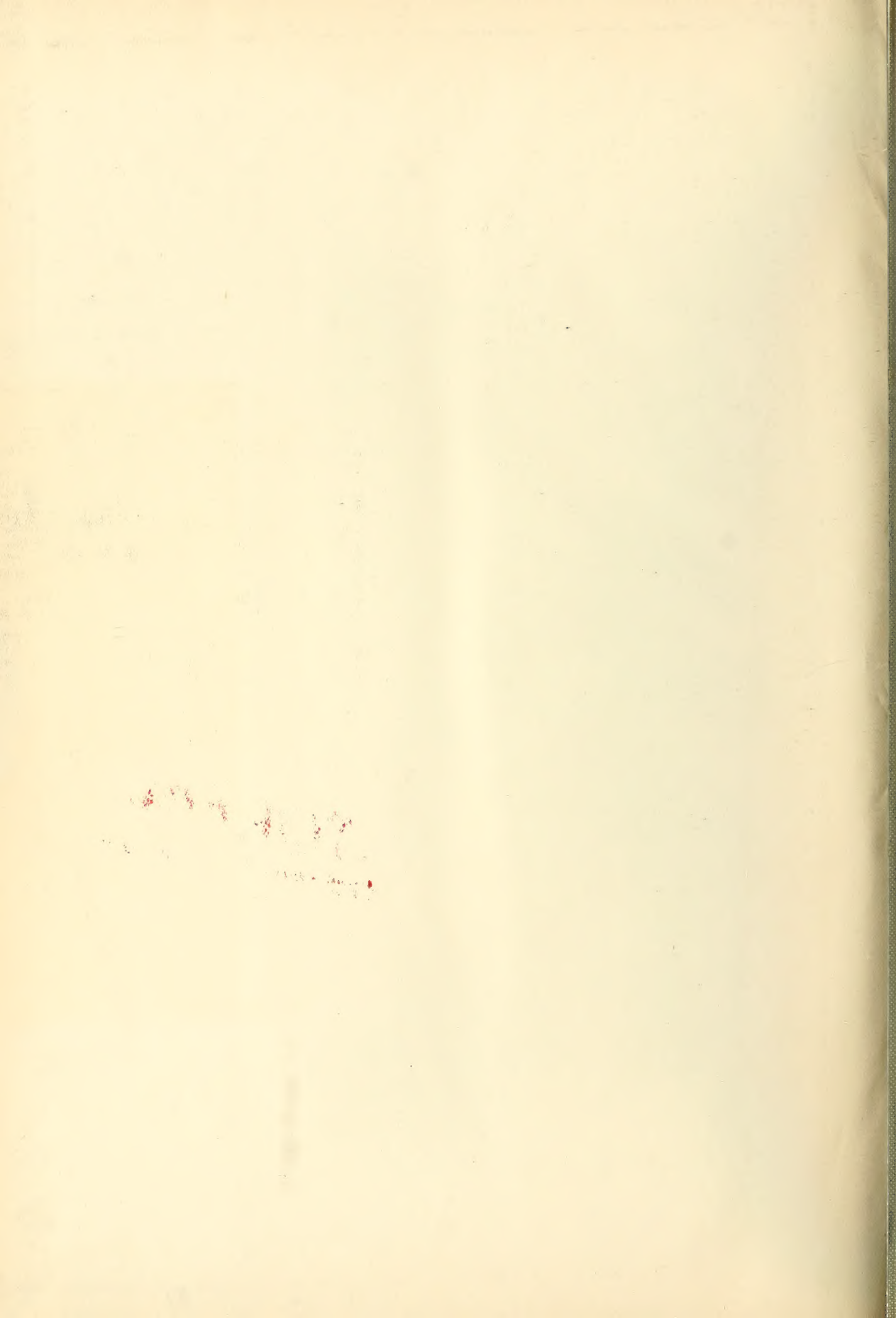
	PAGE.		PAGE.		PAGE.
Sugar, blood rather than renal tests for	1087	Tetanus, in the army	749	Tuberculosis, chest therapy in	912, 958
injections in tuberculosis	488	localization	417	chronic, ductless glands in	917
Sulphur and oil in rheumatic pains	881	of extremities	369	complement fixation test in	299
Sunlight treatment in laryngeal tuberculosis	149	toxin, root of absorption of	655	cutaneous	74
Surgeon, dental, experiences of, at base hospital	1144	Tetany, calcium content of blood in	32	chemotherapy in	749
during Revolutionary War	469	production of, by sodium bicarbonate	828	effect of heat on resistance to	240
experiences of, in war zone	259	Tetanic syndrome	479	eradication of, in localities	404
fleet, duties and responsibilities of	729	Therapeutic immunization, new prospects in the field of	867	generalized, in nurslings	299
flight	244	Therapeutics, advances in history	141	genital, in the male	41
in the air	819	neurological, advancement in	920	lulus, in adult	4
Surgery, abdominal, recent progress in	1092	Thermometers, clinical, misleading certificates for	864	human, in fish	886
under local anesthesia	1138	common	145	in children	187
blood transfusion in	209	Thirst, postoperative, prevention of	508	in demented patients	414
bone, operative	852	Thomas, Bart. B. Modified homocement fixation test for syphilis	1069	in discharged soldiers and sailors	118
experimental, of large arteries	399	Thoracic cavity, extraction of missiles from	129	in Italy	181
lessons in, from the war	919	empyema, drainage in	849	in U. S. army	181
military, at Belgian front	639	Thorax, surgery of	438	incipient, paroxysmal dyspnea in	301
moving picture in the teaching of	229	Throat, diseases of, complicating influenza	615	laryngeal, sunlight treatment in	149
of bones, improved equipment for	359	Thro, William C. Etiology and treatment of bronchial asthma	509	mortality, influence of health activities on	1109
of groin, anatomical incision for	438	Thyroid gland, internal secretion of, in the blood	384	of cervix uteri	377
orthopedic, and the war	1191	nitrogen metabolism in administration of operations, preliminary	825	of hip joint	244
pelvic, ether anesthesia in	1139	preparation of a soluble product of, of region, hyperesthesia of, a sign of Graves' disease	432	of vulva, histology of	293
plastic, of eyelids	692	spleen and bone marrow, cooperation between	253	patients, follow-up system for	293
progress of, in the war	647	Thyroiditis, acute	876	pulmonary, and insanity	7
rubber gloves in	386	Tibialgia in periodic fever	478	artificial pneumothorax in	7
thoracic	438	Tin in staphylococcal infections	500	fads and fancies about	20
war, influence of, on surgery of civil life	1041	oxide injections of, in influenza	413	injections of cherry-laurel water in	74
Surgical affections in early life	736	Tissue stimulant, scarlet red as	858	treatment of	74
aspects of the Newport News, Va., port of embarkation	842	transplantation and immunity	123	physical examination in diagnosis of	435
Susceptibility to quinine	824	Tissues, grafting of, in the rat	165	pneumothorax treatment of	1093
Suspension of kidney, new technique for	693	living, electrical conductivity of	187	tuberculin treatment of	745
Suture, secondary, under local anesthesia	770	Tolosa, pathological, original test for	1070	relation of, to demented patients	299
Sutures, secondary, in wounds	142	Tolst's disease (Koch's)	92	sodium morrhuate in	563
Swarts, Joseph Louis. Report of influenza epidemic at Camp Greenleaf	546	Tongue, cancer of	738	sugar injections in	488
Symblepharon, treatment of	1142	Tonic, heart, scilla useful as	297	vaccination in	566
Symptom complex complicating mastoiditis	944	Tonsil, lymphadenoma of	421	vocational work in	7
Symptoms, subjective, and diet	1065	Tonsillectomy, postoperative complications of	826	Tuberculous lesions of the adrenal glands	869
Syndactylism, perodactylism, and cleft extremities in a child	153	Shuler versus snare operation in	1127	soldiers, rehabilitation of	6
Syndrome, effort	169, 503, 1111	versus helioelectric methods	13	Tumor, brain, removal of	100
nervous, of posterior retroperitoneal space	433	Tonsillitis, follicular, treatment of	564	intramedullary, of spinal cord, two-stage laminectomy for	808
thalamic	479	Tonsils, diseased, in relation to appendix	951	intussusception of sigmoid with mediastinal, with serofibrinous pericarditis	572
Syphilis among American soldiers	1032	enlarged, retention of	13	of infundibular region, trephining in	78
antenatal and postnatal	33	in streptococcus hemolyticus carriers	432	of spinal cord	877
antibodies of	297	infected, a factor in recurrent vomiting	564	Tumors in mice, investigations of the origin of	820
arsenic in	869	injections of	105	malignant, experimental carcinomata in relation to	8
bacteriological diagnosis of	457	source of systemic disease	297	melanic, of conjunctiva	292
cerebrospinal, autoarsphenamized serum treatment of	439	relation of, to diseases of eye	1141	multiple primary malignant	37
complement fixation test for	1069	Tonus of autonomic segments in abnormal behavior	993	of jaw, cautery in treatment of	306
congenital pulmonary	738	Torsion of appendix	427	spontaneous, in mice	346
treatment of	785	Toxemia of pregnancy	35	transplantable, immunization of mice against	369
control of	984	Traumatic infection in relation to	1025	Twilight sleep in exophthalmic goitre	213
deformities of nose resulting from	739	traumatic microbe infection in	1006	Typhoid carrier for thirty-seven years	825
diagnostic studies in	158	Toxemia, intestinal, in relation to diseases of eye	1142	carriers in an insane asylum	299
hereditary, new sign of	727	Toxin of tetanus, root of absorption of	655	fever, autoculture in	519
in hepatic cirrhosis with ascites	828	Trachea, foreign bodies removed from	60	in vaccinated subjects	519
in relation to abortion	213	Tracheotomy without loss of blood	559	intestinal perforation in	187
to central nervous system	124	Trachoma in British and American Expeditionary Forces	1137	serum therapy in	241
to infant mortality	127	Training, military, a factor in public health	60	vaccination as substitute for sanitary precautions in	687
intraspinal therapy in	571	Transplant for saddle back nose	826	lipovaccine, effect of, on susceptibility to disease	731
necessity of early treatment of	246	Transplantation, bone, principles of	211	vaccines a factor in appendicitis	731
Syphilis, occurrence of, evidenced by admissions to hospital	1123	Transplantation, bone, principles of	211	ULCER, duodenal, bleeding type of	100
of bones and joints, classification of	905	intracranial cartilage	960	new operation for	100
of central nervous system, treatment of	436	of bone	960	gastric, bleeding type of	109
of stomach	807	of tissue	143	new operation for	100
treatment of	509, 171	tendon, of foot	104	treatment of	100
x ray diagnosis of	206	ureteral, in inoperable conditions of the bladder	1141	gastroduodenal, diagnosis of	731
Syphilitic epithidymitis	144	Transplants, dead, tendon grafting with	211	of stomach, dietetic treatment of	385
Syphilites, anisocoria due to pleuritis in	1005	Trap, illuminated, for night flying insects	590	peptic, treated by gastroenterostomy	298
Syringe, new hypodermic	990	Traumatism, toxic effects of	258	rodent treatment of	76
TACHYCARDIA, antimony tartrate in	104	Treatment of the two commonest surgical diseases of labor and the two most frequent diseases of women	705	Ulceration, a type of Vincent's	30
Taylor, J. Madison. Tonic spasm	27	Tremor, uncommon cases of	12	Ulcers, acute, experimental production of	39
Taylor, R. Tunstall. Methods of teaching medicine and surgery by the cinematograph	232	French fever, etiology and mode of transmission of	28	duodenal, without clinical symptoms	439
Teeth, dislocation of	828	resemblance of, to cholera	741	perforated	78
formation, influence of diet on	258	spirochetes in blood in	741	gastric, perforated	780
relation of, to diseases of eye	1142	treatment of	741	Ulcus ventriculi, treatment of	385
upper incisor, peculiar affection of	827	Trichomycosis of the beard, treatment of	288	Ultraviolet light, quartz, in constructive tissue chemistry	104
Telangiectasis	1080	Trichomycosis of the beard, treatment of	288	Unity, psychological and physiological	600
Temperature disturbance, psychic factor in	1052	Trichomycosis of the beard, treatment of	288	Urea, technique of quantitative estimation of, in the urine	827
influence of, in phagocytosis	1110	Trichomycosis of the beard, treatment of	288	Ureter, dilatation of	1044
surface, in abdominal conditions	1177	Trichomycosis of the beard, treatment of	288	stone in, treatment of	1044
Tenderness, left scapular, in heart disease	890	Trichomycosis of the beard, treatment of	288	Ureters, anomaly of, with solitary kidney	544
Tendon fixation in musculospiral paralysis	562	Trichomycosis of the beard, treatment of	288	transplantation of	544
grafting with dead transplants	212	Trichomycosis of the beard, treatment of	288	transplantation of	544
transplantation of the foot	694	Trichomycosis of the beard, treatment of	288	transplantation of	544
Tension, normal arterial	824	Trichomycosis of the beard, treatment of	288	transplantation of	544
Test, complement deviation, for malaria	211	Trichomycosis of the beard, treatment of	288	transplantation of	544
complement fixation, for syphilis	1069	Trichomycosis of the beard, treatment of	288	transplantation of	544
in tuberculosis	299	Trichomycosis of the beard, treatment of	288	transplantation of	544
Testes, conservation in the management of trauma and diseases of	800	Trichomycosis of the beard, treatment of	288	transplantation of	544
Testis, undescended, treatment of	263	Trichomycosis of the beard, treatment of	288	transplantation of	544
Tests, Barany, essentials of	324	Trichomycosis of the beard, treatment of	288	transplantation of	544
Moro's and von Pirquet's	428	Trichomycosis of the beard, treatment of	288	transplantation of	544
of physical efficiency	12	Trichomycosis of the beard, treatment of	288	transplantation of	544

	PAGE.		PAGE.		PAGE.
Urine, acidity of, in relation to specific gravity.....	902	Vision, memory as an aid to.....	890	Wounds, excision of, without antiseptis..	698
Bacteriological investigation of, in influenza.....	38	Visual field helicoidal convergent, clinical significance of.....	432	of abdomen.....	1141
casts in, in soldiers in training.....	477	Vitamine studies.....	196	of bladder.....	109
detection of blood in.....	1083	practical importance of.....	1001	of chest.....	1086
quantitative estimation of albumin in.....	81	Vitreous, cysticococcus of.....	1142	of knee joint, pathogenesis and treatment of.....	64
retention in spinal injury.....	1115	Vocational reeducation in Canada.....	658	of lungs, later stages of.....	87
pre-static.....	257	work.....	612, 657	of spine, state of ureters in.....	521
technic of quantitative estimation of urea, ammonia, and total nitrogen in.....	827	Vomiting of pregnancy controlled by corpus luteum.....	608	restoration of bone in.....	875
tests for sugar in.....	1087	high carbohydrate feeding in.....	255	treatment of.....	607
Urotrypsin in infections.....	953	pernicious.....	1137	hot air and oxygen in treatment of.....	1062
Uteromotor medication, dynamic examination of.....	783	recurrent, tonsillar infection in relation to.....	564	infected, Babcock method for sterilization and closure of.....	1099
Uterus, bleeding from, treated by radium.....	1093	von Pirquet's cutereaction test, diagnostic value of.....	428	immediate sterilization and closure of.....	1085
curettage of.....	1060	Vulva, tuberculosis of.....	113	opsonic studies in.....	167
isolated, action of anthracene cathartics.....	1046	WALSH, JAMES J. Influenza therapeutics in history.....	441	sterilization of, by Carrel method.....	426
myomata of.....	782	Walsh, Joseph, and Loomis, Philip A. Influenza epidemic at U. S. Army General Hospital No. 17, Markleton, Pa.....	135	ultraviolet rays in.....	739
complicated by pregnancy.....	383	War and the human race.....	26	lung, treatment of.....	286
end result in operative treatment of.....	1094	child in relation to.....	393	of chest, treatment of.....	902
treated by radium.....	1093	diseases, etiology of.....	54	of joints, splintage of.....	508
periperal inversion of.....	700	emergencies, medical developments due to.....	394	of rectum, treatment of.....	417
reconstruction of.....	307	medical history of.....	268	open, proflavine oleate in treatment of.....	564
retrodisplacement of, cause of reflex neuroses.....	1096	medical impressions of.....	830	penetrating, of abdomen.....	206
rupture of.....	431	nephritis.....	79	of chest, closed system of drainage for.....	165
Urogenital infections, treatment of.....	285	clinical study of.....	825	secondary sutures in.....	142
Urological department, A. E. F., administration of.....	904	neuroses and their lesson.....	993	septic, treatment of.....	208
Urologist in France.....	903	otolaryngology in.....	832	sluggish, scollated.....	919
Uteritis, chronic and malignant types of.....	1108	wounds and infections, advancement in treatment of.....	830	surgical closure of.....	120
VACCINATION, eruptions following.....	254	Ward, William G. Allen method of treatment of diabetes.....	936	treatment of, in hospitals of A. E. F.....	349
in typhoid not a substitute for sanitary precautions.....	687	Wassermann reaction in malaria.....	1006	vaccine treatment of.....	829
in tuberculosis.....	566	negative.....	561	war, advancement in treatment of.....	830
Vaccine, influenza.....	299	test in pregnancy.....	474	of spleen.....	68
Leary's, prophylactic value of.....	828	Watkins interposition operation, technic of.....	567	proteus infections in.....	299
prophylactic value of, in influenza.....	340	Wechsler, I. S. Homonymous hemianopsia and central scotoma in neurological cases, with question of localization.....	624	Wovshin, William A. Hookworm.....	988
stock, in pneumonia.....	1064	Whooping cough, pertussis vaccine in.....	322	Wright, Adam H. Influenza.....	91
Vaccines autogenous, in treatment of wounds.....	435, 829	treatment of.....	78	Wright, Jonathan. Modern commentaries on Hippocrates.....	221, 661, 1065
deticated.....	741	Wile, Ira S. After the war problems of medicine.....	182	X RAY diagnosis of cholecystitis and adhesions.....	241
in acute influenza.....	339	Williams, Herbert U. Bacteriological examination of sputum in influenza.....	273	diagnosis of syphilis.....	296
pus, in treatment of gonorrhea.....	914	Willems treatment of joint injuries.....	1024	examination of appendix.....	428
typhoid, a factor in appendicitis.....	731	Wilson's disease.....	482	of heart and vessels.....	434
Vaghetti's operation.....	212	Winckel's disease, etiology and clinical aspects of.....	654	of lungs, limitations of.....	211
Van Hoosen, Bertha. Prevention of post-operative thirst.....	508	Winslow, Paul V. Functional aphonia.....	1129	in study of congenital heart lesions.....	202
Varicella with herpes zoster.....	519	Wise, Fred. The linear dermatoses.....	367	intoxication.....	1000
Vasoconstriction spots, significance of.....	258	Wittenberg, Joseph, and Schapira, S. William. Treatment of acute gonorrheal urethritis at home and in camp.....	1073	service in the U. S. Army.....	72
Vater's ampulla, neoplasms of.....	335	Wolbarst, Abr. L. National prohibition.....	949	study of gastrointestinal tract.....	169
Vegetables, antiscorbutic properties of.....	429	What the general practitioner should know about chronic gonorrhea.....	617	treatment of uterine myoma.....	1094
raw juices of, antiscorbutic value of.....	212	Wolf, Charles. Problem of syphilis as affecting our soldiers.....	1032	X rays, deeply penetrating, in medical cases.....	827
Veneral diseases in Canadian forces.....	395	Wolf, Heinrich F. Clinical picture of streptococcus viridans infection.....	938	experimental studies with small doses of.....	1115
in U. S. army.....	273, 404, 570, 1032	Work, hard, and human nature.....	420	of.....	1115
influx of, through merchant marine.....	185	Wound, primary closure of, union of compound fractures after.....	893	in diagnosis of mouth disease.....	196
preventive treatment of.....	739	shaving, anthrax septicemia from.....	517	in study of influenza pneumonia.....	581
problems of, from public health standpoint.....	531	Wounds, better methods of treating.....	1141	of the skull, sources of error in.....	386
progress of control of.....	1110	chest, artificial pneumothorax in.....	86	Xylol as a therapeutic agent.....	859
Public Health Service program for control of.....	126	cranial, of warfare, pathological studies of.....	693	YELLOW fever, evenomization suggested as etiology of.....	465
prophylaxis after the war.....	599	disinfection of, by antiseptic gas currents.....	478	recent studies in.....	1035
Vertigo of menopause.....	595	ZONA, symptomatic nature of.....	820	Young, Anne. Clinical similarity between the influenza epidemic and plague.....	856
which restores hearing.....	565			Envenomization suggested as etiology of hydrophobia, yellow fever, Rocky Mountain spotted fever, and cowpox.....	465
Vesicovaginal fistula, radical cure of, by the peritoneal route.....	838			Envenomization suggested as etiology of obscure war diseases.....	54
Vessels, great, x ray examination of.....	434				
Vincent's angina, treatment of.....	33, 876				
ulcerations of type of.....	477				
Virus, filterable, cause of influenza.....	297				
in disease.....	516				
Visceroptosis.....	349				
rational surgery of.....	1099				

INDEX TO PAGES

January 4th.....	1-44	April 5th.....	573-616
January 11th.....	45-88	April 12th.....	617-660
January 18th.....	89-132	April 19th.....	661-704
January 25th.....	133-176	April 26th.....	705-748
February 1st.....	177-220	May 3d.....	749-792
February 8th.....	221-264	May 10th.....	793-836
February 15th.....	265-308	May 17th.....	837-880
February 22d.....	309-352	May 24th.....	881-924
March 1st.....	353-396	May 31st.....	925-968
March 8th.....	397-440	June 7th.....	969-1012
March 15th.....	441-484	June 14th.....	1013-1064
March 22d.....	485-523	June 21st.....	1065-1116
March 29th.....	529-572	June 28th.....	1117-1156





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